

### **FILE COPY**

# CERTIFICATE OF INCORPORATION ON CHANGE OF NAME

Company No. 559784

The Registrar of Companies for England and Wales hereby certifies that under the Companies Act 2006:

### THE INSTITUTE FOR ANIMAL HEALTH

a company incorporated as private limited by guarantee; having its registered office situated in England/Wales; has changed its name to:

### THE PIRBRIGHT INSTITUTE

Given at Companies House on 18th October 2012





Company number 559784

The Companies Act 2006

Company limited by guarantee

#### THE INSTITUTE FOR ANIMAL HEALTH

Resolution in writing of the eligible members of the company passed in accordance with section 288 of the Companies Act 2006

We, the undersigned, being the required majority of eligible members of the company resolve as follows

#### Special resolution

That, effective 4th October 2012, the name of the company be and is changed to

THE PIRBRIGHT INSTITUTE

Dated 1<sup>st</sup> September 2012

Name Professor Keith Gull



RC2 27/09/2012 **COMPANIES HOUSE** 

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#### THE PIRBRIGHT INSTITUTE

Company number 00559784

Registered office address

Pirbright Laboratory Ash Road, Pirbright, Woking, Surrey, GU24 0NF

Company status
Active

Company type

Private company limited by guarantee without share capital

Incorporated on

7 January 1956

#### **Accounts**

Next accounts made up to 31 March 2020 due by 31 December 2020

Last accounts made up to 31 March 2019

#### **Confirmation statement**

Next statement date 28 October 2020 due by 11 November 2020

Last statement dated 28 October 2019

### Nature of business (SIC)

• 72190 - Other research and experimental development on natural sciences and engineering

### Previous company names

Name	Period
THE INSTITUTE FOR ANIMAL HEALTH	01 Jan 1988 - 18 Oct 2012
HOUGHTON POULTRY RESEARCH STATION(THE)	07 Jan 1956 - 01 Jan 1988

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#### THE PIRBRIGHT INSTITUTE

Date	Туре	Description	View / Download
29 Jan 2020	CH01	<b>Director's details changed</b> for Professor John Robert Stephenson on 29 January 2020	(2 pages)
29 Jan 2020	CH01	Director's details changed for Professor David John Rowlands on 29 January 2020	(2 pages)
08 Jan 2020	CH01	Director's details changed for Mr Roger Louth on 8 January 2020	(2 pages)
17 Dec 2019	MR04	Satisfaction of charge 2 in full	(1 page)
17 Dec 2019	MR04	Satisfaction of charge 1 in full	(1 page)
13 Dec 2019	AA	Full accounts made up to 31 March 2019	(58 pages)
09 Dec 2019	CH01	Director's details changed for Sir Bertie Ross on 9 December 2019	(2 pages)
09 Dec 2019	CH01	Director's details changed for Mr Roger Louth on 9 December 2019	(2 pages)
09 Dec 2019	CH01	Director's details changed for Dr Vanessa Linda Mayatt on 9 December 2019	(2 pages)
25 Nov 2019	TM02	<b>Termination of appointment</b> of Keith Simpson as a secretary on 25 November 2019	(1 page)
25 Nov 2019	AP03	Appointment of Mrs Helen Kay Watts as a secretary on 25 November 2019	(2 pages)
08 Nov 2019	CS01	Confirmation statement made on 28 October 2019 with no updates	(3 pages)
01 Nov	RESOLUTIONS	Resolutions	(1 page)
2019		RES01 - Resolution of alteration of Articles of Association	
02 Oct 2019	MA	Memorandum and Articles of Association	(20 pages)
03 Jul 2019	AP01	Appointment of Mr Ian Bateman as a director on 1 January 2019	(2 pages)
02 Jul 2019	AP01	Appointment of Mrs Jane Helen Mary Tirard as a director on 1 January 2019	(2 pages)
07 Jan 2019	AP01	Appointment of Mr Jon Coles as a director on 1 January 2019	(2 pages)
07 Jan 2019	AP01	Appointment of Mr Ian Black as a director on 1 January 2019	(2 pages)

1/30/2020		THE PIRBRIGHT INSTITUTE - Filing history (free information from Companies House)	
07 Jan 2019	AP01	Appointment of Professor Vince Emery as a director on 1 January 2019	(2 pages)
07 Jan 2019	AP01	Appointment of Dr Sandy Blackadder Primrose as a director on 1 January 2019	(2 pages)
03 Jan 2019	TM01	Termination of appointment of Mike Samuel as a director on 31 December 2018	(1 page)
03 Jan 2019	TM01	<b>Termination of appointment</b> of Quintin Archibald Mckellar as a director on 31 December 2018	(1 page)
03 Jan 2019	TM01	<b>Termination of appointment</b> of Theofanis Kanellos as a director on 31 December 2018	(1 page)
09 Nov 2018	CS01	Confirmation statement made on 28 October 2018 with no updates	(3 pages)
07 Nov 2018	AA	Full accounts made up to 31 March 2018	(58 pages)

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Date	Туре	Description	View / Download
10 Jan 2018	AA	Full accounts made up to 31 March 2017	(50 pages)
01 Nov 2017	CS01	Confirmation statement made on 28 October 2017 with no updates	(3 pages)
14 Dec 2016	AA	Full accounts made up to 31 March 2016	(33 pages)
11 Nov 2016	CS01	Confirmation statement made on 28 October 2016 with updates	(4 pages)
13 Jul 2016	TM01	Termination of appointment of Alison Craig as a director on 28 June 2016	(1 page)
09 Feb 2016	AP03	Appointment of Mr Keith Simpson as a secretary on 8 February 2016	(2 pages)
08 Feb 2016	TM02	<b>Termination of appointment</b> of Richard Stirling Shaw as a secretary on 8 February 2016	(1 page)
02 Jan 2016	AA	Full accounts made up to 31 March 2015	(33 pages)
11 Nov 2015	AR01	Annual return made up to 28 October 2015 no member list	(10 pages)
28 Apr 2015	TM01	Termination of appointment of Richard Charles Butler as a director on 25 March 2015	(1 page)
12 Jan	RESOLUTIONS	Resolutions	(21 pages)
2015		RES01 - Resolution of adoption of Articles of Association	
09 Dec 2014	AA	Full accounts made up to 31 March 2014	(32 pages)
21 Nov 2014	TM01	<b>Termination of appointment</b> of Timothy Maurice Thomas Key as a director on 21 November 2014	(1 page)
13 Nov 2014	AR01	Annual return made up to 28 October 2014 no member list	(11 pages)
21 Jan 2014	AP01	Appointment of Mr Richard Charles Butler as a director	(2 pages)
15 Jan 2014	AP01	Appointment of Sir Bertie Ross as a director	(2 pages)
12 Dec 2013	AP01	Appointment of Professor John Robert Stephenson as a director	(2 pages)
12 Dec 2013	AP01	Appointment of Mr Roger Louth as a director	(2 pages)

1/30/2020		THE PIRBRIGHT INSTITUTE - Filing history (free information from Companies House)	
12 Dec 2013	AP01	Appointment of Professor David John Rowlands as a director	(2 pages)
12 Dec 2013	AP01	Appointment of Dr Vanessa Linda Mayatt as a director	(2 pages)
10 Dec 2013	AA	Full accounts made up to 31 March 2013	(31 pages)
27 Nov 2013	RESOLUTIONS	Resolutions	(21 pages)
2010		RES01 - Resolution of Memorandum and/or Articles of Association	
26 Nov 2013	AP01	Appointment of Dr Alison Craig as a director	(2 pages)
25 Nov 2013	TM01	<b>Termination of appointment</b> of The Biotechnology and Biological Sciences Research Council as a director	(1 page)
25 Nov 2013	AP01	Appointment of Dr Theo Kanellos as a director	(2 pages)

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Date	Туре	Description	View / Download
25 Nov 2013	AP01	Appointment of Mr Mike Samuel as a director	(2 pages)
25 Nov 2013	AP01	Appointment of Professor Quintin Archibald Mckellar as a director	(2 pages)
05 Nov 2013	AR01	Annual return made up to 28 October 2013 no member list	(3 pages)
11 Apr 2013	RESOLUTIONS	Resolutions  • RES01 - Resolution of Memorandum and/or Articles of Association	(17 pages)
11 Apr 2013	CC04	Statement of company's objects	(2 pages)
03 Jan 2013	AA	Full accounts made up to 31 March 2012	(31 pages)
06 Nov 2012	AR01	Annual return made up to 28 October 2012 no member list	(3 pages)
22 Oct 2012	AD01	Registered office address changed from Compton Near Newbury Berkshire RG20 7NN on 22 October 2012	(1 page)
18 Oct	CERTNM	Company name changed the institute for animal health\certificate issued on 18/10/12	(2 pages)
2012		RES15 - Change company name resolution on 2012-09-01	
18 Oct 2012	MISC	NE01	(2 pages)
02 Oct	RESOLUTIONS	Resolutions	(1 page)
2012		RES15 - Change company name resolution on 2012-09-01	
02 Oct 2012	CONNOT	Change of name notice	(2 pages)
29 Dec 2011	AA	Full accounts made up to 31 March 2011	(31 pages)
01 Nov 2011	AR01	Annual return made up to 28 October 2011 no member list	(3 pages)
30 Dec 2010	AA	Full accounts made up to 31 March 2010	(31 pages)
22 Nov 2010	AR01	Annual return made up to 28 October 2010 no member list	(3 pages)
09 Jan 2010	AA	Full accounts made up to 31 March 2009	(34 pages)

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17 Nov 2009	AR01	Annual return made up to 28 October 2009 no member list	(3 pages)
12 Nov 2009	CH02	<b>Director's details changed</b> for The Biotechnology and Biological Sciences Research Council on 12 November 2009	(2 pages)
12 Nov 2009	CH03	Secretary's details changed for Richard Stirling Shaw on 12 November 2009	(1 page)
12 Nov 2009	CH01	Director's details changed for Timothy Maurice Thomas Key on 12 November 2009	(2 pages)
16 Sep 2009	RESOLUTIONS	Resolutions  • RES01 - Resolution of Memorandum and/or Articles of Association	(15 pages)
10 Aug 2009	RESOLUTIONS	Resolutions  RES01 - Resolution of adoption of Memorandum of Association RES13 - Appt member of governing body 27/03/2009	(42 pages)
06 May 2009	288a	Director appointed the biotechnology and biological sciences research council	(1 page)
06 May 2009	288b	Appointment terminated director michael samuel	(1 page)

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Company number 00559784

Date	Туре	Description	View / Download
06 May 2009	288b	Appointment terminated director paul gemmill	(1 page)
06 May 2009	288b	Appointment terminated director robert freedman	(1 page)
01 May 2009	288b	Appointment terminated director keith gull	(1 page)
01 May 2009	288b	Appointment terminated director john skehel	(1 page)
01 May 2009	288b	Appointment terminated director william madders	(1 page)
01 May 2009	288b	Appointment terminated director susan iversen	(1 page)
01 May 2009	288b	Appointment terminated director hugh miller	(1 page)
01 May 2009	288b	Appointment terminated director quintin mckellar	(1 page)
01 May 2009	288b	Appointment terminated director david molyneux	(1 page)
18 Feb 2009	288a	Director appointed professor robert ben freedman	(1 page)
18 Feb 2009	288a	Director appointed mr paul conquest gemmill	(1 page)
18 Feb 2009	288a	Director appointed mr michael john samuel	(1 page)
18 Dec 2008	AA	Group of companies' accounts made up to 31 March 2008	(37 pages)
05 Dec 2008	363a	Annual return made up to 28/10/08	(4 pages)
25 Sep 2008	288b	Appointment terminated director deborah reynolds	(1 page)
25 Sep 2008	288b	Appointment terminated director alan barber	(1 page)
31 Jan 2008	AA	Group of companies' accounts made up to 31 March 2007	(35 pages)
12 Nov 2007	363s	Annual return made up to 28/10/07	(7 pages)
05 Nov 2007	288a	New director appointed	(2 pages)
28 Aug 2007	288b	Director resigned	(1 page)
19 Mar 2007	288b	Director resigned	(1 page)
05 Feb 2007	AA	Group of companies' accounts made up to 31 March 2006	(35 pages)
09 Dec 2006	363s	Annual return made up to 28/10/06	(8 pages)
29 Sep 2006	288c	Director's particulars changed	(1 page)
02 Feb 2006	AA	<b>Group of companies' accounts</b> made up to 31 March 2005	(32 pages)

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Company number 00559784

Date	Туре	Description	View / Download
23 Nov 2005	363s	Annual return made up to 28/10/05	(8 pages)
11 Aug 2005	288b	Secretary resigned	(1 page)
11 Aug 2005	288a	New secretary appointed	(2 pages)
17 May 2005	288a	New director appointed	(2 pages)
31 Mar 2005	288c	Director's particulars changed	(1 page)
03 Feb 2005	AA	Group of companies' accounts made up to 31 March 2004	(24 pages)
10 Jan 2005	288a	New secretary appointed	(2 pages)
10 Jan 2005	288b	Secretary resigned	(1 page)
07 Dec 2004	288a	New director appointed	(2 pages)
30 Nov 2004	288b	Director resigned	(1 page)
30 Nov 2004	288b	Director resigned	(1 page)
30 Nov 2004	288a	New director appointed	(2 pages)
30 Nov 2004	363s	Annual return made up to 28/10/04	(8 pages)
		• 363(288) - Director's particulars changed;director resigned	
17 Jun 2004	288b	Director resigned	(1 page)
17 Jun 2004	288b	Director resigned	(1 page)
17 Jun 2004	288b	Director resigned	(1 page)
18 May 2004	288a	New director appointed	(2 pages)
19 Dec 2003	AA	Group of companies' accounts made up to 31 March 2003	(22 pages)
25 Nov 2003	363s	Annual return made up to 28/10/03	(9 pages)
21 Nov 2003	288b	Director resigned	(1 page)
21 Nov 2003	288b	Director resigned	(1 page)
21 Nov 2003	288b	Director resigned	(1 page)
21 Nov 2003	288a	New director appointed	(2 pages)
21 Nov 2003	288a	New director appointed	(2 pages)
26 Jun 2003	288a	New director appointed	(2 pages)

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Date	Туре	Description	View / Download
26 Jun 2003	288b	Director resigned	(1 page)
26 Jun 2003	288b	Director resigned	(1 page)
25 Mar 2003	288c	Director's particulars changed	(1 page)
04 Feb 2003	AA	Group of companies' accounts made up to 31 March 2002	(21 pages)
11 Dec 2002	288b	Director resigned	(1 page)
06 Dec 2002	363s	Annual return made up to 28/10/02	(10 pages)
		• 363(288) - Secretary's particulars changed	
16 Sep 2002	288a	New director appointed	(2 pages)
03 Aug 2002	288a	New director appointed	(2 pages)
14 Jan 2002	288b	Director resigned	(1 page)
08 Jan 2002	288b	Director resigned	(1 page)
14 Dec 2001	AA	Full accounts made up to 31 March 2001	(20 pages)
07 Dec 2001	288b	Director resigned	(1 page)
06 Dec 2001	288a	New director appointed	(2 pages)
28 Nov 2001	363s	Annual return made up to 28/10/01	(7 pages)
		• 363(288) - Director resigned	
28 Nov 2001	288a	New director appointed	(2 pages)
22 Jun 2001	288b	Director resigned	(1 page)
06 Jun 2001	288a	New director appointed	(2 pages)
16 Nov 2000	AA	Full accounts made up to 31 March 2000	(20 pages)
16 Nov 2000	363s	Annual return made up to 28/10/00	(7 pages)
		363(288) - Director's particulars changed	
09 Dec 1999	288a	New secretary appointed	(2 pages)
09 Dec 1999	288b	Secretary resigned	(1 page)
15 Nov 1999	AA	Full accounts made up to 31 March 1999	(20 pages)
15 Nov 1999	363s	Annual return made up to 28/10/99	(7 pages)
28 Sep 1999	288b	Secretary resigned	(1 page)
28 Sep 1999	288a	New secretary appointed	(2 pages)

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Date	Туре	Description	View / Download
20 Jan 1999	288c	Director's particulars changed	(1 page)
04 Nov 1998	AA	Full accounts made up to 31 March 1998	(21 pages)
04 Nov 1998	363s	Annual return made up to 28/10/98	(8 pages)
23 Jun 1998	288a	New director appointed	(2 pages)
23 Jun 1998	288b	Director resigned	(1 page)
23 Jun 1998	288b	Director resigned	(1 page)
10 Jun 1998	288a	New director appointed This document is not available online but it may be possible to order a copy from the Contact Centre. Telephone +44(0)303 1234 500.	
24 Mar 1998	288a	New director appointed	(2 pages)
23 Feb 1998	288b	Director resigned	(1 page)
10 Nov 1997	363s	Annual return made up to 01/11/97  • 363(288) - Director resigned	(8 pages)
10 Nov 1997	AA	Full accounts made up to 31 March 1997	(19 pages)
07 Nov 1997	288a	New director appointed	(2 pages)
07 Nov 1997	288a	New director appointed	(2 pages)
30 Oct 1997	288a	New director appointed	(2 pages)
27 Oct 1997	288a	New director appointed	(2 pages)
16 Jun 1997	288a	New director appointed	(2 pages)
09 Apr 1997	RESOLUTIONS	Resolutions	(13 pages)
		<ul> <li>SRES01 - Special resolution of adoption of Memorandum of Association</li> </ul>	

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09 Apr 1997	RESOLUTIONS	Resolutions	(10 pages)
		SRES01 - Special resolution of adoption of Memorandum of Association	
26 Feb 1997	o 288a	New director appointed	(2 pages)
17 Dec 1996	c 288a	New director appointed	(2 pages)
18 Nov 1996	/ AA	Full accounts made up to 31 March 1996	(19 pages)
07 Nov	/ 363s	Annual return made up to 01/11/96	(6 pages)
1996		363(288) - Secretary's particulars changed;director resigned	
07 Nov 1996	v 288a	New director appointed	(2 pages)
13 Feb 1996	288	New director appointed	(2 pages)
31 Jan 1996	288	New director appointed	(2 pages)

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29 Jan 1996       288       New director appointed       (2 pages)         20 Dec 1995       288       Director resigned       (2 pages)         20 Dec 288 1995       Director's particulars changed       (2 pages)         20 Dec 288 1995       Director resigned       (2 pages)         20 Dec 288 1995       Director resigned       (2 pages)         20 Dec 288 1995       Director's particulars changed       (2 pages)         20 Dec 288 1995       Director's particulars changed       (2 pages)         29 Nov AA       Full accounts made up to 31 March 1995       (14 pages)	Date	Туре	Description	View / Download
1995 20 Dec 288 Director's particulars changed 20 Dec 288 Director resigned 20 Dec 288 Director's particulars changed 20 Dec 288 Director's particulars changed		288	New director appointed	(2 pages)
1995  20 Dec 288 Director resigned (2 pages)  20 Dec 288 Director resigned (2 pages)  20 Dec 288 Director resigned (2 pages)  20 Dec 288 Director's particulars changed (2 pages)		288	Director resigned	(2 pages)
1995  20 Dec 288 Director resigned (2 pages) 1995  20 Dec 288 Director's particulars changed (2 pages) 1995		288	Director's particulars changed	(2 pages)
1995  20 Dec 288 Director's particulars changed (2 pages) 1995		288	Director resigned	(2 pages)
1995		288	Director resigned	(2 pages)
09 Nov. AA Full accounts made up to 31 March 1995 (14 pages)		288	Director's particulars changed	(2 pages)
1995	09 Nov 1995	AA	Full accounts made up to 31 March 1995	(14 pages)
09 Nov 363s Annual return made up to 01/11/95 (6 pages)		363s	Annual return made up to 01/11/95	(6 pages)
1995 • 363(287) - Registered office changed on 09/11/95	1995		363(287) - Registered office changed on 09/11/95	
<ul> <li>363(288) - Secretary's particulars changed; director's particulars changed</li> </ul>			363(288) - Secretary's particulars changed; director's particulars changed	
04 Apr MEM/ARTS Memorandum and Articles of Association (38 pages) 1995	-	MEM/ARTS	Memorandum and Articles of Association	(38 pages)
04 Apr RESOLUTIONS Resolutions (4 pages)	-	RESOLUTIONS	Resolutions	(4 pages)
SRES01 - Special resolution of alteration of Memorandum of Association	1995		SRES01 - Special resolution of alteration of Memorandum of Association	
04 Apr RESOLUTIONS Resolutions (4 pages)	-	RESOLUTIONS	Resolutions	(4 pages)
<ul> <li>SRES01 - Special resolution of alteration of Memorandum of Association</li> </ul>	1995		SRES01 - Special resolution of alteration of Memorandum of Association	
18 Dec 363s Annual return made up to 01/11/94		363s	Annual return made up to 01/11/94	
1994  • 363(288) - Director's particulars changed	1994		363(288) - Director's particulars changed	
This document is not available online but it may be possible to order a copy from the Contact Centre. Telephone +44(0)303 1234 500.				
Full accounts made up to 31 March 1994  This document is not available online but it may be possible to order a copy from the Contact Centre. Telephone +44(0)303 1234 500.		AA	This document is not available online but it may be possible to order a copy from the Contact	
Particulars of mortgage/charge This document is not available online but it may be possible to order a copy from the Contact Centre. Telephone +44(0)303 1234 500.		395	This document is not available online but it may be possible to order a copy from the Contact	
29 Nov AA <b>Full accounts</b> made up to 31 March 1993	29 Nov	AA		

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1993		This document is not available online but it may be possible to order a copy from the Contact Centre. Telephone +44(0)303 1234 500.
29 Nov	363s	Annual return made up to 01/11/93
1993		363(288) - Director's particulars changed
		This document is not available online but it may be possible to order a copy from the Contact Centre. Telephone +44(0)303 1234 500.
24 Nov 1992	AA	<b>Full accounts</b> made up to 31 March 1992 This document is not available online but it may be possible to order a copy from the Contact Centre. Telephone +44(0)303 1234 500.
10 Nov 1992	363b	Annual return made up to 01/11/92 This document is not available online but it may be possible to order a copy from the Contact Centre. Telephone +44(0)303 1234 500.
21 Aug 1992	288	Secretary resigned; new secretary appointed This document is not available online but it may be possible to order a copy from the Contact Centre. Telephone +44(0)303 1234 500.
09 Apr 1992	395	Particulars of mortgage/charge This document is not available online but it may be possible to order a copy from the Contact Centre. Telephone +44(0)303 1234 500.
03 Feb 1992	AA	<b>Full accounts</b> made up to 31 March 1991 This document is not available online but it may be possible to order a copy from the Contact Centre. Telephone +44(0)303 1234 500.
16 Jan 1992	288	New director appointed This document is not available online but it may be possible to order a copy from the Contact Centre. Telephone +44(0)303 1234 500.
16 Jan 1992	288	New director appointed This document is not available online but it may be possible to order a copy from the Contact Centre. Telephone +44(0)303 1234 500.
16 Jan 1992	288	New director appointed This document is not available online but it may be possible to order a copy from the Contact Centre. Telephone +44(0)303 1234 500.
16 Jan 1992	288	New director appointed This document is not available online but it may be possible to order a copy from the Contact Centre. Telephone +44(0)303 1234 500.

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Date	Туре	Description	View / Download
16 Jan 1992	288	New director appointed This document is not available online but it may be possible to order a copy from the Contact Centre. Telephone +44(0)303 1234 500.	
29 Nov 1991	288	Director resigned This document is not available online but it may be possible to order a copy from the Contact Centre. Telephone +44(0)303 1234 500.	
29 Nov 1991	288	New director appointed This document is not available online but it may be possible to order a copy from the Contact Centre. Telephone +44(0)303 1234 500.	
29 Nov 1991	288	New director appointed This document is not available online but it may be possible to order a copy from the Contact Centre. Telephone +44(0)303 1234 500.	
29 Nov 1991	288	Director resigned This document is not available online but it may be possible to order a copy from the Contact Centre. Telephone +44(0)303 1234 500.	
29 Nov 1991	288	Director resigned This document is not available online but it may be possible to order a copy from the Contact Centre. Telephone +44(0)303 1234 500.	
29 Nov 1991	288	Director resigned This document is not available online but it may be possible to order a copy from the Contact Centre. Telephone +44(0)303 1234 500.	
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11 Oct 1991	288	Secretary resigned; new secretary appointed This document is not available online but it may be possible to order a copy from the Contact Centre. Telephone +44(0)303 1234 500.	
19 Nov 1990	AA	<b>Full accounts</b> made up to 31 March 1990 This document is not available online but it may be possible to order a copy from the Contact Centre. Telephone +44(0)303 1234 500.	
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13 Dec 1988	AA	<b>Full accounts</b> made up to 31 March 1988 This document is not available online but it may be possible to order a copy from the Contact Centre. Telephone +44(0)303 1234 500.
13 Dec 1988	288	Secretary resigned; new secretary appointed This document is not available online but it may be possible to order a copy from the Contact Centre. Telephone +44(0)303 1234 500.
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13 Dec 1988	288	New director appointed This document is not available online but it may be possible to order a copy from the Contact Centre. Telephone +44(0)303 1234 500.
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19 Aug 1988	288	New director appointed This document is not available online but it may be possible to order a copy from the Contact Centre. Telephone +44(0)303 1234 500.	
03 Aug	RESOLUTIONS	Resolutions	(9 pages)
1988		SRES01 - Special resolution of adoption of Memorandum of Association	
05 Jan 1988	CERTNM	Company name changed houghton poultry research statio n(the)\certificate issued on 01/01/88	
		This document is not available online but it may be possible to order a copy from the Contact Centre. Telephone +44(0)303 1234 500.	
05 Jan 1988	CERTNM	Company name changed\certificate issued on 05/01/88	(2 pages)
04 Jan 1988	287	Registered office changed on 04/01/88 from: houghton huntingdon hill street This document is not available online but it may be possible to order a copy from the Contact Centre. Telephone +44(0)303 1234 500.	
04 Jan 1988	MEM/ARTS	Memorandum and Articles of Association	(9 pages)
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03 Dec 1987	363	Annual return made up to 15/11/87 This document is not available online but it may be possible to order a copy from the Contact Centre. Telephone +44(0)303 1234 500.	
11 Nov	RESOLUTIONS	Resolutions	
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1001		SRES13 - Special resolution	
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11 Nov	RESOLUTIONS	Resolutions	(2 pages)
1987		SRES01 - Special resolution of alteration of Memorandum of Association	
01 Oct 1987	288	Secretary resigned; new secretary appointed This document is not available online but it may be possible to order a copy from the Contact Centre. Telephone +44(0)303 1234 500.	
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07 Jan 1956	MISC	Certificate of incorporation	(1 page)
07 Jan 1956	NEWINC	Incorporation	(21 pages)

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#### WATTS, Helen Kay

Correspondence address Pirbright Laboratory, Ash Road, Pirbright, Woking, Surrey, GU24 0NF

Role Active Secretary

Appointed on 25 November 2019

#### BATEMAN, lan

Correspondence address Pirbright Laboratory, Ash Road, Pirbright, Woking, Surrey, GU24 0NF

Role Active Director

Date of birth December 1960

Appointed on 1 January 2019

Nationality British

Country of residence United Kingdom

Occupation Director Of Quality, Nhs Blood And Transplant

#### BLACK, lan

Correspondence address Pirbright Laboratory, Ash Road, Pirbright, Woking, Surrey, GU24 0NF

Role Active Director

Date of birth June 1952

Appointed on 1 January 2019

Nationality British

Country of residence England

Occupation Director, Arch Management Consultants Ltd

#### COLES, Jonathan Roger Elliot

Correspondence address Pirbright Laboratory, Ash Road, Pirbright, Woking, Surrey, GU24 0NF

Role Active **Director** 

Date of birth May 1955

Appointed on 1 January 2019

Nationality British

Country of residence England

Occupation Partner, Brunswick Group Llp

#### **EMERY, Vince, Professor**

Correspondence address Pirbright Laboratory, Ash Road, Pirbright, Woking, Surrey, GU24 0NF

Role Active **Director**Date of birth **May 1960** 

Appointed on 1 January 2019

Nationality British

Country of residence United Kingdom

Occupation Professor

#### LOUTH, Roger

Correspondence address Pirbright Laboratory, Ash Road, Pirbright, Woking, Surrey, GU24 0NF

Role Active Director

Date of birth March 1951

Appointed on 12 December 2013

Nationality British

Country of residence England

Occupation Finance Director

#### MAYATT, Vanessa Linda, Dr

Correspondence address Pirbright Laboratory, Ash Road, Pirbright, Woking, Surrey, GU24 0NF

Role Active Director

Date of birth March 1954

Appointed on 12 December 2013

Nationality British

Country of residence United Kingdom

Occupation Consultant

#### PRIMROSE, Sandy Blackadder, Dr

Correspondence address Pirbright Laboratory, Ash Road, Pirbright, Woking, Surrey, GU24 0NF

Role Active Director

Date of birth December 1944

Appointed on 1 January 2019

Nationality Scottish

Country of residence England

Occupation Senior Partner

#### ROSS, Bertie, Sir

Correspondence address Pirbright Laboratory, Ash Road, Pirbright, Woking, Surrey, GU24 0NF

Role Active **Director** 

Date of birth February 1950

Appointed on 19 December 2013

Nationality British

Country of residence United Kingdom

Occupation Consultant

#### ROWLANDS, David John, Professor

Correspondence address Pirbright Laboratory, Ash Road, Pirbright, Woking, Surrey, GU24 0NF

Role Active Director

Date of birth June 1940

Appointed on 12 December 2013

Nationality British

Country of residence United Kingdom

Occupation University Professor

#### STEPHENSON, John Robert, Professor

Correspondence address Pirbright Laboratory, Ash Road, Pirbright, Woking, Surrey, GU24 0NF

Role Active Director

Date of birth May 1948

Appointed on 12 December 2013

Nationality British

Country of residence United Kingdom

Occupation University Professor

#### TIRARD, Jane Helen Mary

Correspondence address Pirbright Laboratory, Ash Road, Pirbright, Woking, Surrey, GU24 0NF

Role Active Director

Date of birth February 1959

Appointed on 1 January 2019

Nationality British

Country of residence England

Occupation Trustee Director

#### **CAMPBELL**, Arthur George

Correspondence address 21 Arkle Avenue, Thatcham, Berkshire, RG19 3UA

Role Resigned Secretary

Appointed on 25 September 1999

Resigned on 22 November 1999

#### **GRICE, Andrew Stephen**

Correspondence address 34 Chazey Road, Caversham, Reading, Berkshire, RG4 7DS

Role Resigned Secretary

Appointed on 22 November 1999

Resigned on 21 December 2004

#### JAMIESON, Brian, Doctor

Correspondence address 8 Orwell Close, Caversham, Reading, Berkshire, RG4 7PU

Role Resigned Secretary

Appointed on 22 December 2004

Resigned on 31 July 2005

#### MARSHALL, Terence William

Correspondence address Star Cottage, Watery Lane Sparsholt, Wantage, Oxfordshire, OX12 9PL

Role Resigned Secretary

Resigned on 24 September 1999

#### SHAW, Richard Stirling

Correspondence address Pirbright Laboratory, Ash Road, Pirbright, Woking, Surrey, United Kingdom, GU24 0NF

Role Resigned Secretary

Appointed on 1 August 2005

Resigned on 8 February 2016

Nationality British

#### SIMPSON, Keith

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Role Resigned Secretary

Appointed on 8 February 2016

Resigned on 25 November 2019

#### ARMOUR, James

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1/30/2020

Role Resigned Director

Date of birth September 1929

Resigned on 31 October 1997

Nationality British

Occupation Vice Principal Glasgow Univers

#### BARBER, Alan John

Correspondence address 8 Salisbury Square, London, EC4Y 8BB

Role Resigned Director

Date of birth November 1947

Appointed on 1 July 2004

Resigned on 4 March 2008

Nationality British

Country of residence United Kingdom

Occupation Chartered Accountant

#### **BLACKWELL**, Jenefer Mary, Professor

Correspondence address 42 Beaumont Road, Cambridge, Cambridgeshire, CB1 8PY

Role Resigned Director

Date of birth December 1948

Appointed on 1 April 2001

Resigned on 31 March 2004

Nationality British

Occupation University Professor

#### **BLANCHARD**, Michael David

Correspondence address New House Farm, Kingston Bagpuize, Abingdon, Oxfordshire, OX13 5HR

Role Resigned Director

Date of birth June 1956

Appointed on 1 November 1996

Resigned on 1 April 2001

Nationality British

Occupation Farmer

#### **BUTLER, Richard Charles**

Correspondence address Eastwick Farm, Wootton Rivers, Marlborough, Wiltshire, United Kingdom, SN8 4NS

Role Resigned Director

Date of birth January 1950

Appointed on 19 December 2013

Resigned on 25 March 2015

Nationality British

Country of residence England

Occupation Farmer

#### CRAIG, Alison, Dr

Correspondence address Pirbright Laboratory, Ash Road, Pirbright, Woking, Surrey, GU24 0NF

Role Resigned **Director** 

Date of birth May 1967

Appointed on 21 November 2013

Resigned on 28 June 2016

Nationality British

Country of residence United Kingdom

Occupation Hr Consultant

#### **DAVISON, Ann Catherine**

Correspondence address Drivers, Elgin Road, Weybridge, Surrey, KT13 8SN

Role Resigned **Director** 

Date of birth May 1954

Appointed on 1 October 1997

Resigned on 17 March 2003

Nationality British

Occupation Consumer Affairs

#### DOUGAN, Gordon, Professor

Correspondence address 3 Normanton Road, South Croydon, Surrey, CR2 7AE

Role Resigned Director

Date of birth September 1952

Appointed on 1 November 1995

Resigned on 31 October 2003

Nationality British

Occupation Scientist Professor

#### **ELVES, Michael William, Dr**

Correspondence address Darley Hall 182 Park St Lane, Park Street, St Albans, Hertfordshire, AL2 2AT

Role Resigned Director

Date of birth December 1938

Appointed on 1 November 1995

Resigned on 12 October 2002

Nationality British

Country of residence United Kingdom

#### **EWART, John**

Correspondence address 9 Lochend, Ratho Station, Newbridge, Midlothian, EH28 8SY

Role Resigned Director

Date of birth October 1944

Appointed on 1 November 1995

Resigned on 11 February 1998

Nationality British

Occupation Managing Director

#### FREEDMAN, Robert Ben, Professor

Correspondence address 52 Shottery Village, Stratford Upon Avon, Warwickshire, CV37 9HD

Role Resigned Director

Date of birth January 1946

Appointed on 1 February 2009

Resigned on 27 March 2009

Nationality British

Country of residence United Kingdom

Occupation University Professor

#### **GEMMILL, Paul Conquest**

Correspondence address Bbsrc, Polaris House, North Star Avenue, Swindon, Wiltshire, SN2 1UH

Role Resigned Director

Date of birth September 1963

Appointed on 1 February 2009

Resigned on 27 March 2009

Nationality British

Country of residence United Kingdom

Occupation Director

#### **GRENFELL**, Bryan Thomas, Professor

Correspondence address 38 Thornton Road, Cambridge, CB3 0NW

Role Resigned Director

Date of birth December 1954

Appointed on 1 November 2003

Resigned on 31 May 2004

Nationality British

Occupation Academic

#### **GULL, Keith, Professor**

Correspondence address Stonehaven, 6 High Street, Cumnor, Oxfordshire, OX2 9PE

Role Resigned Director

Date of birth May 1948

Appointed on 1 March 2005

Resigned on 27 March 2009

Nationality British

Occupation University Professor

#### IVERSEN, Susan Diana, Professor

Correspondence address University Of Oxford, Wellington Square, Oxford, Oxfordshire, OX1 2JD

Role Resigned Director

Date of birth February 1940

Appointed on 1 June 2004

Resigned on 27 March 2009

Nationality British

Country of residence United Kingdom

Occupation Academic Neuroscientist

#### KANELLOS, Theofanis, Dr

Correspondence address Pirbright Laboratory, Ash Road, Pirbright, Woking, Surrey, GU24 0NF

Role Resigned Director

Date of birth August 1966

Appointed on 21 November 2013

Resigned on 31 December 2018

Nationality Greek

Country of residence France

Occupation Pharmaceutical Company Executive

#### **KEY, Timothy Maurice Thomas**

Correspondence address Pirbright Laboratory, Ash Road, Pirbright, Woking, Surrey, United Kingdom, GU24 0NF

Role Resigned Director

Date of birth July 1939

Appointed on 1 November 2003

Resigned on 21 November 2014

Nationality British

Country of residence United Kingdom

Occupation Chartered Surveyor

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Correspondence address Pirbright Laboratory, Ash Road, Pirbright, Woking, Surrey, GU24 0NF

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Date of birth March 1951

Appointed on 12 December 2013

Nationality British

Country of residence England

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#### MAYATT, Vanessa Linda, Dr

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Country of residence United Kingdom

Occupation Consultant

#### PRIMROSE, Sandy Blackadder, Dr

Correspondence address Pirbright Laboratory, Ash Road, Pirbright, Woking, Surrey, GU24 0NF

Role Active Director

Date of birth December 1944

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Country of residence England

Occupation Senior Partner

#### ROSS, Bertie, Sir

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#### SIMPSON, Keith

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Nationality British

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Country of residence United Kingdom

Occupation Chartered Accountant

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#### CRAIG, Alison, Dr

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Date of birth May 1967

Appointed on 21 November 2013

Resigned on 28 June 2016

Nationality British

Country of residence United Kingdom

Occupation Hr Consultant

#### **DAVISON, Ann Catherine**

Correspondence address Drivers, Elgin Road, Weybridge, Surrey, KT13 8SN

Role Resigned **Director** 

Date of birth May 1954

Appointed on 1 October 1997

Resigned on 17 March 2003

Nationality British

Occupation Consumer Affairs

#### DOUGAN, Gordon, Professor

Correspondence address 3 Normanton Road, South Croydon, Surrey, CR2 7AE

Role Resigned Director

Date of birth September 1952

Appointed on 1 November 1995

Resigned on 31 October 2003

Nationality British

Occupation Scientist Professor

#### **ELVES, Michael William, Dr**

Correspondence address Darley Hall 182 Park St Lane, Park Street, St Albans, Hertfordshire, AL2 2AT

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Date of birth December 1938

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Resigned on 12 October 2002

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Occupation Managing Director

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Correspondence address 52 Shottery Village, Stratford Upon Avon, Warwickshire, CV37 9HD

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Country of residence United Kingdom

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Date of birth September 1963

Appointed on 1 February 2009

Resigned on 27 March 2009

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Country of residence United Kingdom

Occupation Director

# **GRENFELL**, Bryan Thomas, Professor

Correspondence address 38 Thornton Road, Cambridge, CB3 0NW

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Date of birth December 1954

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Resigned on 31 May 2004

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Resigned on 27 March 2009

Nationality British

Occupation University Professor

# IVERSEN, Susan Diana, Professor

Correspondence address University Of Oxford, Wellington Square, Oxford, Oxfordshire, OX1 2JD

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Date of birth February 1940

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Resigned on 27 March 2009

Nationality British

Country of residence United Kingdom

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# KANELLOS, Theofanis, Dr

Correspondence address Pirbright Laboratory, Ash Road, Pirbright, Woking, Surrey, GU24 0NF

Role Resigned Director

Date of birth August 1966

Appointed on 21 November 2013

Resigned on 31 December 2018

Nationality Greek

Country of residence France

Occupation Pharmaceutical Company Executive

# **KEY, Timothy Maurice Thomas**

Correspondence address Pirbright Laboratory, Ash Road, Pirbright, Woking, Surrey, United Kingdom, GU24 0NF

Role Resigned Director

Date of birth July 1939

Appointed on 1 November 2003

Resigned on 21 November 2014

Nationality British

Country of residence United Kingdom

Occupation Chartered Surveyor

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- Officers
- Persons with significant control (https://beta.companieshouse.gov.uk/company/00559784/persons-with-significant-control)

# Filter officers

Current officers			
Apply filter			

# 64 officers / 52 resignations

# LECHLER, Robert Ian, Professor

Correspondence address 78 Woodstock Road, Chiswick, London, W4 1EQ

Role Resigned Director

Date of birth December 1951

Appointed on 10 February 1997

Resigned on 31 January 2003

Nationality British

Country of residence United Kingdom

Occupation Professor

# **LUTTICKEN, Heinrich Dieter, Doctor**

Correspondence address Intervet International Bv, Board PO BOX 31, Boxmeer, 5830 Aa, The Netherlands

Role Resigned Director

Date of birth February 1940

Appointed on 1 June 2002

Resigned on 4 July 2007

Nationality German

Occupation Vice President R&D

# **MADDERS, William Woodhouse**

Correspondence address Church Farm, Coppenhall, Stafford, ST18 9BW

Role Resigned Director

Date of birth October 1938

Appointed on 1 April 2001

Resigned on 27 March 2009

Nationality British

Country of residence United Kingdom

Occupation Farmer

# MCCONNELL, Ian, Professor

Correspondence address 6 Barton Close, Cambridge, Cambridgeshire, CB3 9LQ

Role Resigned **Director** 

Date of birth November 1940

Resigned on 31 October 1996

Nationality British

Country of residence England

Occupation University Head Of Department/

# MCKAY, James Climie, Dr

Correspondence address Erraid House Biggar Road, Edinburgh, EH10 7DX

Role Resigned Director

Date of birth June 1952

Appointed on 19 May 1998

Resigned on 31 May 2004

Nationality British

Country of residence Scotland

Occupation Animal Breeder

## MCKELLAR, Quintin Archibald, Professor

Correspondence address Pirbright Laboratory, Ash Road, Pirbright, Woking, Surrey, GU24 0NF

Role Resigned Director

Date of birth December 1958

Appointed on 21 November 2013

Resigned on 31 December 2018

Nationality British

Country of residence England

Occupation University Vice-Chancellor

# MCKELLAR, Quintin Archibald

Correspondence address 8 Lower Broomirknowe, Lasswade, Midlothian, E18 1LW

Role Resigned Director

Date of birth December 1958

Appointed on 1 February 2003

Resigned on 27 March 2009

Nationality British

Occupation Scientific Director

# MCMICHAEL, Andrew James, Sir

Correspondence address Midsummer Cottage, Church Street, Beckley, Oxford, Oxfordshire, OX3 9UT

Role Resigned Director

Date of birth November 1943

Resigned on 31 March 1996

Nationality British

Country of residence England

Occupation Research Scientist

## MELDRUM, Keith Cameron

Correspondence address The Orchard Swaynes Lane, Merrow, Guildford, Surrey, GU1 2XX

Role Resigned Director

Date of birth April 1937

Resigned on 19 April 1997

Nationality British

Country of residence United Kingdom

Occupation Chief Veterinary Officer Maff

# MILLER, Hugh Robert Peel, Professor

Correspondence address Grey Home Cottage Abbotsford Road, North Berwick, East Lothian, EH39 5DB

Role Resigned Director

Date of birth January 1941

Appointed on 8 June 1998

Resigned on 27 March 2009

Nationality British

Occupation Academic

# MINSON, Anthony Charles, Professor

Correspondence address 113 Cambridge Road, Great Shelford, Cambridge, Cambridgeshire, CB22 5JJ

Role Resigned Director

Date of birth February 1944

Appointed on 1 October 1997

Resigned on 30 September 2003

Nationality United Kingdom

Country of residence England

Occupation Lecturer

# **MOLYNEUX, David, Professor**

Correspondence address Kingsley Cottage Town Well, Kingsley, Warrington, Cheshire, WA6 8EZ

Role Resigned **Director** 

Date of birth April 1943

Appointed on 1 April 2001

Resigned on 27 March 2009

Nationality British

Country of residence United Kingdom

Occupation Professor

# **OGILVIE, Bridget Margaret, Dame**

Correspondence address 15 Stanhope Gate, London, W1K 1LN

Role Resigned **Director**Date of birth **March 1938** 

Appointed on 1 November 1997

Resigned on 31 October 2003

Nationality British

Country of residence United Kingdom

Occupation Director Of The Welcome Trust

# ONIONS, David Edward

Correspondence address Couligarten House Kinlochard, Aberfoyle, Stirling, FK8 3TN

Role Resigned **Director** 

Date of birth February 1949

Resigned on 31 March 1997

Nationality British

Occupation University Professor

# **OWEN, Michael John**

Correspondence address 29 Albany Road, London, N4 4RR

Role Resigned Director

Date of birth May 1951

Appointed on 1 July 2002

Resigned on 10 June 2004

Nationality British

Country of residence England

Occupation Scientist

## **PICKERING, Brian Thomas**

Correspondence address 51 Eastfield Road, Bristol, Avon, BS9 4AE

Role Resigned Director

1/30/2020

Date of birth May 1936

Resigned on 31 March 1998

Nationality British

Country of residence England

Occupation University Professor

# PRESTON, John Michael, Professor

Correspondence address The Dandy, Tenterden, Kent, TN30 7DW

Role Resigned Director

Date of birth September 1946

Appointed on 1 March 1998

Resigned on 28 February 2001

Nationality British

Occupation Business Executive

## REDSHAW, Peter Sherwood, Exors Of Mr

Correspondence address Holbury Farm, Lockerley, Romsey, Hampshire, SO51 0JR

Role Resigned **Director** 

Date of birth April 1943

Resigned on 4 December 1995

Nationality British

Country of residence United Kingdom

Occupation Farmer

# REYNOLDS, Deborah Judith, Dr

Correspondence address 1a Page Street, London

Role Resigned Director

Date of birth May 1952

Appointed on 24 March 2004

Resigned on 23 March 2008

Nationality British

Occupation Chief Veterinary Director

# SAMUEL, Michael John

Correspondence address 38 St Botolphs Road, Sevenoaks, Kent, TN13 3AG

Role Resigned Director

Date of birth January 1947

Appointed on 1 February 2009

Resigned on 27 March 2009

Nationality British

Country of residence England

Occupation Retired Finance Director

## SAMUEL, Mike

Correspondence address Pirbright Laboratory, Ash Road, Pirbright, Woking, Surrey, GU24 0NF

Role Resigned **Director** 

Date of birth January 1947

Appointed on 21 November 2013

Resigned on 31 December 2018

Nationality British

Country of residence England

Occupation Retired Finance Executive

# SCOTT, John Michael

Correspondence address 43 Lowther Road, Wokingham, Berkshire, RG11 1JB

Role Resigned Director

Date of birth February 1943

Resigned on 1 April 2001

Nationality British

Occupation Deputy Chief Natural Resources Adviser Oda

## SCUDAMORE, James Marfell

Correspondence address Room 303, 1a Page Street, London, SW1P 4PQ

Role Resigned Director

Date of birth March 1944

Appointed on 1 June 1997

Resigned on 31 March 2004

Nationality British

Occupation Civil Servant

## SKEHEL, John James, Sir

Correspondence address 49 Homewood Road, St Albans, Hertfordshire, AL1 4BG

Role Resigned Director

Date of birth February 1941

Appointed on 1 July 2007

Resigned on 27 March 2009

Nationality British

Occupation Retired Director

# SOULSBY, Ernest Jackson Lawson, Lord

Correspondence address Old Barn House 25 High Street, Swaffham Prior, Cambridge, Cambridgeshire, CB5 0LD

Role Resigned Director

Date of birth June 1926

Resigned on 4 December 1995

Nationality **British** 

Country of residence United Kingdom

Occupation University Professor Peer Of T

# TAIT, Andrew, Professor

Correspondence address 57 Dowanside Road, Glasgow, G12 9DL

Role Resigned Director

Date of birth April 1943

Appointed on 1 October 1997

Resigned on 1 October 2001

Nationality British

Occupation Scientist

# WEISS, Robert Anthony, Professor

Correspondence address High Street, Compton, Newbury, Berkshire, RG20 7NN

Role Resigned Director

Date of birth February 1940

Appointed on 1 November 1996

Resigned on 31 October 2006

Nationality British

Occupation Professor Of Viral Oncology

# WYKE, John Anthony, Professor

Correspondence address 6 Ledcameroch Road, Bearsden, Glasgow, G61 4AA

Role Resigned Director

Date of birth April 1942

Resigned on 4 December 1995

Nationality British

Country of residence Scotland

Occupation Director Of Research

## THE BIOTECHNOLOGY AND BIOLOGICAL SCIENCES RESEARCH COUNCIL

Correspondence address Polaris House, Polaris Way, Swindon, Wiltshire, United Kingdom, SN2 1UH

Role Resigned Director

Appointed on 27 March 2009

Resigned on 21 November 2013

# Registered in a European Economic Area What's this?

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# THE BIOTECHNOLOGY AND BIOLOGICAL SCIENCES RESEARCH COUNCIL

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# THE PIRBRIGHT INSTITUTE (00559784)

Company status Active

Correspondence address Polaris House, Polaris Way, Swindon, Wiltshire, United Kingdom, SN2 1UH

Role Resigned Director

Appointed on 27 March 2009

Resigned on 21 November 2013

## Registered in an European Economic Area What's this?

Register location POLARIS HOUSE, POLARIS WAY, SWINDON, SN2 1UH

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Form	No.	41.
E OX XII	710.	'#I.

Number of Company

# THE COMPANIES ACT 1948.



A 5s.
Companies
Registration
Fee Stamp
must be
impressed
here.

DECLARATION of Compliance with the requirements of the

Companies Act, 1948, on application for registration of

Pursuant to Section 15 (2).



Insert the Name of the Company.

HOUGHTON POULTRY RESEARCH STATION

MMMITED.

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26, Little College Street,

Suggest of the second

The Solicitors' Law Stationery Society, Limited

22 Chancery Lane, W.C.2; 3 Bucklersbury, E.C.4; 49 Bedford Row, W.C.1; 6 Victoria Street, S.W.1; 15 Hanover Street, W.1; 55-59 Newhall Street, Birmingham, 3; 19 & 21 North John Street, Liverpool, 2; 28-30 John Dalton Street, Manchester, 2; 75 St. Mary Street, Cardiff; and 157 Hope Street, Glasgow, C.2. PRINTERS AND PUBLISHERS OF COMPANIES' BOOKS AND FORMS

	J, GILBERT COURTEMAY WILLOUGHBY RADDLIFEE
	of 10, Little College Street, Westwinster, S.M. 1.
(a) Here insert: "A Solicitor of the	Do solemnly and sincerely declare that I am (a) a Solicitor of the
"Supreme Court" (or in Scotland "a Solicitor") "engaged "in the formation"	Supreme Court engaged in the formation of THE HOUGHTON
"A person named "in the Articles of "Association as a "Director or	POULTRY RESEARCH STATION
"Secretary."	:au
	nof:Kinited,
<b>.</b> 2	And that all the requirements of the Companies Act, 1948, in respect of
	matters precedent to the registration of the said Company and incidental
•	matters precedent to the registration of the said Company and incidental thereto have been complied with, And I make this solemn Declaration
	· ·
	conscientiously believing the same to be true and by virtue of the provisions of the Statutory Declarations Act, 1835.
	<u> </u>
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Declared at	<u>/ Little College Street</u>
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the_fifth	_day of <u>Covers</u>
one thousand	l nine hundred and fifty-ciz
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Before m	e, ·

# LICENCE BY THE BOARD OF TRADE,

pursuant to Section 19(1) of the Companies Act, 1948

WHEREAS it has been proved to the satisfaction of the Board of Trade that

## HOUGHTON POULTRY RESEARCH STATION

an Association about to be formed as a limited company under the Companies Act, 1948, is to be formed for the purpose of promoting objects of the nature contemplated by Section 19 of that Act, and that it is the intention of the said Association that the income and property of the said Association whencesoever derived shall be applied solely towards the promotion of the objects of the said Association as set forth in its Memorandum of Association and that no portion thereof shall be paid or transferred, directly or indirectly, by way of dividend or bonus or otherwise howsoever, by way of profit to the members of the said Association

NOW, THEREFORE, the Board of Trade in pursuance of the powers in them vested, and in consideration of the provisions and conditions contained in the Memorandum of Association of the said Association as subscribed by nine members thereof on the fifth day of December 1955, do by this their licence direct

## HOUSISTON POULTRY WELFATCH COATION

to be registered with limited liability, without the addition of the word "Limited" to its name.

SIGNED by Order of the Board of Trade, this fifth

of January 1956.

An Assistant (Secfetary of the Board of Trade

day

# THE COMPANIES ACT, 1948.

COMPANY LIMITED BY GUARANTEE AND NOT HAVING A SHARE CAPITAL.

# MEMORANDUM

- and -

ARTICLES OF ASSOCIATION

- of -

THE HOUGHTON POULTRY RESEARCH STATION

INCORPORATED the day of , 1955.

XOL AN/MW.

RADCLIFFES & CO , lO, Listle College Street, S.W.l.



COMPANY LIMITED BY GUARANTEE AND NOT HAVING A SHARE CAPITAL

REGISTERED 7-JAN 1956

MEMORANDUM OF ASSOCIATION

- of -

THE HOUGHTON POULTRY RESEARCH STATI



- 2. The registers of the Association will be situate in England.
- 3. The objects for which the Association is established are:-
  - (a) Subject to the provisions of Section 14 of the Companies Act 1948, to acquire from the Animal Health Trust all or any part or parts of the premises, land, buildings, fixed plant, machinery and equipment at Houghton in the County of Huntingdon founded by the Animal Health Trust as a Poultry Research Station.
  - (b) To conduct and promote scientific research on diseases of poultry (including ducks, geese, turkeys and other birds) with the object of discovering measures designed to eradicate, control or treat such diseases; on the production, reproduction, management, housing and nutrition of poultry; on the production and fertility of eggs; and on matters ancillary thereto.

# Provided that

- (i) research shall be in accordance with a programme approved from time to time by the Agricultural Research Council and
- (ii) research on any disease which is compulsorily notifiable under an order made by the Minister of Agriculture Fisheries and Food shall not be undertaken without the prior consent of the Minister. With a view to the promotion of the objects of the Association as defined in paragraph (b) of this Clause, the Association shall have power to do such things as are specified in paragraphs (c) to (q) following, that is to say power:-
- (c) Subject to the provisions of Section 14 of the Companies Act, 1948, to purchase, feu, take on lease or in exchange, hire, or otherwise acquires

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any real or heritable, personal or moveable property and in particular all or any part of parts of the lands buildings laboratories and other hereditaments at Houghton in the County of Huntingdon now belonging to the Animal Health Trust and occ. Led or used by such Trust as or in commection with its Foultry Research Station and also any land, buildings, workshops, or laboratories, where. soever situate and any machinery, plant, apparatus, appliances and livestock, and any rights or privileges necessary or convenient for the purposes of the Association and to construct, erect, alter, improve and maintain any buildings which may be from time to time required for the purposes of the Association and to manago, farm, develop, sell, feu, demise, let, hire, mortgage, dispose of, turn to account or otherwise deal with all or part of the same and conduct and carry on experiments, and to provide funds for such work and for payments to any person or persons engaged in research work, whether on such land or in such laboratories or elsewhere, and to promote the training of persons employed or to be employed on such work.

- (d) To prepare, edit, print, publish, issue, acquire and circulate any literary works or matters treating of or bearing on the said research work; establish and maintain collections of material, literature and scientific data relating thereto; disseminate information obtained therefrom; and contribute towards the provision of a library or libraries designed to assist such work.
- (e) To retain or employ qualified professional advisers in connection with the objects of the Association and pay them such fees or remuneration as may be thought expedient; and employ and remunerate instructors and supervisors for the training of persons employed or to be employed on such work.
- (£) To encourage the discovery of, and investigate and make known the value and merits of inventions, improvements, processes, materials and designs which may seem capable of being used in connection with the objects of the Association as specified in paragraph (b) of this Clause; and to purchase, or otherwise acquire, or oppose the application by others for any letters patent or licences whether exclusive, non-exclusive, or limited, relating to such inventions, improvements, processes, materials and designs whether in the United Kingdom or any other part of the world, and to acquire and register any designs or standardisation matters with a view to the use thereof by the poultry industry and others upon such terms as may seem expedient and to arrange for the development, perfecting and testing of the

value of such inventions, improvements, processes, materials and designs.

government authorities, and other public bodies, corporations, companies, trusts or persons for, and accept grants of money and (subject to Section 14 of the Companies Act, 1948) of land, donations, gifts, subscriptions and other assistance with a view to promoting the objects of the Association; and to discuss and negotiate with them schemes of research and other work and matters within the objects of the Association, and to conform to any proper conditions upon which such grants and other payments may be made.

Provided that the consent of the Agricultural Research Council shall have been obtained before an application for a grant, donation, gift or subscription is made to any Government Department, public or other body, corporation, company, trust or person (other than the Agricultural Research Council) and before any offer of such a grant, donation, gift or subscription is accepted.

Provided also that the consent of the Agricultural Research Council shall have been obtained before any schemes of research or other work are negotiated with any Government Department, public or other body, corporation, company, trust or person.

- (h) To assist in the research work of, or collaborate with any persons, associations and institutions and other bodies, incorporated or not incorporated, engaged in scientific research.
- (1) To establish, equip, maintain, control and manage associate and subsidiary stations for the purpose of undertaking research similar to that being done at the Houghton Poultry Research Station in the United Kingdom or elsewhere, as may seem expedient, and from time to time to determine the constitution, rights, privileges, obligations and duties of such stations, and where thought fit to dissolve or modify the same. Provided that the approval of the Agricultural Research Council shall have been given to the establishment of such stations.
- (j) To undertake and execute any trusts, which may be conducive to any of the objects of the Association.
- (k) Subject to the approval of the Agricultural Research Council, to borrow or raise any money that may be required by the Association upon such terms and upon such security as may be deemed advisable.
- (1) To invest the moneys of the Association not immediately required for its purposes in or

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upon such invostments, securities or property as may be thought fit, but so that moneys subject or representing property subject to the jurisdiction of the Charity Commissioners for England and Wales shall only be invested in such securities and with such sanction (if any) as may for the time being be prescribed by law.

Provided that the approval of the Agricultural Research Council shall proviously have been given to the investment of any such moneys.

- (m) To pay all ex mses, preliminary or incidental to the formation of the Association and its registration.
- (n) To use the funds of the Association in the employment of persons of learning or skill and the provision and use of buildings and of instruments, materials, and appliances, and of any of the equipment of the Association for any form of scientific studies which may be considered to have some bearing on the objects of the Association as defined in paragraph (b) of this Clause.
- (o) To establish and support or aid in the establishment or support of associations, institutions, funds, trusts and conveniences calculated to benefit employees or ex-employees of the Association or the dependents or connections of such persons, and to grant pensions and allowances to and to make payments towards insurances of such persons.

Provided that the approval of the Agricultural Research Council shall previously have been given to the terms and conditions of any scheme for such pensions or allowances or insurances.

- (p) To procure the Association to be registered or recognised in any part of the Commonwealth or in any foreign country or place.
- (q) To do all such other lawful things as may be necessary or expedient for the attainment of any or all of the objects specified in this Memorandum.

Provided always that nothing herein contained shall empower the Association to carry on the business of life assurance, personal accident assurance, fire assurance or employers liability insurance or any business of insurance within the meaning of the Assurance Companies Act, 1909, or any Act extending, amending or remenacting the same, or to re-insure any risks comprised in any such business aforesaid.

Provided also that the Association shall not support with its funds any object or endeavour to impose on or procure to be observed by its members or others any regulation, restriction or condition which if an object of the Association would make it a Trade Union.

Provided also that in case the Association shall take or hold any property subject to the jurisdiction of the Charity Commissioners for England and Wales or the Minister of Education or any authority exercising corresponding jurisdiction outside England and Wales, the Association shall not sell, feu, mortgage, charge or lease the same without such authority, approval or consent as may be required by law, and as regards any such property the Governing Body of the Association shall be chargeable for such property as may come into their hands, and shall be answerable and accountable for their own acts, receipts, neglects and defaults, and for the due administration of such property in the same manner and to the same extent as they would as such Governing Body have been if no incorporation had been effected, and the incorporation of the Association shall not diminish or impair any control or authority exercisable by the Chancery Division, the Charity Commissioners or the Minister of Education or any such other authority as aforesaid over such Governing Body, but they shall, as regards any such property, be subject jointly and separately to such control or authority, as if the Association were not incorporated. In case the Association shall take or hold any property which may be subject to any trusts, the Association shall only deal with the same in such manner as allowed by law having regard to such trusts.

4. The income and property of the Association whencesoever derived shall be applied solely towards the promotion of the objects of the Association as set forth in this Memorandum of Association; and no portion thereof shall be paid or transferred directly or indirectly, by way of dividend, gift, division, bonus, or otherwise howsoever by way of profit to the members of the Association.

Provided that nothing herein shall prevent the payment, in good faith, of reasonable and proper remuneration to any officer or servant of the Association or to any member of the Association in return for any services actually rendered to the Association or for any material, labour, plant and power supplied for experimental purposes, nor prevent the payment of interest at a rate not exceeding 5 per cent. per amum on money lent or payment of a reasonable and proper rent for premises demised or let by any member to the Association: but so that no member of the Association shall, except with the approval of the Agricultural Research Council and the Board of Trade first obtained, be appointed to any salaried office of the Association or any office of the Association paid by fees; and that except with such approval as aforesaid, no remuneration or other benefit in money or moneys worth shall be given by the Association to any member except repayment of out-ofpocket expenses and interest at the rate aforesaid on money lent or of the payment of a reasonable and proper rent for premises demised, or let to the Association. Provided that nothing hereinbefore contained shall prevent any payment to any Company of which a member of the Association may be a member or shareholder holding less than one hundredth part of its capital, and members shall 'ot be bound to account for any share of profits they y receive in respect of any such payment.

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# THE COMPANIES ACT, 1948.

COMPANY LIMITED BY GUARANTEE AND REGISTERED

7 - JAN 1956

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ARTICLES OF ASSOCIATION

- of -

THE HOUGHTON POULTRY RESEARCH STAT

TIVE OF

## INTERPRETATION

1. In these Articles unless there be in the context anything inconsistent therewith: -

"The Association" shall mean the above-named Company.

"The Lord President" shall mean the Lord President of the Council, or any persons or bodies designated by him.

"The Ministers" shall mean the Minister of Agriculture Fisheries and Food, and the Secretary of State for Scotland, or any persons or bodies designated by them.

"The Council" shall mean the Agricultural Research Council, or any persons or bodies designated by them.

"The Companies Act" shall mean the Companies Act, 1948.

"The Secretary" shall mean any person appointed to perform the duties of the secretary of the Association.

"Month" shall mean calendar month.

Words and expressions defined in the Companies Act shall bear the meanings thereby assigned to them.

Words importing the singular number shall include the plural and vice versa.

Words importing the masculine gender shall include the feminine.

Words importing persons shall include bodies corporate.

These Articles shall be construed with reference to the provisions of the Companies Act.

## BUSINESS

2. The Association is established for the purposes expressed in the Memorandum of Association.

# MEMBERSHIP

3. For the purposes of registration the number of members is declared to be nine.

- 4. The members of the Association shall consist of the Governing Members for the time being.
- The business of the association shall be managed by the Governing Body, which may exercise all the powers of the Association not required by these Articles or by the Companies Ant to be exercised by the Association in General Meeting. The Governing Body shall consist of the nine Governing Members, who shall from time to time be appointed by the Lord President and the Ministers, after consultation with the Council as regards six of the members and on the proposal of and after consultation with the Animal Health Trust as regards the remaining three members, but so that at all times not less than four or more than five of the members shall be appointed primarily by reason of their scientific knowledge and training and that the other members shall be appointed by reason of their knowledge of, or interest in, the poultry industry; provided that in the event of the Animal Health Trust failing to contribute in any year towards the cost of the Association in such year of the investigation of and research into diseases of poultry one-third of such cost or £10,000, whichever is the less, then until the contribution has been received for a period of three consecutive years prior to the year in . which a member or members appointed on the proposal of the Trust is or are due to retire the right of the said Trust to be so consulted shall be limited to one member of the Governing Body and other members shall be appointed by the Lord President and the Ministers on the proposal of the Council as hereinbefore provided. The Lord President and the Ministers shall from time to time appoint one of the Governing Members to be Chairman of the Governing Body and determine the period for which he shall hold office.
- 6. The signatories of the Memorandum and Articles of Association are deemed to have been Governing Members appointed by the Lord Presidert and the Ministers after consultation with the Council and the Animal Health Trust.
- Until the close of the first General Meeting the subscribers to the Memorandum and Article's of the Association shall constitute the Governing Body of the Association and shall be entitled to exercise all the rights, powers, and authorities receby vested in the Governing Body. At the close of the first General Meeting the said subscribers shall retire but shall be eligible for reappointment by the Lord President and the Ministers as from the close of that meeting. Every Governing Member shall, subject as herein provided, continue to be a Governing Member for a period of three years from the date of his appointment unless during such period he dies or resigns or is removed from his membership by the Lord President and the Ministers, except that of the Members of the Governing Body appointed to take office as from the close of the first General Meeting, one-third shall take office for a period of four years and another one-third for a period of five years, the members constituting each such one-third to A retiring Governing Member shall be determined by lot. be eligible for reappointment. Provided that a Governing Member appointed to fill a vecancy caused by death, resignation or removal during a term of office shall hold his appointment only for the remainder of that term of office.

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- 8. The Governing Body may meet together for the despatch of business, adjourn and otherwise regulate their meetings as they may think fit. Questions arising at any meeting shall be decided by a majority of votes. In case of an equality of votes the Chairman shall have a second or casting vote. A member of the Governing Body may, and the Secretary on the requisition of any such member shall, at any time summon a meeting of the Governing Body. It shall not be necessary to give notice of a meeting of the Governing Body to any member thereof who is for the time being absent from the United Kingdom. The Chairman of the Governing Body shall preside at all meetings of the Governing Body. If there be no such Chairman or if the Chairman be not present at any meeting within 15 minutes after the time appointed for the meeting, the members present shall choose one of their number to 13 Chairman of the meeting.
- 9. The quorum necessary for the transaction of the business of the Governing Body shall be one-half of the Governing Members for the time being or the number nearest to but not less than one-half of such Governing Members. The Members for the time being of the Governing Body may act notwithstanding any vacancy in their body.

# DISQUALIFICATION

10. If any member of the Governing Body shall cease for any cause to be a member of the Governing Body he shall ipso facto cease to be a Member of the Association.

# GENERAL MEETINGS .

- shall be held at such time within not less than one month nor more than three months after the incorporation of the Association and at such place as the Governing Body shall determine. The Association shall in each year hold a General Meeting as its Annual General Meeting in addition to any other meetings in that year and shall specify the meeting as such in the notices calling it; and not more than fifteen months shall elapse between the date of one Annual General Meeting of the Association and that of the next. Provided, that, so long as the Association holds its first Annual General Meeting within eighteen months of its incorporation, it need not hold it in the year of its incorporation or in the following year. The Annual General Meeting shall be held at such time and place as the Chairman of the Governing Body shall appoint.
- 12. All general meetings other than the first General Meeting and Annual General Meetings shall be called Extraordinary General Meetings.
- 13. The Chairman or the Governing Body may, whenever he or they shall think fit, convene an Extraordinary General Meeting, and Extraordinary General Meetings shall also be convened on such requisition or in default may be convened by such requisitionists as provided by Section 132 of the Companies Act.

called for the passing of a Special Resolution shall be called by twenty-one days' notice in writing at the least, and a meeting of the Association other than an Annual General Meeting or a meeting for the passing of a Special Resolution shall be called by fourteen days' notice in writing at the least. The notice shall be exclusive of the day on which it is served or deemed to be served and of the day for which it is given, and shall specify the place, the day and the hour of meeting and, in case of special business, the general nature of that business, and shall be given in memner hereinafter mentioned or in such other manner if any, as may be prescribed by the Association in General Meeting, to the members of the Association and to the Auditors and to such other persons (if any) as are entitled under the Companies Act to receive notices of General Meetings.

Provided that a meeting of the Association, shall notwithstanding that it is called by shorter notice than that specified in this article be deemed to have been duly called if it is so agreed:-

- (a) in the case of a meeting called as the Annual General Meeting, by all the members entitled to attend and vote thereat; and
- (b) in the case of any other meeting, by a majority in number of the members having a right to attend and vote at the meeting, being a majority together representing not less than ninety-five per cent. of the total voting rights at that meeting of all the members.
- 15. The accidental omission to give notice of a meeting to, or the non-receipt of notice of a meeting by, any person entitled to receive notice thereof shall not invalidate the proceedings at that meeting.

## PROCEEDINGS AT GENERAL MEETINGS

- 16. All business shall be deemed special that is transacted at the first General Meeting and at an Extraordinary General Meeting and also all that is transacted at an Annual General Meeting with the exception of the consideration of the income and expenditure account and balance sheet, and the reports of the Governing Body and of the Auditors, and the appointment of, and the fixing of the remuneration of the Auditors.
- 17. No business shall be transacted at any General Meeting unless a quorum of Members is present at the time the meeting proceeds to business; save as herein otherwise provided, the quorum for any General Meeting shall be not less than one-half of the Members for the time being personally present.
- 18. If within half-an-hour from the time appointed for the meeting a quorum is not present, the meeting if convened upon the requisition of members shall be dissolved, and in any other case shall stand adjourned

to the same day in the next week at the same time and place, and if at such adjourned meeting a quorum is not present it shall be dissolved.

- 19. The Chairman of the Governing Body shall preside at all General Meetings of the Association. If at any meeting the Chairman is not present within fifteen minutes after the time appointed for holding the meeting, or is unwilling to act, the Members present shall choose some one of their number to be Chairman.
- 20. The Chairman of any General Meeting may, with the consent of a meeting at which a quorum is present (and shall if so directed by the meeting) adjourn the meeting from time to time, and from place to place, but no business shall be transacted at any adjourned meeting other than the business left unfinished at the meeting from which the adjournment took place. If a meeting is adjourned for 30 days or more, notice of the adjourned meeting shall be given as in the case of an original meeting, but save as aforesaid it shall not be necessary to give any notice of an adjournment or of the business to be transacted at an adjourned meeting.
- 21. Every question submitted to a General Meeting shall be decided by a show of hands, unless a poll is (before or on the declaration of the result of the show of hands) demanded by the Chairman or by at least three members or by any member or members representing not less than one-tenth of the total voting rights of all the members having the right to vote at the meeting. Unless a poll be so demanded, a declaration by the Chairman that a Resolution has been carried, or carried by a particular majority or lost, or not carried by a particular majority, and an entry to that effect in the Minute Book of the Association shall be conclusive evidence of the fact, without proof of the number or proportion of the votes recorded in favour of or against such Resolution. The demand for a poll may be withdrawn.
  - either at once or after an interval or adjournment in such manner and at such time and place as the Chairman directs, and the result of such poll shall be deemed to be the Resolution of the meeting at which the same was demanded provided always that a poll on the election of a Chairman or on a question of adjournment shall be taken forthwith. The demand of a poll shall not prevent the continuance of the meeting for the transaction of any business other than the question on which a poll has been demanded.
  - 23. In case of an equality of votes whether on a show of hands or on a poll the Chairman of the meeting shall have a second or casting vote.
  - 24. Every Member shall have one vote and (subject as provided by Article 23) no more, and that vote shall be given personally.
  - 25. Subject to the provisions of the Companies Act a resolution in writing signed by all the members for the time being entitled to receive notice of and to attend

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and vote at general meetings shall be as valid and effective as if the same had been passed at a general meeting of the Association duly convened and held.

## COMMITTEES

- 26. The Governing Body may appoint such committees as it thinks fit to a dvise it on any matters concerning the work of the Association; and any such committee may consist partly of Governing Members and partly of persons co-opted to the committee; but so that a Governing Member shall be the Chairman of every such committee and the number of co-opted persons on any committee shall not exceed six, and so that the co-opted persons shall not be entitled to vote at meetings of the committee.
- 27. The Governing Body shall not delegate any of its powers to a committee.
- 28. If, at any meeting of a committee the Chairman is not present within fifteen minutes after the time appointed for holding the same, the members present may choose one of their number to be Chairman of the meeting.
- 29. A committee may meet and adjourn as they think proper. Questions arising at any meeting shall be determined by a majority of votes of the members of such committee present who are entitled to vote and in the case of any equality of votes the Chairman of the meeting shall have a second or casting vote.
- 30. All acts done by any meeting of the Governing Body or of any committee or by any person acting as a member of the Governing Body or of a committee shall, notwithstanding that it be afterwards discovered that there was some defect in the appointment of any such person acting as aforesaid or that they or any of them were disqualified, be as valid as if every such person had been duly appointed and was qualified.

## SECRETARY

31. The Governing Body shall appoint some person selected by them to act as the Secretary of the Association with such salary as they consider reasonable. The Governing Body may dismiss such Secretary and appoint any other person in his place, except that the dismissal of a Secretary shall not take effect until such Secretary has been given the opportunity of appealing to the Association in General Meeting against such dismissal and appearing before them in support of his appeal. The provisions of Sections 177 and 179 of the Companies Act shall apply and be observed. The first Secretary is PERCY ARTHUR CHARLES THORN.

# MINUTES

32. The Secretary shall keep such books, accounts, minutes, and records as are necessary in connection with the business of the Association, and as may be directed by the Association. Such minutes shall be made in books provided for that purpose and shall include:-

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- (a) All appointments of officers.
- Names of the members present at each meeting (b) of the Association, the Governing Body and any committees.
- (c) All resolutions and proceedings at all meetings specified in (b)

# APPOINTMENT AND REMUNERATION OF STAFF

The appointment and remuneration of the Secretary Director and Staff of any Research Station controlled by the Association shall be subject to the approval of the Council.

## SEAL

The Seal of the Association shall not be affixed. to any instrument except by the authority of a Resolution of the Governing Body and in the presence of at least one member thereof and the Secretary, and such member and the Secretary shall sign every instrument to which the Seal is affixed in their presence.

# ACCOUNTS

- 35. The Governing Body shall cause true accounts to be kept of the sums of money received and expended by the Association and the matters in respect of which such receipts and expenditure take place, of all sales and purchases of got is by the Association and of the assets and liabilities of the Association. Accounts in such form as the Council shall prescribe shall be submitted to them as and when they may require and the Council, or any person appointed by them for the purpose, and H.M. Comptroller and Auditor General or any person or persons appointed by him, shall have power to require the production of any books or records of the Association. Proper books of account shall not be deemed to be kept if there are not kept such books of account as are necessary to give a true and fair view of the state of the Association's affairs and to explain its transactions.
- The books of account shall be kept at the registered office of the Association and subject to any reasonable restriction as to the time and manner of inspecting the same that may be imposed by the Association in General Meeting shall be open to the inspection of any Member at all reasonable times during the usual business hours.
- The Governing Body shall from time to time, in 37. accordance with Sections 148, 150 and 157 of the Companies Act, cause to be prepared and to be laid before the Association in General Meeting such income and expenditure accounts, balance sheets and reports as are referred to in these sections. A copy of every balance sheet which is to be laid before the Association in General Meeting together with copies of the income and expenditure account and reports shall, not less than twent; one clear days before the date of the meeting, be sent to all persons entitled to receive notices of General Meetings of the association.

38. Auditors shall be appointed and their duties regulated in accordance with Sections 159 to 162 of the Companies Act, the Governing Members being treated as the Directors mentioned in those sections.

#### NOTICES

- A notice may be given by the Association to any member either personally or by sending it by post to him at his registered address or (if he has no registered address within the United Kingdom) at the address, if any, within the United Kingdom supplied by him to the Association for the giving of notices to him. Where a notice is sent by post, service of the notice shall be deemed to be effected by properly addressing, prepaying and posting a letter containing the notice, and to have been effected in the case of a. notice of a meeting at the expiration of twenty-four hours after the letter containing the same is posted, and in any other case at the time at which the letter would be delivered in the ordinary course of post. I any member has no registered address in the United Kingdom and has not supplied to the Association an address in the United Kingdom for the giving of notices to him, a notice addressed to him and posted up in the registered office of the Association shall be deemed to have been duly given to him on the expiration of twenty-four hours after it is so posted up.
- 40. Any notice or requisition may be sent to the Association or to the Secretary by leaving it at the registered office of the Association or sending it through the post in a prepaid letter addressed to the Association or to the Secretary at the registered office of the Association.

POWER TO ACQUIRE PROPERTY, RIGHTS AND PRIVILEGES AND PROVISIONS REGARDING PATENTS

- 41. Without prejudice to the powers conferred by the Memorandum and by these Articles the Governing Body shall have the power:
  - (a) to purchase, or otherwise acquire, any property, rights or privileges which the Association is authorised to acquire, at such price and on such terms and conditions as they think fit and as may be approved by the Council;
  - (b) to apply for, or oppose the application by others for patents, concessions, rights, charters and legislative acts and authorisations from any government or authority.
- 42. Every employee of the Association engaged in research or other scientific work shall contract in writing that he will, in consideration of his employment, hold exclusively for the benefit of, and assign to the Association and the Council or their nominees at the cost of the Association, all rights and ownership in any discoveries, inventions, designs or other results arising in the course of such employment upon such research or other scientific work.

# WINDING-UP

43. The provisions of Clause 9 of the Memorandum of Association relating to the winding-up or dissolution of the Association shall have effect, and be observed as if the same were repeated in these Articles.

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Established 1895

# Solicitors' and General Typewriting Co.

Knw Stationers and Typists.

3, NEW SQUARE, LINCOLN'S INN, LONDON, W.C.2.

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DUPLICATE FOR THE FILE

No. 559784



# Certificate of Incorporation

I Hereby Certify That

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HOUGHTON POULTRY RESEARCH STATION
(the word "Limited" being omitted by Licence of the Board
of Trade)
is this day Incorporated under the Companies Act, 1948, and that the
Company is Limited.
Given under my hand at London this Seventh day of
January One Thousand Nine Hundred and Fifty six.
MGC CENTIFIC Registrar of Companies
Certificate 1 N.Doda PP. Pariciffer & Co Date 9//1956

# THE COMPANIES ACTS, 1948 to 1985

Company limited by Guarantee and not having a Share Capital

#### ARTICLES OF ASSOCIATION

OF

THE INSTITUTE FOR ANIMAL HEALTH (Adopted by Special Resolution passed on 20th October 1987)

## Interpretation

 In these Articles unless there be in the content anything inconsistent therewith:-

"The Association" shall mean the above-named Company.

"The Ministers" shall mean the Secretary of State for Education and Science, the Minister of Agriculture, Fisheries and Food, and the Secretary of State for Scotland, or any persons or bodies designated by them.

"The Council" shall mean the Agricultural and Food Research Council, or any persons or bodies designated by them.

"The Companies Act" shall mean the Companies Act, 1985.

"The Secretary" shall mean any person appointed to perform the duties of the Secretary of the Association.

"Month" shall mean calendar month.

Words and expressions defined in the Companies  $\mbox{\it Act}$  shall bear the meanings thereby assigned to them.

Words importing the singular number shall include the plural and vice versa.

Words importing the masculine gender shall include the feminine.

Words importing persons shall include bodies corporate.

These Articles shall be construed with reference to the provisions of the Companies Acts.

#### BUSINESS

2. The Association is established for the purposes expressed in the Memorandum of Association.



#### MEMBERSHIP

- 3. The number of members with thich the Association was registered is declared not to exceed twelve but the Governing Body may from time to time register an increase in members.
- 4. The members of the Association shall consist of the Members of the Governing Body for the time being. The provisions of sections 352 and 353 of the Companies Act shall be observed by the Association and every member of the Association shall either sign a written consent to become a member or sign the register of members on becoming a member.
- 5. The business of the Association shall be managed by the Governing Body which may exercise all the powers of the Association not required by these Articles or by the Companies Act to be exercised by the Association in General Meeting. The Governing Body shall consist of the Members of the Association, who shall from time to time be appointed by the Ministers after consultation with the Council. The Ministers shall from time to time appoint one of the Members to be Chairman of the Governing Body and determine the period for which he shall hold office.
- 6. Every Governing Member shall, subject as herein provided, continue to be a Governing Member for a period of three years from the date of his appointment unless during such period he dies or regigns or is removed from his Membership by the Ministers. A retiring Governing Member shall be eligible for reappointment. Provided that a Governing Member appointed to fill a vacancy caused by death, resignation or removal during a term of office shall hold his appointment only for the remainder of that term of office.

## PROCEEDINGS OF THE GOVERNING BODY

- 7. The Governing Body may meet together for the despatch of business, adjourn and otherwise regulate their meetings as they may think fit. Questions arising at any meeting shall be decided by a majority of votes. In case of an equality of votes the Chairman shall have a second or casting vote. A member of the Governing Body may, and the Secretary on the requisition of any such member shall, at any time summon a meeting of the Governing Body. It shall not be necessary to give notice of a meeting of the Governing Body to any member thereof who is for the time being absent from the United Kingdom. The Chairman of the Governing Body shall preside at all meetings of the Governing Body. If there be no such Chairman or if the Chairman be not present at any meeting within 15 minutes after the time appointed for the meeting, the members present shall choose one of their number to be Chairman of the meeting.
- 8. he quorum necessary for the transaction of the business of the overning Body shall be one-half of the Governing Members for the time being or the number nearest to but not less than one-half of such Governing Members. The Members for the time being of the Governing Body may act notwithstanding any vacancy in their body.

### DISQUALIFICATION

9. If any member of the Governing Body shall cease for any cause to be a member of the Governing Body he shall <u>ipso</u> <u>facto</u> cease to be a Member of the Association.

#### GENERAL MEETINGS

- 10. The Association shall in each year hold a General Meeting as its Annual General Meeting in addition to any other meetings in that year and shall specify the meeting as such in the notices calling it; and not more than fifteen months shall elapse between the date of one Annual General Meeting of the Association and that of the next. The Annual General Meeting shall be held at such time and place as the Chairman of the Governing Body shall appoint.
- 11. All general meetings other than the Annual General Meetings shall be called Extraordinary General Meetings.
- 12. The Chairman or the Governing Body may, whenever he or they shall think fit, convene an Extraordinary General meeting, and Extraordinary General Meetings shall also be convened on such requisition or in default may be convened by such requisitionists as provided by Section 368 of the Companies Act.

## NOTICE OF GENERAL MEETINGS

13. An Annual General Meeting and a meeting called for the passing of a Special Resolution shall be called by not less than twenty-one days' notice in writing, and a meeting of the Association other than an Annual General Meeting or a meeting for the passing of a Special Resolution shall be called by not less than fourteen days' notice in writing. The notice shall be exclusive of the day on which it is served or deemed to be served and of the day for which it is given, and shall specify the place, the day and the hour of meeting and, in case of special business, the general nature of that business, and shall be given in manner hereinafter mentioned or in such other manner if any, as may be prescribed by the Association in General Meeting, to the members of the Association and to the Auditors and to such other persons (if any) as are entitled under the Companies Act to receive notices of General Meetings.

Provided that a meeting of the Association shall notwithstanding that it is called by shorter notice than that specified in this article be deemed to have been duly called if it is so agreed:-

- (a) in the case of a meeting called as the Annual General Meeting, by all members entitled to attend and vote thereat; and
- (b) in the case of any other meeting, by a majority in number of the members having a right to attend and vote at the meeting, being a majority together representing not less than ninety-five per cent of the total voting rights at that meeting of all the members.

14. The accidental omission to give notice of a meeting to, or the non-receipt of notice of a meeting by, any person entitled to receive notice thereof shall not invalidate the proceedings at that meeting.

#### PROCEEDINGS AT GENERAL MEETINGS

- 15. All business shall be deemed special that is transacted at the first General Meeting and at an Extraordinary General Meeting and also all that is transacted at an Annual General Meeting with the exception of the consideration of the income and expenditure account and balance sheet, and the reports of the Governing Body and of the Auditors, and the appointment of, and the fixing of the remuneration of the Auditors.
- 16. No business shall be transacted at any General meeting unless a quorum of Members is personally present at the time the meeting proceeds to business; save as herein otherwise provided, the quorum for any General meeting shall be not less than one-half of the Members for the time being.
- 17. If within half-an-hour from the time appointed for the meeting a quorum is not present, the meeting if convened upon the requisition of members shall be dissolved, and in any other case shall stand adjourned to the same day in the next week at the same time and place, and if at such adjourned meeting a quorum is not present it shall be dissolved.
- 18. The Chairman of the Governing Body shall preside at all General Meetings of the Association. If at any meeting the Chairman is not present within fifteen minutes after the time appointed for holding the meeting, or is unwilling to act, the Members present shall choose some one of their number to be Chairman.
- 19. The Chairman of any General Meeting may, with the consent of a meeting at which a quorum is present (and shall if so directed by the meeting) adjourn the meeting from time to time, and from place to place, but no business shall be transacted at any adjourned meeting other than the business left unfinished at the meeting from which the adjournment took place. If a meeting is adjourned for 30 days or more, notice of the adjourned meeting shall be given as in the case of an original meeting, but save as aforesaid it shall not be necessary to give any notice of an adjournment or of the business to be transacted at an adjourned meeting.
- 20. Every question submitted to a General Meeting shall be decided by a show of hands, unless a poll is (before or on the declaration of the result of the show of hands) demanded by the Chairman or by at least three members or by any member or members representing not less than one-tenth of the total voting rights of all the members having the right to vote at the meeting. Unless a poll be so demanded, a declaration by the Chairman that a Resolution has been carried, or carried by a particular majority or lost, or not carried by a particular majority, and an entry to that effect in the Minute Book of the Association shall be conclusive evidence of the fact, without proof of the number or proportion of the votes recorded in favour of or against such Resolution. The demand for a poll may be withdrawn.

- 21. If a poll is duly demanded it shall be taken either at once or after an interval or adjournment in such manner and at such time and place as the Chairman directs, and the result of such poll shall be deemed to be the Resolution of the meeting at which the same was demanded provided always that a poll on the election of a Chairman or on a question of adjournment shall be taken forthwith. The demand of a poll shall not prevent the continuance of the meeting for the transaction of any business other than the question on which a poll has been demanded.
- 22. In case of an equality of votes whether on a show of hands or on a poll the Chairman of the meeting shall have a second or casting vote.
- 23. Every Member shall have one vote and subject as provided by Article 22 no more, and that vote shall be given personally.
- 24. Subject to the provisions of the Companies Act a resolution in writing signed by all the members for the time being entitled to receive notice of and to attend and vote at general meetings shall be as valid and effective as if the same had been passed at a general meeting of the Association duly convened and held.

#### COMMITTEES

- 25. The Governing Body may appoint such committees as it thinks fit to advise it on any matters concerning the work of the Association; and any such committees may consist partly of Governing Members and partly of persons co-opted to the committee; but so that a Governing Member shall be the Chairman of every such committee and the number of co-opted persons on any committee shall not exceed six, and so that the co-opted persons shall not be entitled to vote at meetings of the committee.
- 26. The Governing Body shall not delegate any of its powers to a Committee.
- 27. If, at any meeting of a Committee the Chairman is not present within fifteen minutes after the time appointed for holding the same, the members present may choose one of their number to be Chairman of the meeting.
- 28. A committee may meet and adjourn as they think proper. Questions arising at any meeting shall be determined by a majority of votes of the members of such committee present who are entitled to vote and in the case of any equality of votes the Chairman of the meeting shall have a second or casting vote.
- 29. All acts done by any meeting of the Governing Body or of any committee or by any person acting as a member of the Governing Body or of a committee shall, notwithstanding that it be afterward discovered that there was some defect in the appointment of any such person acting as aforesaid or that they or any of them were disqualified, be as valid as if every such person had been duly appointed and was qualified.

#### SECRETARY

30. The Governing Body shall appoint some person selected by them to act as the Secretary of the Association with such salary as they consider reasonable. The Governing Body may dismiss such Secretary and appoint any other person in his place, except that the dismissal of a Secretary shall not take effect until such Secretary has been given the opportunity of appealing to the Association in General Meeting against such dismissal and appearing before them in support of his appeal. The provisions of Sections 283(1)-(3) and 284 of the Companies Act shall apply and be observed.

#### MINUTES

- 31. The Secretary shall keep such books, accounts, minutes, and records as are necessary in connection with the business of the Association, and as may be directed by the Association. Such minutes shall be made in books provided for that purpose and shall include:-
  - (a) all appointments of officers;
  - (b) names of the members present at each meeting of the Association, the Governing Body and any committees;
  - (c) all resolutions and proceedings at all meetings specified in(b).

#### APPOINTMENT AND REMUNERATION OF STAFF

32. The appointment and remuneration of the Secretary, Director and Staff of any Laboratory controlled by the Association shall be subject to the approval of the Council.

#### SEAL

33. The Seal of the Association shall not be affixed to any instrument except by the authority of a Resolution of the Governing Body and in the presence of at least one member thereof and the Secretary, and such member and the Secretary shall sign every instrument to which the Seal is affixed in their presence.

#### ACCOUNTS

34. The Governing Body shall cause true accounts to be kept of the sums of money received and expended by the Association and the matters in respect of which such receipts and expenditure take place, of all sales and purchases of goods by the Association and of the assets and liabilities of the Association. Accounts in such form as the Council shall prescribe shall be submitted to them as and when they may require and the Council, or any person appointed by them for the purpose, and H.M. Comptroller and Auditor General or any person or persons appointed by him, shall have power to require the production of any books or records of the Association. Proper books of account shall not be deemed to be kept if there are not kept such books of account as are necessary to give a true and fair view of the state of the Associations's affairs and to explain its transactions.

- 35. The books of account shall be kept at the registered office of the Association and subject to any reasonable restriction as to the time and manner of inspecting the same that may be imposed by the Association in General Meeting shall be open to the inspection of any Member at all reasonable times during the usual business hours.
- 36. The Governing Body shall from time to time, cause to be prepared and to be laid before the Association in General Meeting such income and expenditure accounts, balance sheets and reports as may be required by the Companies Act. A copy of every balance sheet which is to be laid before the Association in General Meeting together with copies of the income and expenditure account and reports shall, not less than twenty one clear days before the date of the meeting, be sent to all persons entitled to receive notices of General Meetings of the Association.

#### AUDIT

37. Auditors shall be appointed and their duties regulated in accordance with Sections 384-394 of the Companies Act 1985; the Governing Members being treated as the Directors referred to in those sections.

#### NOTICES

- 38. A notice may be given by the Association to any member either personally or by sending it by post to him at his registered address or (if he has no registered address within the United Kingdom) at the address if any, within the United Kingdom supplied by him to the Association for the giving of notices to him. Where a notice is sent by post, service of the notice shall be deemed to be effected by properly addressing, prepaying and posting a letter containing the notice, and to have been effected in the case of a notice of a meeting at the expiration of twenty-four hours after the letter containing the same is posted, and in any other case at the time at which the letter would be delivered in the ordinary course of post. If any member has no registered address in the United Kingdom and has not supplied to the Association an address in the United Kingdom for the giving of notices to him, a notice addressed to him and posted up in the registered office of the Association shall be deemed to have been duly given to him on the expiration of twenty-four hours after it is so posted up.
- 39. Any notice or requisition may be sent to the Association or to the Secretary by leaving it at the registered office of the Association or sending it through the post in a prepaid letter addressed to the Association or to the Secretary at the registered office of the Association.

## POWER TO ACQUIRE PROPERTY, RIGHTS AND PRIVILEGES AND PROVISIONS REGARDING PATENTS

- 40. Without prejudice to the powers conferred by the Memorandum and by these Articles the Governing Body shall have the power;
  - (a) to purchase, or otherwise acquire, any property, rights or privileges which the Association is authorised to acquire, at such price and on such terms and conditions as they think fit and as may be approved by the Council;

- (b) to apply for patents, concessions, rights, charters and legislative acts and authorisations from any government or authority.
- 41. Every employee of the Association engaged in research or other scientific work shall contract in writing that he will, in consideration of his employment, hold exclusively for the benefit of, and assign to the Association and the Council or their nominees at the cost of the Association, all rights and ownership in any discoveries, inventions, designs or other results arising in the course of such employment upon such research or other scientific work.

#### WINDING UP

42. The provisions of Clause 9 of the Memorandum of Association relating to the winding-up or dissolution of the Association shall have effect, and be observed as if the same were repeated in these Articles.

#### NAMES, ADDRESSES AND DESCRIPTIONS OF SUBSCRIBERS

NAMES, ADDRESSES AND DESCRIPTIONS OF SUBSCRIBERS				
E. C. AMOROSO	252 Camden Road, London, N.W.1	Professor of Veterinary Physiology University of London		
GORDON GUTTERIDGE	Overwood, Langley Hill, King's Langley, Herts.	Retired Poultry Farmer		
KENNETH MATHER	28 Hazelhurst Road, King's Heath, Birmingham 14.	Professor of Genetics, University of Birmingham		
STAMP	Middle House, 7 Hyde Park Street, London, V.2.	Professor of Bacteriology, University of London.		
THOS. H. TURNEY	Quinton Green, Northampton.	Farmer		
E. G. WHITE	Clifton Lodge, 11A Chester Road, Hooton Wirral, Cheshire.	Professor of Veterinary Preventive Medicine, University of Liverpool.		
W. R. WOOLDRIDGE	14 Ashley Place, London, S.W.1.	Scientific Director, Animal Health Trust.		
F. H. GROVE	Manzard House, Downham, Billericay, Essex.	Hatcheryman and Company Director.		
HUGH R. FINN	Kinnerole House, Nackington, Canterbury.	Farmer, Farmer Advisor, Company Director.		

DATED the fifth day of December, 1955.

WITNESS to the first six of the above Signatures:-

P. A. C. THORNE,
Assistant Secretary,
Agricultural Research Council.

WITNESS to the last three of the above Signatures:-

G. C. W. RADCLIFFE, 10, Little College Street, Westminster, S.W.1. Solicitor.

Ja 559784

#### THE COMPANIES ACT 1948

Company limited by Guarantee and not having a Share Capital

#### MEMORANDUM OF ASSOCIATION

**OF** 

#### THE INSTITUTE FOR ANIMAL HEALTH'

(as amended by Special Resolutions passed on 20 October 1987 and 24 March 1995)

- 1. The name of the Company (hereinafter called "the Association") is "The Institute for Animal Health".
- 2. The registered office of the Association will be situate in England.
- 3. The objects for which the Association is established are:-
  - (a) To conduct and promote scientific research on diseases of animals, including exotic diseases and to develop appropriate methods for their control; and on all matters concerned with animal health and ancillary thereto and to publish the results of such research.

## Provided that

- (i) research shall be in accordance with a programme approved from time to time by the Biotechnology and Biological Sciences Research Council and
- (ii) research on any disease which is compulsorily notifiable under an order made by the Minister of Agriculture, Fisheries and Food shall not be undertaken without the prior consent of the Minister.
- (b) To prepare, edit, print, publish, issue, acquire and circulate any literary works or matters treating of or bearing on the said research work; establish and maintain collections of material, literature and scientific data relating thereto; disseminate information obtained therefrom; and contribute towards the provision of a library or libraries designed to assist such work.

And in furtherance of the above objects but not otherwise the Association shall have the following powers:-

\*the Company name was amended from "Houghton Poultry Research Station" by a Special Resolution dated 20 October 1987.



- (c) To buy and to sell and to manufacture for sale serums, vaccines and other drugs or products for research and for the general treatment and control of disease, to enter into contracts agreements or the grant of licences for the manufacture, production or distribution thereof, and to receive payment or royalties therefore, provided that all or any of the profits accruing to the Association under this sub-paragraph shall be applied to the objects under sub paragraph 3(a).
- (d) To acquire from the Animal Health Trust all or any part or parts of the premises, land, buildings, fixed plant, machinery and equipment at Houghton in the County of Cambridge founded by the Animal Health Trust as a Poultry Research Station.
- (e) To purchase, feu, take on lease or in exchange, hire, or otherwise acquire any real or heritable personal or moveable property and in particular all or any part of parts of the lands buildings laboratories and other hereditaments at Houghton in the County of Cambridge now belonging to the Animal Health Trust and occupied or used by such Trust as or in connection with its Poultry Research Station and also any land, buildings, workshops, or laboratories, wheresoever situate and any machinery, plant, apparatus, appliances and livestock, and any rights or privileges necessary for the purposes, of the Association and to construct, erect, alter, improve and maintain any buildings which may be from time to time required for the purposes of the Association and to manage, farm, develop, sell, feu, demise, let, hire, mortgage, dispose of, turn to account or otherwise deal with all or part of the same and conduct and carry on experiments, and to provide funds for such work and for payments to any person or persons engaged in research work, whether on such land or in such laboratories or elsewhere, and to promote the training of persons employed to be employed on such work.
- (f) To retain or employ qualified professional advisers in connection with the objects of the Association and pay them such fees or remuneration as may be thought expedient; and employ and remunerate instructors and supervisors for the training of persons employed or to be employed on such work.
- (g) To encourage the discovery of, and investigate and make known the value and merits of inventions, improvements, processes, materials and designs which may seem capable of being used in connection with the objects of the Association as specified in paragraph (a) of this Clause; and to purchase, or otherwise acquire, any letters patent or licences whether exclusive, non-exclusive, or limited, relating to such inventions, improvements, processes, materials and designs whether in the United Kingdom or any other part of the world, and to acquire and register any designs or standardisation matters with a view to the use thereof for the control of diseases of animals upon such

terms as may seem expedient and to arrange for the development, perfecting and testing of the value of such inventions, improvements, processes, materials and designs.

(h) To apply to Government Departments, local government authorities, and other public bodies, corporations, companies, trusts or persons for, and accept grants of money and of land, donations, gifts, subscriptions and other assistance with a view to promoting the objects of the Association; and to discuss and negotiate with them schemes of research and other work and matters within the objects of the Association, and to conform to any proper conditions upon which such grants and other payments may be made.

Provided that the consent of the Biotechnology and Biological Sciences Research Council shall have been obtained before an application for a grant, donation, gift or subscription is made to any Government Department, public or other body, corporation, company, trust or person (other than the Biotechnology and Biological Sciences Research Council) and before any offer of such a grant, donation, gift or subscription is accepted.

Provided also that the consent of the Biotechnology and Biological Sciences Research Council shall have been obtained before any schemes of research or other work are negotiated with any Government Department, public or other body, corporation, company, trust or person.

- (i) To assist in the charitable research work of, or collaborate with any persons, associations and institutions and other bodies, incorporated or not incorporated, engaged in scientific research.
- (j) To establish, equip, maintain, control and manage associate and subsidiary stations for the purpose of undertaking research similar to that being done at the Institute for Animal Health in the United Kingdom or elsewhere, as may seem expedient, and from time to time to determine the constitution, rights, privileges, obligations and duties of such stations, and where thought fit to dissolve or modify the same. Provided that the approval of the Biotechnology and Biological Sciences Research Council shall have been given to the establishment of such stations.
- (k) To undertake and execute any trusts, which may be necessary for any of the objects of the Association.
- (1) Subject to the approval of the Biotechnology and Biological Sciences Research Council to borrow or raise any money that may be required by the Association upon such terms and upon such security as may be deemed advisable.

(m) To invest the monies of the Association not immediately required for its purpose in or upon such investments, securities or property as may be thought fit, but so that monies subject or representing property subject to the jurisdiction of the Charity Commissioners for England and Wales shall only be invested in such securities and with such sanction (if any) as may for the time being be prescribed by law.

Provided that the approval of the Biotechnology and Biological Sciences Research Council shall previously have been given to the investment of any such monies.

- (n) To pay all expenses, preliminary or incidental to the formation of the Association and its registration.
- (o) To use the funds of the Association in the employment of persons of learning or skill and the provisions and use of buildings and of instruments, materials, and appliances, and of any equipment of the Association for any form of scientific studies which may be considered to have some bearing on the objects of the Association as defined in paragraph (a) of this Clause.
- (p) Subject to the approval of the Biotechnology and Biological Sciences Research Council to grant pensions and retirement benefits to or for the employees or former employees of the Association and to the widows, children and other dependents of deceased employees who are in necessitous circumstances; and to pay or subscribe to funds or schemes for the provision of pensions and retirement benefits for employees and former employees of the Association, their widows, children and other dependents.
- (q) To procure the Association to be registered or recognised in any part of the Commonwealth or in any foreign country or place.
- (r) To do all such other lawful things as may be necessary or expedient for the attainment of any or all of the objects specified in this Memorandum.

Provided always that nothing herein contained shall empower the Association to carry on the business of life assurance, personal accident assurance, fire assurance or employers liability insurance or any business of insurance within the meaning of the Assurance Companies Act, 1909, or any Act extending, amending or re-enacting the same, or to re-insure any risks comprised in any such business aforesaid.

Provided also that the objects of the Association shall not extend to the regulation of relations between employers and workers or organisations of employers and organisations of workers.

Provided also that in case the Association shall take or hold any property subject to the jurisdiction of the Charity Commissioners for England and Wales or the Chancellor of the Duchy of Lancaster or any authority exercising corresponding jurisdiction outside England and Wales, the Association shall not sell, feu, mortgage, charge or lease the same without such authority, approval or consent as may be required by law, and as regards any such property the Governing Body of the Association shall be chargeable for such property as may come into their hands, and shall be answerable and accountable for their own acts, receipts, neglects and defaults, and for the due administration of such property in the same manner and to the same extent as they would as such Governing Body have been if no incorporation had been effected, and the incorporation of the Association shall not diminish or impair any control or authority exercisable by the Chancery Division, the Charity Commissioners or the Chancellor of the Duchy of Lancaster or any such other authority as aforesaid over such Governing Body, but they shall, as regards any such property, be subject jointly and separately to such control or authority, as if the Association were not incorporated. In case the Association shall take or hold any property which may be subject to any trusts, the Association shall only deal with the same in such manner as allowed by law having regard to such trusts.

4. The income and property of the Association whencesoever derived shall be applied solely towards the promotion of the objects of the Association as set forth in this Memorandum of Association; and no portion thereof shall be paid or transferred directly or indirectly, by way of dividend, gift, division, bonus, or otherwise howsoever by way of profit to the members of the Association.

Provided that nothing herein shall prevent the payment, in good faith, of reasonable and proper remuneration to any officer or servant of the Association or to any member of the Association in return for any services actually rendered to the Association or for any material, labour, plant and power supplied for experimental purposes, nor prevent the payment of interest at a rate per annum not exceeding two per cent less than the minimum lending rate prescribed for the time being by the Bank of England, or three per cent, whichever is the greater on money lent or payment of a reasonable and proper rent for premises demised or let by any member to the Association: but so that no member of the Association shall, except with the approval of the Biotechnology and Biological Sciences Research Council first obtained, be appointed to any salaried office of the Association or any office of the Association paid by fees; and that except with such approval as aforesaid, no remuneration or other benefit in money or monies worth shall be given by the Association to any member except repayment of out-of-pocket expenses and interest at the rate aforesaid on money lent or of the payment of a reasonable and proper rent for premises demised, or let to the Association. Provided that nothing hereinbefore contained shall prevent any payment to any Company of which a member of the Association may be a member or shreholder holding less than one hundredth part of its capital, and members shall not be bound to account for any share of profits they may receive in respect of any such payment.

Provided also that nothing herein shall prevent any member of the Association from exercising any processes, and making, using, acquiring and vending any articles and things in the ordinary course of his business for profit or otherwise under any licence or permission in respect of any discovery, invention or patent resulting from the work of the Association.

- 5. No addition, alteration or amendment shall be made to or in the provisions or regulations contained the Memorandum or Articles of Association for the time being in force, unless the same shall have been previously submitted to and approved by the Biotechnology and Biological Sciences Research Council.
- 6. The fourth and fifth paragraphs of this Memorandum contain conditions on which a licence is granted by the Board of Trade to the Association in pursuance of Section 19 of the Companies Act, 1948.
- 7. The liability of the members is limited.
- 8. Every member of the Association undertakes to contibute to the assets of the Association in the event of the same being wound up while he is a member, or within one year after he ceases to be a member, for payment of the debts and liabilities of the Association contracted before he ceases to be a member, and of the costs, charges and expenses of winding up, and for the adjustment of the rights of the contributories among themselves, such amount as may be required not exceeding one pound.
- 9. If upon the winding up or dissolution of the Association there remains after the satisfaction of all its debts and liabilities, any property whatsoever, the same shall not be paid to or distributed among the members of the Association but shall be given or transferred to a charitable organisation or organisations having similar objects.
- True accounts shall be kept of the sum of money received and expended by the Association, and the matters in respect of which such receipts and expenditure take place, of all sales and purchases of goods by the Association, and of the property, credits and liabilities of the Association. Once at least in every year the accounts of the Association shall be examined, and the correctness of the same and the balance-sheet ascertained by one or more properly qualified Auditor or Auditors.

We, the several persons whose names and addresses are subscribed, are desirous of being formed into a Company in pursuance of this Memorandum of Association.

## NAMES, ADDRESSES AND DESCRIPTIONS OF SUBSCRIBERS

E C AMOROSO	252 Camden Rd London NW1	Professor of Veterinary Physiology University of London
GORDON GUTTERIDGE	Overwood Langley Hill King's Langley, Herts	Retired Poultry Farmer
KENNETH MATHER	28 Hazelhurst Rd King's Heath Birmingham 14	Professor of Genetics University of Birmingham
STAMP	Middle House 7 Hyde Park Street London W2	Professor of Bacteriology University of London
THOS H TURNEY	Quinton Green Northampton	Farmer
E G WHITE	Clifton Lodge 11A Chester Rd Hooton Wirral, Cheshire	Professor of Veterinary Preventive Medicine University of Liverpool
W R WOOLDRIDGE	14 Ashley Place London SW1	Scientific Director Animal Health Trust
F H GROVE	Manzard House Downham Billericay, Essex	Hatcheryman and Company Director
HUGH R FINN	Kinnerole House Nackington Canterbury	Farmer Farmer Advisor Company Director

DATED the fifth day of December 1955.

WITNESS to the first six of the above Signatures:-

P A C THORNE Assistant Secretary Agricultural Research Council

WITNESS to the last three of the above Signatures:-

G C W RADCLIFFE 10 Little College Street Westminster SW1 Solicitor

Je

### THE COMPANIES ACTS, 1948 TO 1985

Companies limited by Guarantee and not having a Share Capital

#### ARTICLES OF ASSOCIATION

OF

#### THE INSTITUTE FOR ANIMAL HEALTH

(Adopted by Special Resolution passed on 20 October 1987 and amended by Special Resolution passed on 24 March 1995)

#### Interpretation

1. In these Articles unless there be in the content anything inconsistent therewith:

"The Association" shall mean the above-named Company.

"The Ministers" shall mean the Chancellor of the Duchy of Lancaster, the Minister of Agriculture, Fisheries and Food, and the Secretary of State for Scotland, or any persons or bodies designated by them.

"The Council" shall mean the Biotechnology and Biological Sciences Research Council, or any persons or bodies designated by them.

"The Companies Act" shall mean the Companies Act, 1985.

"The Secretary" shall mean any person appointed to perform the duties of the Secretary of the Association.

"Month" shall mean calendar month.

Words and expressions defined in the Companies Act shall bear the meanings thereby assigned to them.

Words importing the singular number shall include the plural and vice versa.

Words importing the masculine gender shall include the feminine.

Words importing persons shall include bodies corporate.

These Articles shall be construed with reference to the provisions of the Companies Acts.

#### BUSINESS

The Association is established for the purposes expressed in the Memorandum of Association.

#### **MEMBERSHIP**

- The number of members with which the Association was registered is declared not to exceed twelve but the Governing Body may from time to time register an increase in members.
- The members of the Association shall consist of the Members of the Governing Body for the time being. The provisions of sections 352 and 353 of the Companies Act shall be observed by the Association and every member of the Association shall either sign a written consent to become a member or sign the register of members on becoming a member.
- The business of the Association shall be managed by the Governing Body which may exercise all the powers of the Association not required by these Articles or by the Companies Act to be exercised by the Association in General Meeting. The Governing Body shall consist of the Members of the Association, who shall from time to time be appointed by the Ministers after consultation with the Council. The Ministers shall from time to time appoint one of the Members to be Chairman of the Governing Body and determine the period for which he shall hold office.
- 6 Every Governing Member shall, subject as herein provided, continue to be a Governing Member for a period of three years from the date of his appointment unless during such period he dies or resigns or is removed from his Membership by the Ministers. A retiring Governing Member shall be eligible for reappointment. Provided that a Governing Member appointed to fill a vacancy caused by death, resignation or removal during a term of office shall hold his appointment only for the remainder of that term of office.

### PROCEEDINGS OF THE GOVERNING BODY

The Governing Body may meet together for the despatch of business, adjourn and otherwise regulate their meetings as they may think fit. Questions arising at any meeting shall be decided by a majority of votes. In case of an equality of votes

the Chairman shall have a second or casting vote. A member of the Governing Body may, and the Secretary on the requisition of any such member shall, at any time summon a meeting of the Governing Body. It shall not be necessary to give notice of a meeting of the Governing Body to any member thereof who is for the timebeing absent from the United Kingdom. The Chairman of the Governing Body shall preside at all meetings of the Governing Body. If there be no such Chairman or if the Chairman be not present at any meeting within 15 minutes after the time appointed for the meeting, the members present shall choose one of their number to be Chairman of the meeting.

The quorum necessary for the transaction of the business of the Governing Body shall be on-half of the Governing Members for the time being or the number nearest to but not less than one-half of such Governing Members. The Members for the time being of the Governing Body may act notwithstanding any vacancy in their body.

### DISQUALIFICATION

9 If any member of the Governing Body shall cease for any cause to be a member of the Governing Body he shall *ipso facto* cease to be a Member of the Association.

#### **GENERAL MEETINGS**

- The Association shall in each year hold a General Meeting as its Annual General Meeting in addition to any other meetings in that year and shall specify the meeting as such in the notices calling it; and not more than fifteen months shall elapse between the date of one Annual General Meeting of the Association and that of the next. The Annual General Meeting shall be held at such time and place as the Chairman of the Governing Body shall appoint.
- All general meetings other than the Annual General Meetings shall be called Extraordinary General Meetings.
- The Chairman or the Governing Body may, whenever he or they shall think fit, convene an Extraordinary General meeting, and Extraordinary General Meetings shall also be convened on such requisition or in default may be convened by such requisitionists as provided by Section 368 of the Companies Act.

#### NOTICE OF GENERAL MEETINGS

An Annual General Meeting and a meeting called for the passing of a Special

Resolution shall be called by not less than twenty-one days' notice in writing, and a meeting of the Association other than an Annual General Meeting or a meeting for the passing of a Special Resolution shall be called by not less than fourteen days' notice in writing. The notice shall be exclusive of the day on which it is served or deemed to be served and of the day for which it is given, and shall specify the place, the day and the hour of meeting and, in case of special business, the general nature of that business, and shall be given in manner hereinafter mentioned or in such other manner if any, as may be prescribed by the Association in General meeting, to the members of the Association and to the Auditors and to such other persons (if any) as are entitled under the Companies Act to receive notices of General Meetings.

Provided that a meeting of the Association shall notwithstanding that it is called by shorter notice than that specified in this article be deemed to have been duly called if it is so agreed:-

(a) in the case of a meeting called as the Annual General Meeting, by all members entitled to attend and vote thereat;

and

- (b) in the case of any other meeting, by a majority in number of the members having a right to attend and vote at the meeting, being a majority together representing not less than ninety-five per cent of the total voting rights at that meeting of all the members.
- The accidental omission to give notice of a meeting to, or the non-receipt of notice of a meeting by, any person entitled to receive notice thereof shall not invalidate the proceedings at that meeting.

#### PROCEEDINGS AT GENERAL MEETINGS

- All business shall be deemed special that is transacted at the first General Meeting and at an Extraordinary General Meeting and also all that is transacted at an Annual General Meeting with the exception of the consideration of the income and expenditure account and balance sheet, and the reports of the Governing Body and of the Auditors, and the appointment of, and the fixing of the remuneration of the Auditors.
- No business shall be transacted at any General meeting unless a quorum of members is personally present at the time the meeting proceeds to business; save as herein otherwise provided, the quorum for any General meeting shall be not less than one-half of the Members for the time being.

- If within half-an-hour from the time appointed for the meeting a quorum is not present, the meeting if convened upon the requisition of members shall be dissolved, and in any other case shall stand adjourned to the same day in the next week at the same time and place, and if at such adjourned meeting a quorum is not present it shall be dissolved.
- The Chairman of the Governing Body shall preside at all General Meetings of the Association. If at any meeting the Chairman is not present within fifteen minutes after the time appointed for holding the meeting, or is unwilling to act, the Members present shall choose some one of their number to be Chairman.
- The Chairman of any General Meeting may, with the consent of a meeting at which a quorum is present (and shall if so directed by the meeting) adjourn the meeting from time to time, and from place to place, but no business shall be transacted at any adjourned meeting other than the business left unfinished at the meeting from which the adjournment took place. If a meeting is adjourned for 30 days or more, notice of the adjourned meeting shall be given as in the case of an original meeting, but save as aforesaid it shall not be necessary to give any notice of an adjournment or of the business to be transacted at an adjourned meeting.
- 20. Every question submitted to a General Meeting shall be decided by a show of hands, unless a poll is (before or on the declaration fro the result of the show of hands) demanded by the Chairman or by at least three members or by any member or members representing not less than one-tenth of the total voting rights of all the members having the right to vote at the meeting. Unless a poll be so demanded, a declaration by the Chairman that a resolution has been carried, or carried by a particular majority or lost, or not carried by a particular majority, and an entry to that effect in the Minute Book of the Association shall be conclusive evidence of the fact, without proof of the number or proportion of the votes recorded in favour of or against such Resolution. The demand for a poll may be withdrawn.
- If a poll is duly demanded it shall be taken either at once or after an interval or adjournment in such manner and at such time and place as the Chairman directs, and the result of such poll shall be deemed to be the Resolution of the meeting at which the same was demanded provided always that a poll on the election of a Chairman or on a question of adjournment shall be taken forthwith. The demand of a poll shall not prevent the continuance of the meeting for the transaction of any business other than the question on which a poll has been demanded.
- In case of an equality of votes whether on a show of hands or on a poll the Chairman of the meeting shall have a second or casting vote.
- Every Member shall have one vote and subject as provided by Article 22 no more, and that vote shall be given personally.

Subject to the provisions of the Companies Act a resolution in writing signed by all the members for the time being entitled to receive notice of and to attend and vote at general meetings shall be as valid and effective as if the same had been passed at a general meeting of the Association duly convened and held.

#### **COMMITTEES**

- The Governing Body may appoint such committees as it thinks fit to advise it on any matters concerning the work of the Association; and any such committees may consist partly of Governing Members and partly of persons co-opted to the committee; but so that a Governing Member shall be the Chairman of every such committee and the number of co-opted persons on any committee shall not exceed six, and so that the co-opted persons shall not be entitled to vote at meetings of the committee.
- The Governing Body shall not delegate any of its powers to a Committee.
- If, at any meeting of a Committee the Chairman is not present within fifteen minutes after the time appointed for holding the same, the members present may choose one of their number to be Chairman of the meeting.
- A committee may meet and adjourn as they think proper. Questions arising at any meeting shall be determined by a majority of votes of the members of such committee present who are entitled to vote and in the case of any equality of votes the Chairman of the meeting shall have a second or casting vote.
- All acts done by any meeting of the Governing Body or of any committee or by any person acting as a member of the Governing Body or of a committee shall, notwithstanding that it be afterward discovered that there was some defect in the appointment of any such person acting as aforesaid or that they or any of them were disqualified, be as valid as if every such person had been duly appointed and was qualified.

### **SECRETARY**

The Governing Body shall appoint some person selected by them to act as the Secretary of the Association with such salary as they consider reasonable. The Governing Body may dismiss such Secretary and appoint any other person in his place, except that the dismissal of a Secretary shall not take effect until such Secretary has been given the opportunity of appealing to the Association in General Meeting against such dismissal and appearing before them in support of his appeal. The provisions of Sections 283(1)-(3) and 284 of the Companies Act

shall apply and be observed.

#### **MINUTES**

- 31 The Secretary shall keep such books, accounts, minutes, and records as are necessary in connection with the business of the Association, and as may be directed by the Association. Such minutes shall be made in books provided for that purpose and shall include:-
  - (a) all appointments of officers;
  - (b) names of the members present at each meeting of the Association, the Governing Body and any committees;
  - (c) all resolutions and proceedings at all meetings specified in (b).

#### APPOINTMENT AND REMUNERATION OF STAFF

The appointment and remuneration of the Secretary, Director and Staff of any Laboratory controlled by the Association shall be subject to the approval of the Council.

#### SEAL

33 The Seal of the Association shall not be affixed to any instrument except by the authority of a Resolution of the Governing Body and in the presence of at least one member thereof and the Secretary, and such member and the Secretary shall sign every instrument to which the Seal is affixed in their presence.

#### **ACCOUNTS**

The Governing Body shall cause true accounts to be kept of the sums of money received and expended by the Association and the matters in respect of which such receipts and expenditure take place, of all sales and purchases of goods by the Association and of the assets and liabilities of the Association. Accounts in such form as the Council shall prescribe shall be submitted to them as and when they may require and the Council, or any person appointed by them for the purpose, and H. M. Comptroller and Auditor General or any person or persons appointed by him, shall have power to require the production of any books or records of the Association. Proper books of account shall not be deemed to be kept if there are

- not kept such books of account as are necessary to give a true and fair view of the state of the Association's affairs and to explain its transactions.
- The books of account shall be kept at the registered office of the Association and subject to any reasonable restriction as to the time and manner of inspecting the same that may be imposed by the Association in General Meeting shall be open to the inspection of any Member at all reasonable times during the usual business hours.
- The Governing Body shall from time to time, cause to be prepared and to be laid before the Association in General Meeting such income and expenditure accounts, balance sheets and reports as may be required by the Companies Act. A copy of every balance sheet which is to be laid before the Association in General Meeting together with copies of the income and expenditure account and reports shall, not less than twenty one clear days before the date of the meeting, be sent to all persons entitled to receive notices of General Meetings of the Association.

#### AUDIT

Auditors shall be appointed and their duties regulated in accordance with Sections 384-394 of the Companies Act 1985; the Governing Members being treated as the Directors referred to in those sections.

#### **NOTICES**

- A notice may be given by the Association to any member either personally or by sending it by post to him at his registered address or (if he has no registered address within the United Kingdom) at the address if any, within the United Kingdom supplied by him to the Association for the giving of notices to him.

  where a notice is sent by post, service of the notice shall be deemed to be effected by properly addressing, prepaying and posting a letter containing the notice, and to have been effected in the case of a notice of a meeting at the expiration of twenty-four hours after the letter containing the same is posted, and in any other case at the time at which the letter would be delivered in the ordinary curse of post. If any member has no registered address in the United Kingdom and has not supplied to the Association an address in the United Kingdom for the giving of notices to him, a notice addressed to him and posted up in the registered office of the Association shall be deemed to have been duly given to him on the expiration of twenty-four hours after it is so posted up.
- Any notice or requisition may be sent to the Association or to the Secretary by leaving it at the registered office of the Association or sending it through the post

in a prepaid letter addressed to the Association or to the Secretary at the registered office of the Association.

# POWER TO ACQUIRE PROPERTY, RIGHTS AND PRIVILEGES AND PROVISIONS REGARDING PATENTS

- Without prejudice to the powers conferred by the Memorandum and by these Articles the Governing Body shall have the power;
  - (a) to purchase, or otherwise acquire, any property, rights or privileges which the Association is authorised to acquire, at such price and on such terms and conditions as they think fit and as may be approved by the Council;
  - (b) to apply for patents, concessions, rights, charters and legislative acts and authorisations from any government or authority
- 41 Every employee of the Association engaged in research or other scientific work shall contract in writing that he will, in consideration of his employment, hold exclusively for the benefit of, and assign to the Association and the Council or their nominees at the cost of the Association, all rights and ownership in any discoveries, inventions, designs or other results arising in the course of such employment upon such research or other scientific work.

#### WINDING UP

The provisions of Clause 9 of the Memorandum of Association relating to the winding-up or dissolution of the Association shall have effect, and be observed as if the same were repeated in these Articles.

## NAMES, ADDRESSES AND DESCRIPTIONS OF SUBSCRIBERS

E C AMOROSO	252 Camden Road London NW1	Professor of Veterinary Physiology University of London
GORDON GUTTERIDGE	Overwood Langley Hill King's Langley, Herts	Retired Poultry Farmer
KENNETH MATHER	28 Hazelhurst Road King's Heath Birmingham 14	Professor of Genetics University of Birmingham
STAMP	Middle House 7 Hyde Park Street London W2	Professor of Bacteriology University of London
THOS H TURNEY	Quinton Green Northampton	Farmer
E G WHITE	Clifton Lodge 11A Chester Road Hooton Wirral, Cheshire	Professor of Veterinary Preventive Medicine University of Liverpool
W R WOOLDRIDGE	14 Ashley Place London SW1	Scientific Director Animal Health Trust
F H GROVE	Manzard House Downham Billericay, Essex	Hatcheryman and Company Director
HUGH R FINN	Kinnerole House Nackington Canterbury	Farmer Farmer Advisor Company Director

DATED the fifth day of December 1955

WITNESS to the first six of the above Signatures:-

P A C THORNE
Assistant Secretary
Agricultural Research Council

WITNESS to the last three of the above Signatures:-

G C W RADCLIFFE 10 Little College Street Westminster SW1 Solicitor Company Number: 559784

#### THE COMPANIES ACTS 1948 to 2006

## COMPANY LIMITED BY GUARANTEE AND NOT HAVING A SHARE CAPITAL

#### **ARTICLES OF ASSOCIATION**

OF

#### THE PIRBRIGHT INSTITUTE

(ADOPTED BY SPECIAL RESOLUTION PASSED ON September 2019)





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A03 24/09/2019
COMPANIES HOUSE

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#### THE COMPANIES ACTS 1948 to 2006

## COMPANY LIMITED BY GUARANTEE AND NOT HAVING A SHARE CAPITAL

#### ARTICLES OF ASSOCIATION

OF

#### THE PIRBRIGHT INSTITUTE

#### (ADOPTED BY SPECIAL RESOLUTION PASSED ON September 2019)

#### **PRELIMINARY**

These Articles alone shall constitute the regulations of the Charity to the exclusion of Table A set out in the Companies Act 1948 and any other articles or regulations prescribed by statute.

#### 1. **DEFINITIONS AND INTERPRETATION**

1.1 In these Articles the following expressions have the following meanings unless inconsistent with the context:

"Act" the Companies Act 2006 (as amended from

time to time);

"these Articles" these Articles of Association, whether as

originally adopted or as from time to time

altered by special resolution;

"BBSRC" the Biotechnology and Biological Sciences

Research Council (or other such body

established as the successor thereto);

"Chair of the Science Advisory

Board"

the person appointed to chair meetings of the Science Advisory Board from time to

time in accordance with the terms of appointment prescribed by the directors;

"Chairperson" the person appointed to chair meetings of

the directors from time to time in

accordance with these Articles;

"Charity" the company regulated by these Articles;

"clear days" in relation to the period of a notice means

that period excluding the day when the notice is given or deemed to be given and the day for which it is given or on which it

is to take effect;

"Corporate Member" any firm, partnerships, company,

corporation, limited liability partnership, association, organisation, government, state, foundation or trust (in each case whether or not having separate legal personality) that is a member of the

Charity admitted in accordance with these Articles and any successor of such body;

"Commission"

the Charity Commission for England and Wales;

"directors"

the directors for the time being of the Charity or (as the context shall require) any of them acting as the board of directors of the Charity. The directors are charity trustees as defined by section 177

of the Charities Act 2011;

"electronic form" "electronic means"

and have the meanings given to them in section 1168 of the Act;

"the National Farmers' Union"

the National Farmers' Union of England and Wales;

"Objects"

has the meaning given to it in Article 2.1;

"office"

the registered office of the Charity;

"the Royal College of Veterinary Surgeons"

the Royal College of Veterinary Surgeons, a company incorporated by royal charter with company number RC000532;

"Science Advisory Board"

advisory board of the Charity constituted by the directors pursuant to Article 14.2;

"United Kingdom"

Great Britain and Northern Ireland;

"writing" or "written"

printing, typewriting, lithography, photography and any other mode or modes of representing or reproducing words, symbols or other information in a legible and non-transitory form, including (subject to the provisions of the Act) in electronic form.

- In these Articles any reference to "persons" includes natural persons, firms, 1.2 partnerships, companies, corporations, limited liability partnerships, associations, organisations, governments, states, foundations and trusts (in each case whether or not having separate legal personality).
- 1.3 Unless the context otherwise requires, words or expressions contained in these Articles shall bear the same meaning as in the Act but excluding any statutory modification thereof not in force when these Articles become binding on the Charity.

#### 2. **OBJECTS OF THE CHARITY**

- 2.1 The Charity's objects ("Objects") are:
  - to conduct and promote scientific research on diseases of animals, 2.1.1 including exotic diseases and to develop appropriate methods for their

- control, and on all matters concerned with animal health and ancillary thereto and to publish the results of such research; and
- 2.1.2 to prepare, edit, print, publish, issue, acquire and circulate any literary works or matters treating of or bearing on the said research work, establish and maintain collections of material, literature and scientific data relating thereto, disseminate information obtained therefrom, and contribute towards the provision of a library or libraries designed to assist such work.
- 2.2 The Charity's objects are specifically restricted to the Objects.

#### POWERS

In furtherance of the Objects but not otherwise the Charity shall have the following powers:

- 3.1 To buy and to sell and to manufacture for sale serums, vaccines and other drugs or products for research and for the general treatment and control of disease, to enter into contracts agreements or the grant of licences for the manufacture, production or distribution thereof, and to receive payment or royalties therefore, provided that all or any of the profits accruing to the Charity under this Article shall be applied to the Objects specified in Article 2.1.1.
- 3.2 To purchase, feu, take on lease or in exchange, hire, or otherwise acquire any real or heritable personal or moveable property and also any land, buildings, workshops, or laboratories, wheresoever situate and any machinery, plant, apparatus, appliances and livestock, and any rights or privileges necessary for the purposes, of the Charity and to construct, erect, alter, improve and maintain any buildings which may be from time to time required for the purposes of the Charity and to manage, farm, develop, sell, feu, demise, let, hire, mortgage, dispose of, turn to account or otherwise deal with all or part of the same and conduct and carry on experiments, and to provide funds for such work and for payments to any person or persons engaged in research work, whether on such land or in such laboratories or elsewhere, and to promote the training of persons employed to be employed on such work.
- 3.3 To retain or employ qualified professional advisers in connection with the Objects and pay them such fees or remuneration as may be thought expedient; and employ and remunerate instructors and supervisors for the training of persons employed or to be employed on such work.
- 3.4 To encourage the discovery of, and investigate and make known the value and merits of inventions, improvements, processes, materials and designs which may seem capable of being used in connection with the Objects specified in Article 2.1.1; and to purchase, or otherwise acquire, any letters patent or licences whether exclusive, non exclusive, or limited, relating to such inventions, improvements, processes, materials and designs whether in the United Kingdom or any other part of the world, and to acquire and register any designs or standardisation matters with a view to the use thereof for the control of diseases of animals upon such terms as may seem expedient and to arrange for the development, perfecting and testing of the value of such inventions, improvements, processes, materials and designs.
- 3.5 To apply to Government Departments, local government authorities, and other public bodies, corporations, companies, trusts or persons for, and accept grants of money and of land, donations, gifts, subscriptions and other assistance with a

view to promoting the objects of the Charity; and to discuss and negotiate with them schemes of research and other work and matters within the Objects, and to conform to any proper conditions upon which such grants and other payments may be made.

- 3.6 To assist in the charitable research work of, or collaborate with any persons, associations and institutions and other bodies, incorporated or not incorporated, engaged in scientific research.
- 3.7 To establish, equip, maintain, control and manage associate and subsidiary stations for the purpose of undertaking research similar to that being done at The Pirbright Institute in the United Kingdom or elsewhere, as may seem expedient, and from time to time to determine the constitution, rights, privileges, obligations and duties of such stations, and where thought fit to dissolve or modify the same.
- 3.8 To undertake and execute any trusts, which may be necessary for any of the Objects.
- 3.9 To borrow or raise any money that may be required by the Charity upon such terms and upon such security as may be deemed advisable.
- 3.10 To invest the monies of the Charity not immediately required for its purpose in or upon such investments, securities or property as may be thought fit, but so that monies subject or representing property subject to the jurisdiction of the Commission shall only be invested in such securities and with such sanction (if any) as may for the time being be prescribed by law.
- 3.11 To use the funds of the Charity in the employment of persons of learning or skill and the provisions and use of buildings and of instruments, materials, and appliances, and of any equipment of the Charity for any form of scientific studies which may be considered to have some bearing on the Objects of the Charity as defined in Article 2.1.1.
- 3.12 To grant pensions and retirement benefits to or for the employees or former employees of the Charity and to the widows, children and other dependents of deceased employees who are in necessitous circumstances; and to pay or subscribe to funds or schemes for the provision of pensions and retirement benefits for employees and former employees of the Charity, their widows, children and other dependents.
- 3.13 To procure the Charity to be registered or recognised in any part of the Commonwealth or in any foreign country or place.
- 3.14 To do all such other lawful things as may be necessary or expedient for the attainment of any or all of the Objects.

Provided always that nothing contained in these Articles shall empower the Charity to carry on the business of life assurance, personal accident assurance, fire assurance or employers liability insurance or any business of insurance within the meaning of the Assurance Companies Act, 1909, or any Act extending, amending or re-enacting the same, or to re-insure any risks comprised in any such business aforesaid.

Provided also that the Objects shall not extend to the regulation of relations between employers and workers or organisations of employers and organisations of workers.

Provided also that in case the Charity shall take or hold any property subject to the jurisdiction of the Commission or the Chancellor of the Duchy of Lancaster or any authority exercising corresponding jurisdiction outside England and Wales, the Charity shall not sell, feu, mortgage, charge or lease the same without such authority, approval or consent as may be required by law, and as regards any such property the directors shall be chargeable for such property as may come into their hands, and shall be answerable and accountable for their own acts, receipts, neglects and defaults, and for the due administration of such property in the same manner and to the same extent as they would as charity trustees have been if no incorporation had been effected, and the incorporation of the Charity shall not diminish or impair any control or authority exercisable by the Chancery Division, the Commission or the Chancellor of the Duchy of Lancaster or any such other authority as aforesaid over the directors, but they shall, as regards any such property, be subject jointly and separately to such control or authority, as if the Charity were not incorporated. In case the Charity shall take or hold any property which may be subject to any trusts, the Charity shall only deal with the same in such manner as allowed by law having regard to such trusts.

#### 4. MEMBERS

- 4.1 Subject to the remaining provisions of this Article 4, the members of the Charity shall be as follows:
  - 4.1.1 the Chairperson from time to time, ex officio;
  - 4.1.2 the Chair of the Science Advisory Board from time to time, ex officio; and
  - 4.1.3 BBSRC, and officer of the National Farmers' Union and the Royal College of Veterinary Surgeons, as Corporate Members.
- 4.2 No other person shall be admitted to membership of the Charity unless that person applies for membership in the form prescribed by at least three-quarters or the existing members (or, where there are no existing members, by at least three-quarters of the directors) and, except in the case of the Chairperson or the Chair of the Science Advisory Board, their application for membership is approved by at least three-quarters of existing members (or, where there are no existing members, by at least three-quarters of the directors).
- 4.3 Membership shall not be transferable and shall cease on death.
- 4.4 Membership of the Charity shall terminate if the member:
  - 4.4.1 is the Chairperson or Chair of the Science Advisory Board and ceases to hold such office for any reason;
  - 4.4.2 resigns by giving not less than seven clear days' notice to the Charity and such resignation has taken effect in accordance with its terms;
  - 4.4.3 being a Corporate Member:
    - 4.4.3.1 is, or is deemed for the purposes of any law to be, unable to pay its debts as they fall due (without such inability to pay its debts having to be proved to the satisfaction of the court); or

- 4.4.3.2 any meeting of creditors (or any class or classes of creditors) of the member is called; or
- 4.4.3.3 any step is taken in connection with any voluntary arrangement or any other compromise, assignment or any other arrangement for the benefit of any creditors of the member (including a scheme or arrangement under part 26 of the Act); or
- 4.4.3.4 an application is made for an administration order by any person or the making of an administration order in relation to the member; or
- 4.4.3.5 any notice is given of intention to appoint an administrator by any person, or the filing at court of the prescribed documents in connection with the appointment of an administrator, or the appointment of an administrator, in any case in relation to the member; or
- 4.4.3.6 a receiver or manager or an administrative receiver is appointed in relation to any property or income of the member; or
- 4.4.3.7 there is commenced a voluntary winding-up in respect of the member, except a winding-up for the purpose of a bona fide amalgamation or reconstruction; or
- 4.4.3.8 a petition for a winding-up order is presented, or a windingup order is made in respect of the member; or
- 4.4.3.9 an application for, or the appointment of, a provisional liquidator by any person in respect of the member is made; or
- 4.4.3.10 the member is struck from the Register of Companies or an application for the member to be struck off is made; or
- 4.4.3.11 the member otherwise ceases to exist; or
- 4.4.3.12 the member materially changes the nature of its business; or
- 4.4.3.13 the member disposes of all or substantially all of its respective assets to any person; or
- 4.4.3.14 any change of control of the member takes place ("control" having the meaning given to it in section 840 of the Income and Corporation Taxes Act 1988);
- 4.4.3.15 or, being a charity registered in England and Wales or in Scotland, is removed in either case from the register of charities maintained respectively by the Commission or by the Office of the Scottish Charities Regulator;
- 4.4.4 being an individual:

- 4.4.4.1 becomes bankrupt, insolvent, or makes any formal arrangement or composition with his or her creditors generally; or
- 4.4.4.2 becomes incapable by reason of mental disorder, illness or injury of managing and administering his property and affairs and a registered medical practitioner who is treating that person gives a written opinion to the Charity that he is likely to remain so for more than three months.
- 4.5 Unless otherwise agreed by at least three-quarters of the members, the number of members at any time shall be five. If any one or more of the members shall have their membership terminated in accordance with the provisions of these Articles or under the Act so that the number of members falls below the minimum number of members determined by the members in accordance with this Article, the remaining members shall ensure that a new member is identified and admitted to membership forthwith.
- 4.6 In the event that the membership of all members is automatically terminated as a result of Article 4.4, then the directors shall invite and determine applications for membership from such persons or corporate bodies as they shall think fit pursuant to Article 4.2.

#### 5. **GENERAL MEETINGS**

- 5.1 The directors may call general meetings at any time.
- 5.2 If at any time there are not within the United Kingdom sufficient directors capable of acting to form a quorum, any director of the Charity may convene a general meeting in the same manner as nearly as possible as that in which meetings may be convened by the directors.

#### 6. **NOTICE OF GENERAL MEETINGS**

- 6.1 A general meeting shall be called by at least fourteen clear days' notice in writing. The notice shall specify the time and place of the meeting and the general nature of the business to be transacted.
- 6.2 Subject to the provisions of these Articles notice of general meetings shall be given to all members and to all directors.
- 6.3 Notwithstanding the foregoing provisions of these Articles a general meeting may be called by shorter notice if it is so agreed in accordance with section 307 of the Act.
- 6.4 The accidental omission to give notice of a meeting to, or the non-receipt of notice of a meeting by, any person entitled to receive notice shall not invalidate the proceedings at that meeting.

#### 7. PROCEEDINGS AT GENERAL MEETINGS

7.1 No business shall be transacted at any general meeting unless a quorum of members is present. Two persons entitled to vote upon the business to be transacted, each being a member or a duly authorised representative of a Corporate Member shall be a quorum save that, if and for so long as the Charity has only one person as a member, one member present in person shall be a quorum. If within half an hour from the time appointed for the general meeting a

quorum is not present the general meeting shall stand adjourned to the same day in the next week, at the same time and place, or to such other day and at such other time and place as the directors may determine; and if at the adjourned general meeting a quorum is not present within half an hour from the time appointed therefore the member or members present in person or (being a Corporate Member) by representative and entitled to vote upon the business to be transacted shall constitute a quorum and shall have power to decide upon all matters which could properly have been disposed of at the meeting from which the adjournment took place.

- 7.2 The Chairperson shall preside as chairperson at every general meeting of the Charity, or if there is no Chairperson, or if he or she shall not be present within fifteen minutes after the time appointed for the holding of the meeting or is unwilling to act, the members present (and in the case of a Corporate Member, its duly appointed representative) shall elect one of their number or one of the directors to be chairperson of the meeting.
- 7.3 A director (and in the case of a director being a body corporate, its duly appointed representative) shall, notwithstanding that he or she is not a member, be entitled to attend and speak at any general meeting, and to chair such a meeting in accordance with the provisions of these Articles.
- 7.4 The chairperson of the meeting may, with the consent of any meeting at which a quorum is present (and shall if so directed by the meeting), adjourn the meeting from time to time and from place to place, but no business shall be transacted at any adjourned meeting other than the business which might properly have been transacted at the meeting had the adjournment not taken place. When a meeting is adjourned for thirty days or more, notice of the adjourned meeting shall be given as in the case of an original meeting. Save as aforesaid it shall not be necessary to give any notice of an adjournment or of the business to be transacted at an adjourned meeting.
- 7.5 At any general meeting a resolution put to the vote of the meeting shall be decided on a show of hands.
- 7.6 A declaration by the chairperson of the meeting that a resolution has been carried or carried unanimously, or by a particular majority, or lost, or not carried by a particular majority and an entry to that effect in the minutes of the meeting of the Charity shall be conclusive evidence of the fact without proof of the number or proportion of the votes recorded in favour of or against such resolution.
- 7.7 A resolution in writing executed in accordance with the relevant provisions of Chapters 1 and 2 of Part 13 of the Act (as they relate to the passing of ordinary and special resolutions) shall be as effectual as if it had been passed at a general meeting duly convened and held and may consist of several instruments in the like form each executed by or on behalf of the requisite number of members.

#### 8. **VOTES OF MEMBERS**

- 8.1 On a show of hands every member (being an individual) present in person or by proxy or (being a Corporate Member) present by a duly authorised representative or by proxy shall have one vote.
- 8.2 No objection shall be raised to the qualification of any voter except at the meeting or adjourned meeting at which the vote objected to is tendered, and every vote not disallowed at the meeting shall be valid. Any objection made in

due time shall be referred to the chairperson of the meeting whose decision shall be final and conclusive.

#### 9. **CONTENT OF PROXY NOTICES**

- 9.1 Proxies may only validly be appointed by a notice in writing (a "**proxy notice**") which:
  - 9.1.1 states the name and address of the member appointing the proxy;
  - 9.1.2 identifies the person appointed to be that member's proxy and the general meeting in relation to which that person is appointed;
  - 9.1.3 is signed by or on behalf of the member appointing the proxy, or is authenticated in such manner as the directors may determine; and
  - 9.1.4 is delivered to the Company in accordance with the Articles not less than 48 hours before the time appointed for holding the meeting or adjourned meeting at which the right to vote is to be exercised and in accordance with any instructions contained in the notice of the general meeting (or adjourned meeting) to which they relate.
- 9.2 The Charity may require proxy notices to be delivered in a particular form, and may specify different forms for different purposes.
- 9.3 Proxy notices may specify how the proxy appointed under them is to vote (or that the proxy is to abstain from voting) on one or more resolutions.
- 9.4 Unless a proxy notice indicates otherwise, it must be treated as:
  - 9.4.1 allowing the person appointed under it as a proxy discretion as to how to vote on any ancillary or procedural resolutions put to the meeting, and
  - 9.4.2 appointing that person as a proxy in relation to any adjournment of the general meeting to which it relates as well as the meeting itself.

#### 10. **DELIVERY OF PROXY NOTICES**

- 10.1 A person who is entitled to attend, speak or vote (either on a show of hands or on a poll) at a general meeting remains so entitled in respect of that meeting or any adjournment of it, even though a valid proxy notice has been delivered to the company by or on behalf of that person.
- 10.2 An appointment under a proxy notice may be revoked by delivering to the company a notice in writing given by or on behalf of the person by whom or on whose behalf the proxy notice was given.
- 10.3 A notice revoking a proxy appointment only takes effect if it is delivered before the start of the meeting or adjourned meeting to which it relates.
- 10.4 If a proxy notice is not executed by the person appointing the proxy, it must be accompanied by written evidence of the authority of the person who executed it to execute it on the appointor's behalf.

#### 11. NUMBER OF DIRECTORS

Unless otherwise determined by ordinary resolution the number of directors shall be at least four but shall not exceed eleven.

### 12. NO ALTERNATE DIRECTORS

A director shall not be entitled to appoint an alternate director.

#### 13. **POWERS OF DIRECTORS**

- 13.1 Subject to the provisions of the Act and these Articles and to any directions given by special resolution, the business of the Charity shall be overseen by the directors who may exercise all the powers of the Charity, and who may delegate the day to day management of the Charity to the Director of The Pirbright Institute or any other person, as they see fit (subject to any conditions the directors may impose). No alteration of these Articles and no such direction shall invalidate any prior act of the directors which would have been valid if that alteration had not been made or that direction had not been given. The powers given by this Article 13.1 shall not be limited by any special power given to the directors by these Articles and a meeting of directors at which a quorum is present may exercise all powers exercisable by the directors.
- 13.2 Subject to the provisions of these Articles, the directors may from time to time establish, amend and revoke such governance policies, terms of reference, reporting requirements and delegation limits as they deem necessary or expedient for the proper management of the Charity.
- 13.3 All cheques, promissory notes, drafts, bills of exchange and other negotiable instruments, and all receipts for moneys paid to the Charity, shall be signed, drawn, accepted, endorsed or otherwise executed, as the case may be, in such manner as the directors shall from time to time determine.

### 14. **DELEGATION OF DIRECTORS' POWERS**

- 14.1 The directors may delegate any of their powers to any committee (by whatever name called), consisting of one or more directors, and/or such other persons (if any) not being directors, co-opted on to such committee as the directors think fit. Any such delegation may be made subject to any conditions the directors may impose and may be collateral to their own powers and may be revoked or altered. Any representatives appointed to any such committee may be delegated such powers the directors see fit in order to carry out their duties, whether by contract, power of attorney, or otherwise. Subject to any such conditions the proceedings of a committee of representatives with two or more members shall be governed by the Articles regulating the proceedings of directors (including obligations of disclosure) so far as they are capable of applying.
- 14.2 The directors may create a Science Advisory Board to provide assistance and recommendations to the board regarding the scientific strategy and operations of the Charity. The terms of appointment of the Science Advisory Board shall be as determined by the directors from time to time.

### 15. APPOINTMENT AND RETIREMENT OF DIRECTORS

- 15.1 The directors shall be appointed as follows.
  - 15.1.1 In the case of the Chairperson, the directors shall:

- 15.1.1.1 nominate a suitable candidate;
- 15.1.1.2 notify the member/s in writing of their proposed candidate;
- 15.1.1.3 consult with the member/s in relation to the proposed candidate;
- 15.1.1.4 having received confirmation from at least three-quarters of the member/s that they have jointly agreed upon the appointment, proceed with the appointment or, if no such confirmation is given, reconsider the nomination and identify an alternative candidate; and
- 15.1.2 the remaining directors shall be appointed by a decision of the directors.
- 15.2 In the event that the directors fail for whatever reason to complete the required appointment/s pursuant to Article 15.1.2 such that the number of directors falls below the minimum number of directors prescribed by or in accordance with these Articles, then the members shall have the right to appoint a director at any time (whether to fill a vacancy or as an additional director) by ordinary resolution, provided that the person who is to be appointed is willing to act, and is permitted by law to do so, and the appointment does not cause the number of directors to exceed the maximum number of directors as prescribed by the Articles.
- 15.3 Subject to any shorter term specified by the directors in any director's terms of appointment, in the case of any director appointed on or after the date of adoption of these Articles, a director's term of office shall be three years from the date of his or her appointment.
- 15.4 Subject to Article 15.5, prior to the expiration of a director's term of office the directors may vote, without that director being present, to extend that Trustee Director's term of office for up to a further three years and by exception a further three years beyond that giving a maximum of 9 years.
- 15.5 The Chairperson's term of office may be extended by the directors for a further period of three years, if he or she has already served as a director for six years in total, provided the directors have consulted with the members and at least three-quarters of them (excluding the Chairperson) have voted in favour of the extension.
- 15.6 Members shall act in the best interests of the Charity when exercising rights under this Article 15.

### 16. DISQUALIFICATION AND REMOVAL OF DIRECTORS

The office of a director shall be vacated if:

- 16.1 he or she becomes prohibited by law from being a director or a charity trustee; or
- 16.2 he or she becomes bankrupt, insolvent, or makes any arrangement or composition with his or her creditors generally; or
- 16.3 he or she becomes incapable by reason of mental disorder, illness or injury of managing and administering his property and affairs and a registered medical practitioner who is treating that person gives a written opinion to the Charity that he is likely to remain so for more than three months;

- 16.4 he or she resigns his or her office by notice to the Charity and such resignation has taken effect in accordance with its terms; or
- 16.5 he or she is removed by a unanimous resolution of the Board (excluding the director proposed to be removed); or
- 16.6 he or she dies.

### 17. **DIRECTORS' REMUNERATION**

The directors shall not be paid any remuneration unless it is authorised by Article 23.

### 18. PROCEEDINGS OF THE DIRECTORS

- 18.1 Subject to the provisions of these Articles, the directors may regulate their meetings as they think fit. A director may call a meeting of the directors. Questions arising at a meeting shall be decided by a majority of votes. In the case of an equality of votes, the chairperson of the meeting shall have a second or casting vote. Notice of every meeting of the directors shall be given to each director, including directors who may for the time being be absent from the United Kingdom and have given the Charity an address within the United Kingdom (or an address to which notices may be sent in electronic form) for service.
- 18.2 Any director may participate in a meeting of the directors or a committee constituted pursuant to Article 14 of which he or she is a member by means of a conference telephone or similar communications equipment whereby all persons participating in the meeting can hear each other and participation in a meeting in this manner shall be deemed to constitute presence in person at such meeting and, subject to these Articles and the Act, shall be entitled to vote and be counted in a quorum accordingly. Such a meeting shall be deemed to take place where the largest group of those participating is assembled or, if there is no such group, where the chairperson of the meeting then is.
- 18.3 The quorum for the transaction of the business of the directors may be fixed by the directors, and unless so fixed at any other number, shall be four.
- 18.4 The Chairperson appointed in accordance with Article 15.1.1 shall preside at every meeting of the directors at which he or she is present. But, if there is no director holding that office, or if the director holding it is unable or unwilling to preside or is not present within fifteen minutes after the time appointed for the meeting, the directors present may appoint one of their number to be chairperson of the meeting.
- 18.5 All acts done by any meeting of the directors or of a committee constituted pursuant to Article 14, or by any person acting as a director shall, notwithstanding that it be afterwards discovered that there was some defect in the appointment of any director or person acting as aforesaid, or that they or any of them were disqualified from holding office or had vacated office, or were not entitled to vote, be as valid as if every such person had been duly appointed and was qualified and had continued to be a director and had been entitled to vote.
- 18.6 A resolution in writing, signed by all the directors entitled to receive notice of a meeting of directors or of a committee constituted pursuant to Article 14 shall be as valid and effectual as if it had been passed at a meeting of the directors or (as the case may be) such a committee duly convened and held and may consist of

several documents in the like form each signed by one or more directors or members of the committee (as the case may be).

### 19. **DIRECTORS' INTERESTS**

- 19.1 The directors may, in accordance with the requirements set out in the Articles, authorise any matter proposed to them by any director which would, if not authorised, involve a director breaching his duty under section 175 of the Act to avoid conflicts of interest.
- 19.2 Unless authorised by the directors in accordance with these Articles a director must not vote on or be counted in the quorum in relation to any resolution of the directors in which the director has a direct or indirect interest that conflicts or may conflict with the interests of the Charity ("**Conflict**"). For the avoidance of doubt, no such requirement applies to any decision made under Article 19.8.1.
- 19.3 Any authorisation under this Article will be effective only if:
  - 19.3.1 the matter in question shall have been proposed by any director for consideration at a meeting of directors in the same way that any other matter may be proposed to the directors under the provisions of these Articles or in such other manner as the directors may determine;
  - 19.3.2 any requirement as to the quorum at the meeting of the directors at which the matter is considered is met without counting the director in question; and
  - 19.3.3 the matter was agreed to without his voting or would have been agreed to if his vote had not been counted.
- 19.4 Any authorisation of a Conflict under this Article may (whether at the time of giving the authorisation or subsequently):
  - 19.4.1 extend to any actual or potential conflict of interest which may reasonably be expected to arise out of the Conflict so authorised;
  - be subject to such terms and for such duration, or impose such limits or conditions as the directors may determine; and
  - be terminated or varied by the directors at any time provided that this will not affect anything done by the director in accordance with the terms of the authorisation prior to such termination or variation.
- 19.5 In authorising a Conflict the directors may decide (whether at the time of giving the authorisation or subsequently) that if a director has obtained any information through his involvement in the Conflict otherwise than as a director of the Charity and in respect of which he owes a duty of confidentiality to another person the director is under no obligation to:
  - 19.5.1 disclose such information to the directors or to any director or other officer of employee of the Charity; or
  - 19.5.2 use or apply any such information in performing his duties as a director:

where to do so would amount to a breach of that confidence.

- 19.6 Where the directors authorise a Conflict they may provide, without limitation (whether at the time of giving the authorisation or subsequently):
  - that the director is excluded from discussions (whether at meetings of directors or otherwise) related to the Conflict;
  - 19.6.2 is not given any documents or other information relating to the Conflict;
  - 19.6.3 may or may not vote (or may or may not be counted in the quorum) at any future meeting of directors in relation to any resolution relating to the Conflict.
- 19.7 Where the directors authorise a Conflict:
  - 19.7.1 the director will be obliged to conduct himself in accordance with any terms imposed by the directors in relation to the Conflict;
  - 19.7.2 the director will not infringe any duty he owes to the Charity by virtue of sections 171 to 177 of the Act provided he acts in accordance with such terms, limits and conditions (if any) as the directors impose in respect of its authorisation.
- 19.8 A director's duty to avoid conflicts does not apply in relation to a proposed transaction or arrangement with the Charity where:
  - 19.8.1 the directors so decide; and
  - 19.8.2 the proposed transaction or arrangement:
    - 19.8.2.1 is not prohibited by these Articles; and
    - 19.8.2.2 is within the descriptions of the types of transactions and arrangements into which the Charity has power to enter as described in these Articles.
- 19.9 Notwithstanding Article 19.8 above, a director must declare to the other directors the nature and extent of any Conflict in relation to a proposed transaction or arrangement with the Charity or in relation to a transaction or arrangement entered into by the Charity which has not previously been declared, unless the other directors are already aware of the Conflict.
- 19.10 A director is not required, by reason of being a director (or because of the fiduciary relationship established by reason of being a director), to account to the Charity for any remuneration, profit or other benefit which he derives from or in connection with a relationship involving a Conflict which has been authorised by the directors or by the Charity in general meeting (subject in each case to any terms, limits of conditions attaching to that authorisation), or which he derives from a transaction or arrangement with the Charity as described above, and no contract shall be liable to be avoided on such grounds.

### 20. MINUTES

The directors shall cause minutes to be made in books kept for the purposes:

20.1 recording the names and addresses of all members; and

- 20.2 of all appointments of officers made by the directors; and
- 20.3 of all proceedings at meetings of the Charity and of the directors and of committees constituted pursuant to Article 14 including the names of directors and members (as appropriate) present at each such meeting.

### 21. ACCOUNTS AND ANNUAL REPORT

- 21.1 No member shall (as such) have any right of inspecting any accounting records or other book or document of the Charity except as conferred by statute or authorised by the directors or by ordinary resolution of the Charity.
- 21.2 The directors must prepare accounts and keep accounting records as required by the Act.
- 21.3 The directors shall comply with the requirements of the Charities Act 2011 (and any subsequent modification or replacement) with regard to statement of accounts, preparation of an annual report, preparation of an annual return and their transmission to the Commission.
- 21.4 The directors shall notify the Commission of any changes to the Charity's entry on the Register of Charities.

#### 22. NOTICES

- 22.1 Any notice, document or information to be given to or by any person pursuant to these Articles shall be in writing except that a notice calling a meeting of the directors need not be in writing.
- 22.2 The Charity may give any notice, document or information to a member either personally or by sending it by first class post in a pre- paid envelope addressed to the member at his or her registered address or by leaving it at that address, or by sending it in electronic form to an address provided by the member for the purpose or (if he or she has no registered address within the United Kingdom) to or at the address, if any, within the United Kingdom supplied by him or her to the Charity for the giving of notices to him or her or to an address provided by the member to the Charity for the giving of notices to him or her in electronic form, but otherwise, no such member shall be entitled to receive any notice from the Charity.
- 22.3 Where a notice, document or information is sent by first class post, proof of the notice having been posted in a properly addressed, prepaid envelope shall be conclusive evidence that the notice, document or information was given and shall be deemed to have been given at the expiration of 24 hours after the envelope containing the same is posted.
- 22.4 Where a notice, document or information is sent by the Charity by electronic means proof that it was sent in accordance with guidance issued by the Institute of Chartered Secretaries and Administrators shall be conclusive evidence that the notice, document or information was given and it shall be deemed to have been received 24 hours after sending.
- 22.5 A member present, either in person or by proxy or (being a Corporate Member) by a duly authorised representative, at any meeting of the Charity shall be deemed to have received notice of the meeting and, where requisite, of the purposes for which it was called.

#### 23. INCOME AND PROPERTY OF THE CHARITY

- 23.1 The income and property of the Charity shall be applied solely towards the promotion of the Objects subject to the following provisions of this Article 23.
- None of the income or property of the Charity shall be paid or transferred directly or indirectly, by way of dividend, gift, division, bonus, or otherwise howsoever by way of profit to the members of the Charity. This does not prevent:
  - 23.2.1 a member who is not also a director from receiving reasonable and proper remuneration for any goods or services or other provision supplied to the Charity;
  - 23.2.2 a member who is also a director from receiving, in his or her capacity as a director, a financial benefit otherwise permitted under this Article 23.
- 23.3 A director is entitled to be reimbursed from the property of the Charity or may pay out of such property reasonable expenses properly incurred by him or when acting on behalf of the Charity.
- 23.4 A director may benefit from directors indemnity insurance cover purchased at the Charity's expense in accordance with and subject to the terms of section 189 Charities Act 2011.
- 23.5 A director may receive an indemnity from the Charity in the circumstances specified in Article 26.
- 23.6 No director or connected person may receive any financial benefit from the Charity unless:
  - 23.6.1 the payment is permitted by this Article 23; or
  - 23.6.2 the directors obtain the prior written approval of the Commission and fully comply with any procedures it prescribes.
- 23.7 A director or connected person may receive interest on money lent to the Charity at a reasonable and proper rate to be selected by the directors.
- 23.8 A director or connected person may receive rent for premises let by the director to the Charity if the amount of the rent and the other terms of the lease are reasonable and proper and provided that the director shall withdraw from any meeting at which such a proposal or the rent or other terms of the lease are under discussion.
- 23.9 A director or connected person may receive a benefit from the Charity in the capacity of an arms-length seller or purchaser of goods for value.
- 23.10 A director or connected person may enter into an agreement for the supply of any services to the Charity (other than in respect of his services as a director of the Charity) and receive reasonable and proper remuneration for the supply of such services where the directors (excluding the director in question) are satisfied that it would be in the best interests of the Charity for the services to be provided by that director or connected person on the terms of that agreement.
- 23.11 A director who possesses particular skills and experience may be paid reasonable and proper remuneration in respect of his services as director of the Charity relating to a particular strategic decision, project or initiative where the directors

(excluding the director in question), consider it would be in the best interests of the Charity to do so having regard to the specialised nature of the skills and/or experience required by the Charity or its board of directors in respect of such strategic decision, project or initiative.

### 23.12 In this Article 23, "connected person" means:

- 23.12.1 a child, parent, grandchild, grandparent, brother or sister of the director;
- 23.12.2 the spouse or civil partner of the director or of any person within Article 23.12.1 above;
- a person carrying on business in partnership with the director or with any person falling within Articles 23.12.1 or 23.12.2 above;
- 23.12.4 an institution which is controlled by:
  - (a) the director or any connected person falling within Articles 23.12.1 to 23.12.3; or
  - (b) two or more persons falling within Article 23.12.4(a), when taken together, have a substantial interest.
- 23.12.5 a body corporate in which
  - (a) the director or any connected person falling within Articles 23.12.1 to 23.12.3 above has a substantial interest; or
  - (b) two or more persons falling within Article 23.12.5(a), when taken together, have a substantial interest.

Sections 350 to 352 of the Charities Act 2011 apply for the purposes of interpreting the terms used in this Article 23.12.

### 24. WINDING UP

24.1 If upon the winding up or dissolution of the Charity there remains after the satisfaction of all its debts and liabilities, any property whatsoever, the same shall not be paid to or distributed among the members of the Charity but shall be given or transferred to a charitable organisation or organisations having similar objects.

### 25. LIMIT OF LIABILITY

- 25.1 The liability of the members is limited.
- 25.2 Every member of the Charity undertakes to contribute to the assets of the Charity in the event of the same being wound up while he is a member, or within one year after he ceases to be a member, for payment of the debts and liabilities of the Charity contracted before he ceases to be a member, and of the costs, charges and expenses of winding up, and for the adjustment of the rights of the contributories among themselves, such amount as may be required not exceeding one pound.

### 26. INDEMNITY

26.1 Subject to the provisions of, and so far as may be permitted by, the Act and the Charities Act 2011 but without prejudice to any indemnity to which the person concerned may be otherwise entitled, every director, or other officer of the Charity shall be indemnified out of the assets of the Charity against all costs, charges, losses, expenses and liabilities incurred by him in the execution and discharge of his or her duties or the exercise of his or her powers or otherwise in relation to or in connection with his or her duties, powers or office, providing that any such indemnity in relation to a Director shall only be valid in respect of any negligence, default, breach of duty or a breach of trust of which the Director may be guilty in relation to the Charity to the extent that it constitutes a qualifying third party indemnity provision as defined in Section 234 of the Act. The Charity may also, subject to the Act, provide funds to any Director or other officer (excluding the Auditors) or do anything to enable a Director or other officer to avoid incurring expenditure of the nature described in Section 205 of the Act.

#### 27. RULES OR BYE-LAWS

- 27.1 The directors may from time to time make such rules or bye-laws as they may deem necessary or expedient or convenient for the proper conduct and management of the Charity, and in particular but without prejudice to the generality of the foregoing, it may by such rules or bye-laws regulate:
  - 27.1.1 the conduct of members of the Charity in relation to one another, and to the Charity's officers, employees and agents;
  - 27.1.2 the setting aside of the whole or any part or parts of the Charity's premises at any particular time or times or for any particular purpose or purposes;
  - 27.1.3 the procedure at general meetings and meetings of the directors and committees constituted pursuant to Article 14 in so far as such procedure is not regulated by these Articles;
  - 27.1.4 and, generally, all such matters as are commonly the subject matter of such rules,

provided, nevertheless, that no rule or bye-law shall be inconsistent with, or shall affect or repeal anything contained in these Articles.

27.2 The Charity shall have power to alter or repeal the rules or bye-laws referred to in Article 27 and to make additions thereto. The directors shall adopt such means as they deem sufficient to bring to the notice of members all such rules or bye-laws made pursuant to this Article 27 which, so long as they shall be in force, shall be binding on all members.

# Defra's Science Advisory Council: Register of Interests 2019

This register records declarations made by members in respect of interests they have that are relevant to the remit of Defra's Science Advisory Council (SAC).

There is also an opportunity for SAC members to declare, at the beginning of a meeting, any conflict of interests relating to meeting agenda items. Members will withdraw from discussion of matters in which they feel that they cannot act impartially. Where this occurs, it will be reflected in the official record of the meeting.

The guidance by which SAC members have provided information on their interests is included below. The SAC Secretariat will review and maintain the register on a regular basis, publishing revised details on the SAC website as they occur.

### **Professor Charles Godfray (Chair)**

- Oxford University (main employment)
- Other remunerated activities:
  - o Chair, Defra's Science Advisory Council
  - o Member of the General Prize Committee of the International Balzan Foundation
  - o Member of the Prize Committee of the Heineken Foundation
  - Chair of Judges, Arrell Global Food Innovation Awards, University of Guelph
- Other non-remunerated activities:
  - o 2012 Trustee Director, Rothamsted Research
  - 2013 Science & Engineering Fellowship Committee, Royal Commission for the Exhibition of 1851
  - o 2014 Natural History Museum (London), Science Advisory Council
  - o 2014 Trustee, Food Foundation
  - o 2015 Visitor, Oxford University Natural History Museum
  - 2015 External Evaluation Board, Food, Farming and Forestry College, University of Lisbon
  - 2015 Member, Strategic Advisory Board, Scottish Government's Rural and Environment Science and Analytical Services science programme.
  - 2015 Member, Strategic Advisory Group, RCUK's Global Challenges Research Fund
  - 2015 Science Advisory Board, Institute of Food and Agricultural Literacy, University of California, Davis
  - o 2016 Trustee, Lawes Agricultural Trust
  - o 2017 Strategic Advisor. Plants, People, Planet (New Phytologist Trust journal)
  - 2017 Management Board, ANTI-VeC (Application of Novel Transgenic technology & Inherited symbionts to Vector Control) Network (BBSRC, GCRF)
  - 2018 Member, Industrial Strategy Challenge Fund Transforming Food Production Advisory Group
- Membership of Societies etc: Royal Society, American Academy of Arts & Sciences, Academia Europaea, British Ecological Society, Royal Entomological Society, Linnean Society, Royal Society of Biology

- Research group funding, Wellcome Trust, Bill and Melinda Gates Foundation, Open Philanthropy Foundation, Natural Environment Research Council
- · No family conflicts to declare

### **Professor Peter Cox**

- University of Exeter (current employer)
- NERC Centre for Ecology and Hydrology (previous employer)
- Met Office (previous employer)
- Holder of grants from NERC, EU, ERC.
- Current and recent committee service for NERC Science Board, MPI Meteorology, REF2014 panel for UoA7, former co-chair of AIMES project of Future Earth.
- Lead-author on IPCC 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> Assessment Reports (Working Group 1).

### **Professor Lin Field**

- Rothamsted Research (Current employer)
- University of Nottingham (Honorary Professorship, School of Life Sciences)
- Royal Entomological Society (Fellow and Honorary Publications Officer/Council member)
- Society of Biology (Fellow)
- Current research projects funded by BBSRC, ISCF, Bayer and Syngenta

### **Professor Rosemary Hails**

- National Trust (current employer)
- NERC Centre for Ecology & Hydrology (past employer)
- Imperial College (past employer)
- University of Exeter Visiting Chair
- Advisory Committee on Releases to the Environment (chair), Defra
- Trustee (remunerated) John Innes Foundation
- Trustee (unremunerated) Royal Society for the Protection of Birds
- Research / co-ordination currently funded by NERC, BBSRC, AHRC, Defra, ESRC.
- Recent committee service: the British Ecological Society (Vice President, Chair of grants committee), Global Challenge Research Fund.

### **Professor Tim Jickells**

- University of East Anglia (most recent employer)
- Trustee Plymouth Marine Laboratory
- External Advisory Board Department of Earth Science Cardiff University
- Holder of grants from NERC and formerly employed as Theme Leader
- Registered supporter of the Labour Party

### **Professor Rowland Kao**

University of Edinburgh (current employer)

- University of Glasgow (past employer & Associate Academic)
- Research funded by BBSRC, NERC, DFID, Defra, Scottish Government

### **Professor Paul Monks**

- University of Leicester (current employer)
- Pro-vice Chancellor and Member of University Leadership Team
- Royal Society of Chemistry (Fellow)
- Royal Meteorological Society (Fellow)
- Chair, Defra Air Quality Expert Group (AQEG)
- Satellite Applications Catapult Advisory Group (member)
- WMO Environmental Pollution and Atmospheric Chemistry Steering Group (member)
- iCACGP IUGG Commission for Atmospheric Chemistry and Global Pollution (member)
- Director Argo Natural Resources Ltd. (Non-executive, non-pecuniary)
- Research grants: from NERC, UKSA, EU, EPSRC, MRC
- Consultancy Innovate UK

### **Professor Dame Henrietta Moore**

- University College London (current employer)
- Co-founder and chair, SHM Productions Ltd (strategy and insight consultancy)
- Founding trustee, SHM Foundation
- President and Trustee at British Institute in Eastern Africa
- Director of Birmore Ltd
- Director, Stephen Farrell Ltd
- Trustee, Barbican Centre Trust
- Co-Investigator ETHICOBOTS (bovine TB in Ethiopia, part of ZELS programme, funded by BBSRC, Dstl, DflD, ESRC, MRC and NERC)
- Research funding applications currently under review: Wellcome Seed Award and Nexus Networks Grant (ESRC)
- Fellow of Royal Society of Arts; Academician of the Learned Societies for the Social Sciences; Member of the Institute of Directors
- Former member European Scientific Research Council (2009-13)

### **Professor Wayne Powell**

- Principal and Chief Executive, Scotland's Rural College (current employer)
- Aberystwyth University, former Director IBERS (past employer & Honorary Professor)
- Research in laboratory (IBERS-BBSRC funded ISPG and responsive mode)
- Current and recent committee service to Welsh Government, TEAGASC, World Food Security (CFS) Council (FAO), Chair KBBE, Secretary State Wales, Business Advisory Group, Waitrose Corporate Social Responsibility Board
- Current Chair of RKEC Committee, Universities Scotland
- Appointed to Scottish Science Advisory Council, January 2019 (3 year term)
- Former Trustee, John Inness Institute, James Hutton Institute, National Botanic Garden Wales.
- Spouse, Dr Tina Barsby Director, CEO NIAB, Cambridge.

### **Professor Sarah Whatmore**

- Head of the Social Sciences Division (2018 -2022), University of Oxford (current employer)
- Professor of Environment and Public Policy, University of Oxford (current employer)
- Chair Defra SAC Social Science Expert Group (SSEG)
- POST Board member (2017 2021)
- Fellow, British Academy; Academy of Social Sciences; Royal Geographical Society
- Current and recent committee service Science Advisory Group, National Flood Resilience Review; Research Advisory Group, RSA Food, Farming and Countryside Commission

### **Professor James Wood**

- University of Cambridge (current employer)
- Animal Health Trust (previous employer and previous charity trustee)
- Zoological Society of London (Honorary Research Fellow)
- RCVS council member
- British Equine Veterinary Association Ltd Director and Charity trustee
- Equine Veterinary Journal Ltd Director
- Survival International Charity Trustee (chair)
- APHA Science Advisory board member
- Roslin Institute Science Advisory board member
- Defra TBEAG member
- Veterinary Schools Council member

### Research currently (or recently) funded by:

- Alborada Trust
- Wellcome Trust
- o BBSRC
- o ESPA (NERC, BBSRC, ESRC, DfID, MRC)
- o ZELS (NERC, BBSRC, ESRC, DfID, MRC)
- o RAPIDD
- Humane Society International
- International Fund for Animal Welfare
- o European Commission EU- FP7
- European Food Safety Agency (registered expert)
- o Defra directly and through BBSRC, all on bovine TB
- o MRC
- Gillings Family Foundation

### Annex A: Guidance for SAC members

It is your responsibility to ensure that your entry in the SACs register of members' interests is accurate and up-to-date.

You should declare any financial or other interests, or any personal connections that arise during your term of appointment including those that could be seen as providing a conflict of interest – real or perceived – between your public duties and private interests.

When considering what interests should be declared, you should ask yourself whether a member of the public, acting reasonably, would consider that the interest in question might influence your words, actions, or decisions. The examples given below are not exhaustive.

### SAC member interests may relate to:

### Financial interests

These can include:

- directorships
- shares or share options
- consultancies
- research grants and fee-paid work. In particular, the following should be declared:
  - current research commissioned directly by Defra for which you are Principal or co-investigators
  - current applications for research commissioned directly by Defra for which you are Principle or co-investigators

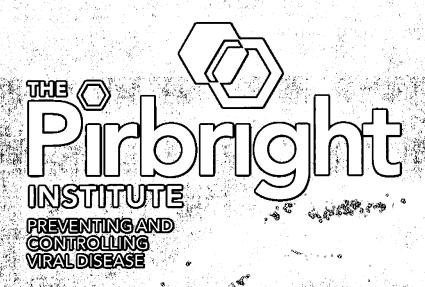
### Non-financial interests

These can include non-financial private links with outside organisations or a high level of political activity.

Additional examples include:

- current positions in your institution that could benefit from information gained through the SAC
- current positions in the wider research community that could benefit from information gained through the SAC
- research interests of close family or colleagues who may benefit from information gained in SAC discussion
- board positions with other organisations that might be influenced or influence information gathered from / shared with the SAC

### February 2019



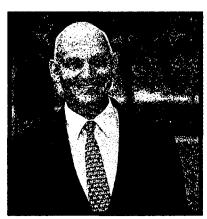


ANNUAL REPORT AND ACCOUNTS FOR THE YEAR ENDED 31 MARCH 2018 Cover image: © Leonela Carabajal, The Pirbright Institute. Mosquito larvae showing fluorescent transgenic markers. In order to identify these genetically modified insects, visual markers are included such as red (left) or blue (right) full body expression of fluorescent proteins.

Inside cover: © Joanna Wells, Ismar Haga, Pip Beard; The Pirbright Institute. Cells in culture infected with GFP-tagged vaccinia virus (green), labelled with an antibody against tubulin to show the cytoskeleton (red), and stained with a DNA stain (blue)

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### NCORPORATING THE STRATEGIC REPORT



On behalf of the Board of Trustees of The Pirbright Institute, I am pleased to present our Annual Report and Accounts for the year ended 31 March 2018. You will find in the Report details of Pirbright's mission, objectives, achievements and scientific and financial performance in what has been another successful and productive year. As the UK's leading research institute in

the area of prevention and control of viral diseases in livestock, our work is of national importance against the ever present threat to the UK's livestock from the incursion of viral diseases from Africa and Asia as well as Europe.

over the year in diversifying our funding streams, with continued success in winning competitive grants and working with research partners across Europe and around the world. We have much to contribute in our areas of expertise and remain confident that the opportunities for scientific collaboration will continue, despite the challenges of BREXIT. Whilst we will cease to be the EU reference laboratory for foot-and-mouth disease from next year, Pirbright remains the World Reference Laboratory for foot-and-mouth and other diseases and is continuing to develop strategic partnerships throughout Europe and beyond.

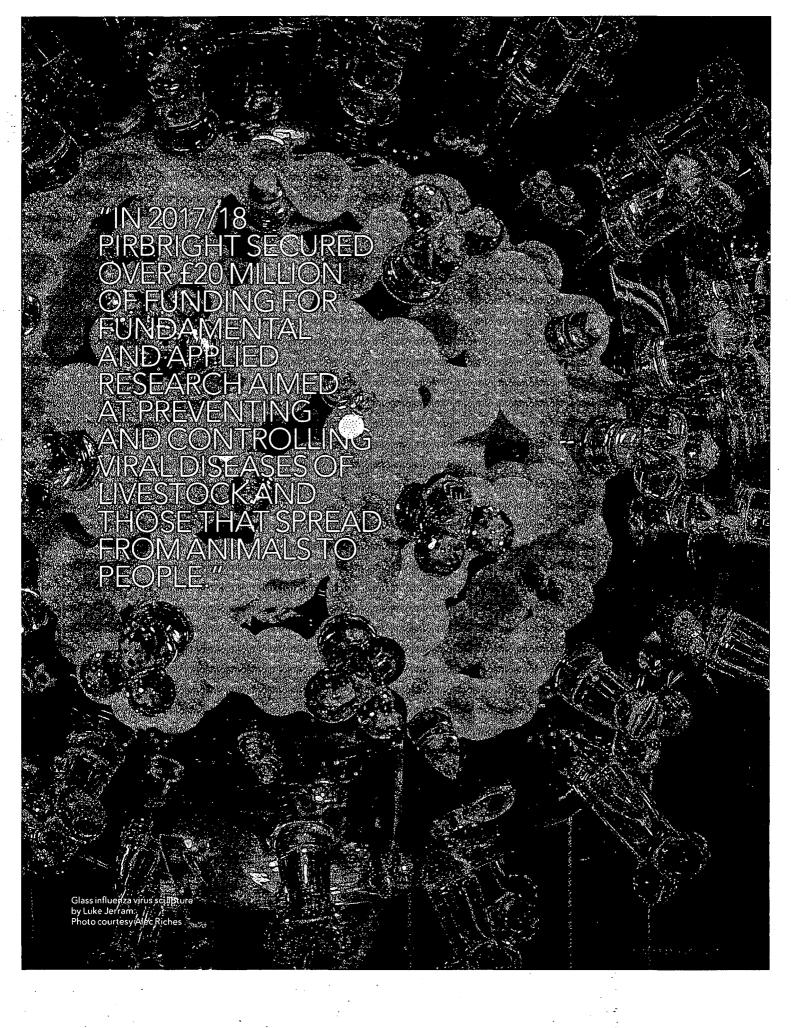
Our scientific excellence is supported by world-class scientific facilities, the result of the sustained investment made, and being made, by the Biotechnology and Biological Sciences Research
Council (BBSRC), now part of UKRI. The
recent completion of a programme
of decommissioning and demolition
has made way for a further round of
investment to complete the upgrade
of our capability to carry out research at
all levels, including the highest level, of
containment. We have also established a
Centre for Collaborative Learning as part
of our plans to increase our engagement
with the commercial sector, especially in
the light of the creation by government of
the Industrial Challenges Fund.

Bryan Charleston and his senior leadership team can be rightly proud of the scientific and business achievements over the year whilst meeting the

We have made significant progress over the year in diversifying our funding streams, with continued success in winning competitive rants and working with research partners across Europe and around the world.

expectations and requirements of our various regulatory authorities. All this has been achieved by the professionalism and expertise not only of our front-line scientists but also those who support them by ensuring the smooth operation of the extensive range of complex facilities at Pirbright. We take this opportunity to thank all the employees of Pirbright for their hard work and dedication throughout the year.

Professor Quintin McKellar Chair of the Trustee Board, The Pirbright Institute



# NTINUING SUCC



Pirbright continues to experience a huge amount of positive change to its campus and, despite the incvitable disruptions, we continue to deliver exceptional scientific achievements and milestones in vaccine development and disease control.

Our senior scientists have had a very successful year securing prestigious funding awards from Innovate UK, the National Centre for the Replacement, Refinement and Reduction of Animals in Research, BBSRC (now part of UKRI) and Defra, and from international

funders including the EU and the Defense Advanced Research Projects Agency (DARPA). We have been particularly successful with a number of initiatives this year, securing funding through the Global Challenges Research Fund (GCRF), including significant funds through the BBSRC - Newton Swine and Poultry Research Initiative, and funding from the Livestock Vaccine Innovation Fund, We are not only a global centre of scientific through the International Development Research Centre (IDRC). The funding enables us to expand our international global challenges and have a positive

We work closely with funders like the Defense Threat Reduction Agency and the Bill and Melinda Gates Foundation to help deliver our common missions by exchanging knowledge, ideas and expertise. 2017 has seen RCUK transformed into UK Research and Innovation (UKRI), this new overarching organisation includes the Institute's core funder, the BBSRC. Pirbright plays a key role in the delivery of the BBSRC strategic framework, and will continue to contribute to the overall objectives of UKRI. Our aim is to seek further opportunities through the GCRF and support UKRI science and innovation strategy in the years to come.

impact in the poorest regions of the world.

Attracting and retaining talent is key to our success, and the development of our vibrant PhD training programme linking to top UK universities and international organisations has been a key driver of the development of home-grown talent. This year we initiated a joint PhD programme with the Friedrich-Loeffler-Institut, Germany, strengthening the relationship between two of the major European centres of excellence for animal health.

Our role as a National Capability is to protect

the UK against existing viral diseases and those that threaten our borders. We are unique in that we combine high containment research and animal facilities that enable scientists to study highlyinfectious viruses, their vectors and the livestock they affect. We are not only a global centre of scientific excellence, but a centre of excellence across many disciplines, including engineering, maintenance, and risk management of biocontainment facilities. Recognition of this was demonstrated by our involvement and key role in a World Health Organisation meeting to discuss level 4 biological containment facilities, attended by representatives from 50 laboratories from 20 countries. We will continue to share our knowledge and expertise through collaboration, consultation and through professional training – a growing area for Pirbright.

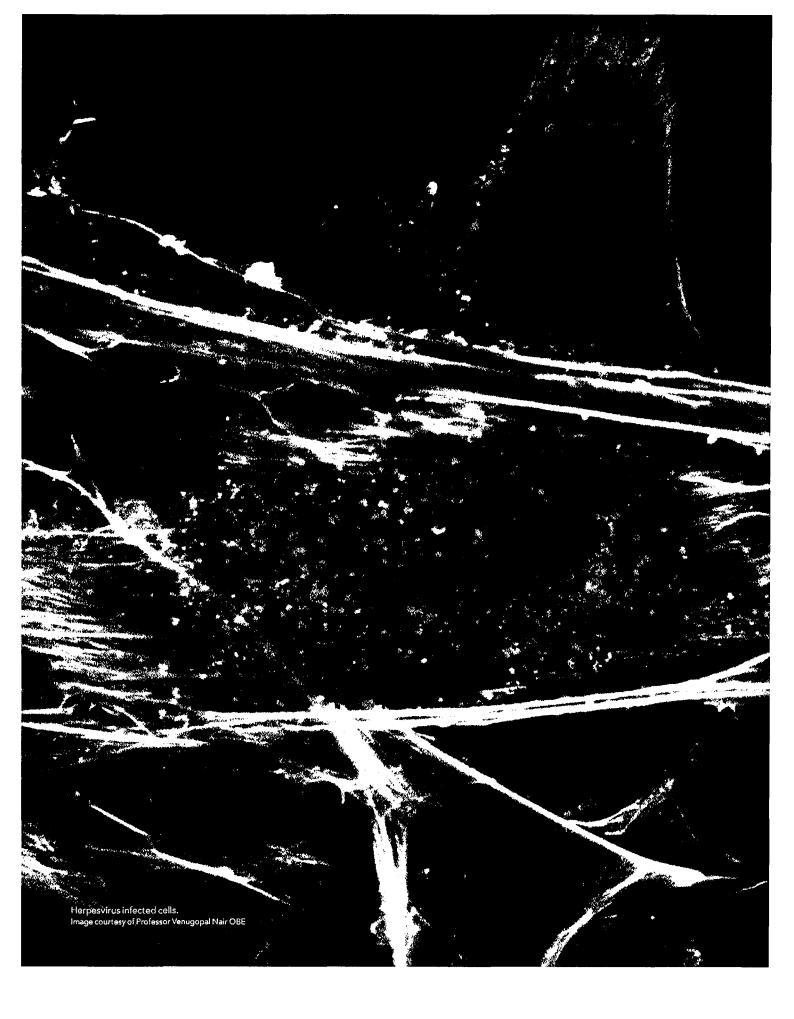
Our ability to interrogate host-pathogen interaction at different scales, from the cell, to the whole organism, extending to host populations, all within high containment, sets us apart from other research institutes around the world. Animal research

excellence, but a centre of excellence across many disciplines, including engineering, reach and build on our ambition to address maintenance, and risk management of biocontainment facilities.

> at Pirbright is facilitated and managed by a highly skilled and extremely dedicated Animal Services Capability department. The care and welfare of animals used in our research is of paramount importance, both for the animals and the validity of the science being undertaken. Our animal technicians, veterinary surgeons and researchers ensure animals used in our research receive the highest standards of care. We are fully committed to the 3R's of replacement, refinement and reduction and the Concordat on the Openness on Animal

> Our global impact on human and animal health continues to grow and our reputation for leadingedge science with it. We are looking forward to seeing our new buildings come on line, including a new high containment animal facility, to further facilitate our ability to develop and test vaccines that will protect against the world's most devastating diseases - both now and in the future.

Dr Bryan Charleston, Director and CEO, The Pirbright Institute



# WELCOME TO OUR ANNUAL REPORT

Pirbright's mission is to be the world's leading innovative centre for preventing and controlling viral diseases of livestock and those that spread from animals to people. We apply cutting-edge scientific research into viral diseases and their interaction with hosts and vectors to prevent and control viral diseases, protecting animal and human health and the economy. We provide the UK with its capacity to predict, detect, understand and respond to the threat of specific potentially devastating viral livestock diseases.

### **OUR STRATEGY**

The Pirbright Institute's strategic aims are to:

- Predict the worldwide spread of viral diseases which threaten economic prosperity and health, and to provide an early warning to the UK and EU of virus threats.
- Detect, contain and eliminate infectious viral diseases of livestock using monitoring, diagnostic testing, and supporting mass surveillance during and after virus outbreaks.
- Understand, through fundamental research, the complex biology of viruses of economic importance by characterising the structure, genetics, replication and evolution, as well as filling gaps in our knowledge on the virus-host and virus-vector interactions.
- Respond in the event of a virus outbreak by providing primary diagnostics, vaccinology expertise and advising disease control agencies.
- Use innovative genetic technologies and other novel scientific approaches to control the spread of disease through a number of control methods including vaccine development and vector control
- Support the UK's scientific knowledge base and develop future leading researchers across a number of important research disciplines.
- Engage with the public, partners and policymakers using a wide range of media to initiate conversations that will help shape future science.

#### **OUR IMPACT**

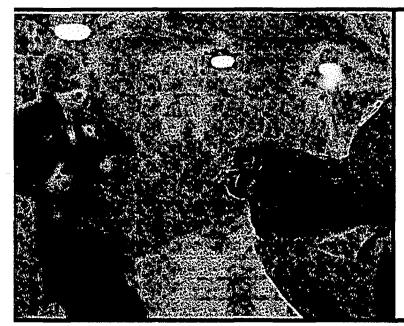
Pirbright's global impact continues and it makes a huge contribution to economic and food security and health by supporting the prevention and control of infectious viral diseases of livestock, and diseases that spread from farm animals to people (zoonoses).

Our scientists work to protect farming, industry and society in the UK by improving our understanding of the biology of these viruses and how they spread and how they interact with their hosts.

Pirbright is leading the way in the control and eradication of potentially devastating global diseases including foot-and-mouth disease (FMD), peste des petits ruminants (PPR), avian influenza (Al) and bluetongue (BT) by understanding host-virus interactions, developing effective vaccines and improving diagnostic tools. For example, researchers have developed a new portable test that can be used in the field for FMD that is able to differentiate between strains of the virus.

Diseases such as African swine fever (ASF) and lumpy skin disease (LSD) can cause huge production losses and have a big impact on the world's poorest regions where more people are directly dependent on livestock. There is currently no effective vaccine for ASF and, like ASF, LSD is now in Europe and although there is an effective vaccine little is understood about the disease. Outbreaks of ASF between 2014-2018 resulted in hundreds of thousands of pigs dying or being destroyed in Eastern Europe and the Russian Federation and are a huge economic threat to commercial pig farms. Assessments of estimated financial impact vary considerably, but outbreaks in 2014-2015 in Poland, Lithuania, Latvia and Estonia are estimated to have reduced export value of pork and pork products by up to 50%. Introduction of ASF into Denmark could result in losses of US\$12 million in direct costs and US\$349 million in exports. Further spread of ASF to China could have disastrous consequences, since it is home to more than half of the world's pig population. Research by scientists at Pirbright has taken us a step further in the hunt for the development of an effective commercial vaccine for ASF.

# **OUR RESEARCH**



# ENHANCED HOST RESPONSES FOR DISEASE CONTROL

### Science pursuit

What properties of the host response to virus infections determine if disease occurs and if viruses are controlled, persist or are transmitted to a new host?

### Science outcome

Fully understanding the responses of host species to viral infection, from the genome to the whole organism and population.

Focuses expertise in disciplines such as immunology, genetics, entomology, vaccinology and bioinformatics to study host-virus interactions from the host perspective (including arthropods that act as virus vectors), the host's response to viral infection and the translation of this knowledge into the development of new and improved disease control methods.

# UNDERSTANDING AND PREVENTING VIRAL DISEASES

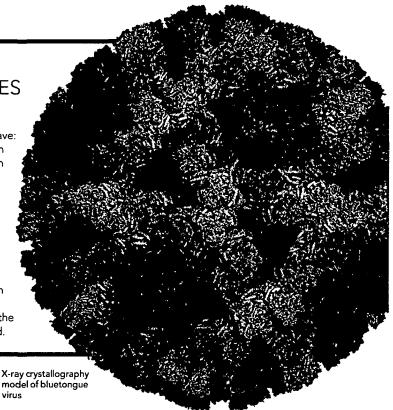
### Science pursuit

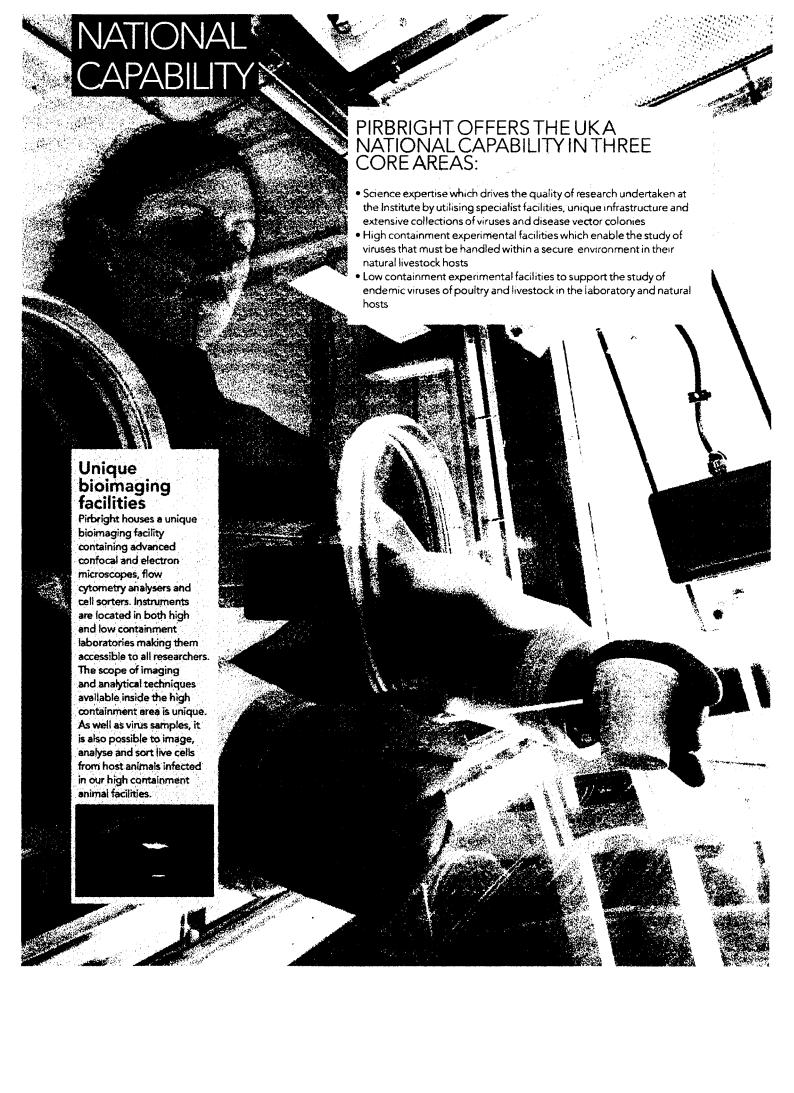
To gain a deeper understanding of how viruses behave: at a molecular level, by examining interactions within cells; the process of evolution within the host; and on a global scale by seeking to reconstruct and predict how viruses are transmitted and cause disease.

### Science outcome

This work will enable the development of new and improved methods of disease control such as vaccines and diagnostics, for both animals and people.

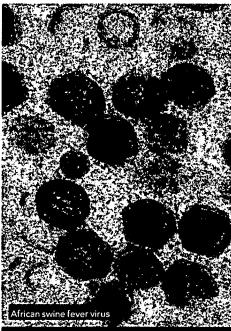
This programme explores the interaction between virus and host from the perspective of the virus and identifies those properties of a virus that determine the ability to cause disease, replicate, evolve and spread.





# SCIENTIFIC HIGHLIGHTS





# AFRICAN SWINE FEVER RESEARCH ADVANCES AT PACE

The hunt for a safe and effective vaccine for African swine fever (ASF) has recently been advanced by Pirbright. Researchers screened ASF genes for their ability to produce proteins that create an immune response in pigs, and they are now looking to incorporate the most promising genes into a vaccine. They also found another promising vaccine candidate by genetically modifying the ASF virus to reduce its ability to cause infection. Pigs exposed to the modified strain were protected against further infection by a natural ASF virus, indicating this method could be developed further to create a new vaccine. Scientists are also working to better understand how the virus evades the host's immune system, how it is transmitted and they are also improving diagnostics to detect the virus more accurately and rapidly.

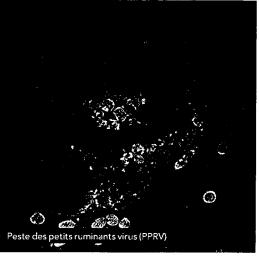
### PESTE DES PETITS RUMINANTS POSES THREAT TO EUROPE

Global policy makers are urged to consider better coordinated vaccine strategies to combat the spread of peste des petits ruminants (PPR). The call came as PPR, a neglected but devastating livestock disease, has spread rapidly and now poses a threat to sheep and goat populations in Europe.

PPR, also known as goat plague, is a highly contagious disease caused by PPR virus (PPRV) that infects small ruminants such as sheep and goats and can have a mortality rate as high as 90%.

PPRV has been targeted for eradication by 2030 by the Food and Agriculture Organisation of the United Nations (FAO)

and the World Organisation for Animal Health (OIE). This follows the successful eradication of the related disease rinderpest – a success that Pirbright scientists played a major



mage courtesy of Dr Michael Baron

### GOAT ANTIBODY GENES UNCOVERED

Expert geneticists from Pirbright have sequenced the entire genetic code of the goat, which is the most complete produced for any mammal to date. They used a combination of techniques in parallel, an approach which could revolutionise the process of genome sequencing and assembly for other species and help scientists further understand the relationship between genetics and disease. The team has since used the data to identify the position and function of the goat genes that are responsible for antibody production. The variety of antibodies expressed by any given individual is immensely diverse and influenced by vaccination and infection. By knowing the genetic sequence responsible for antibody production, scientists can better understand how animals are able to respond to disease.



Researchers have created a new method of genetically modifying the Marek's disease vaccine so it can protect against another destructive poultry virus – infectious bursal disease (IBD) – and potentially others such as avian influenza and Newcastle disease. This approach could lead to a reduction in the number of vaccines given to birds.

Using a gene editing system called CRISPR/Cas9 to add a gene of the IBD virus into a current Marek's disease vaccine virus, scientists were able to add genetic material that could protect poultry against IBD adding to the protection already offered by the Marek's disease vaccine, meaning that bird owners would only need to use one vaccine instead of two.

Pirbright intends to partner with vaccine manufacturing companies to bring CRISPR/Cas9 edited vaccines to market due to strong commercial interest.

Marek's disease virus infected cells

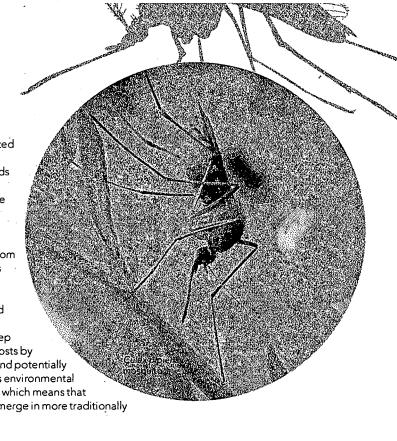
# SCIENTIFIC HIGHLIGHTS

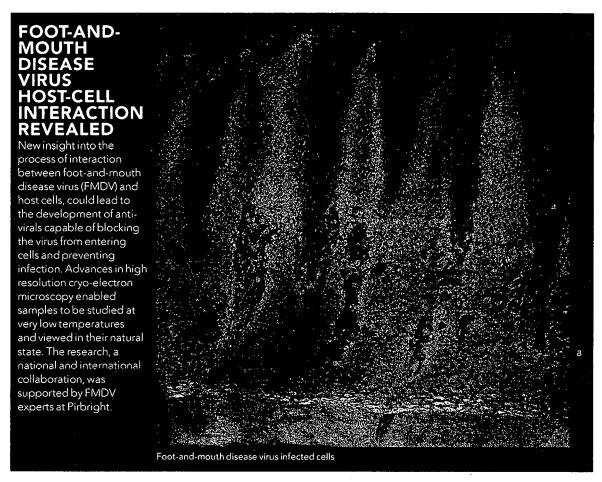
# WHICH UK MOSQUITOES ARE FUSSY FEEDERS?

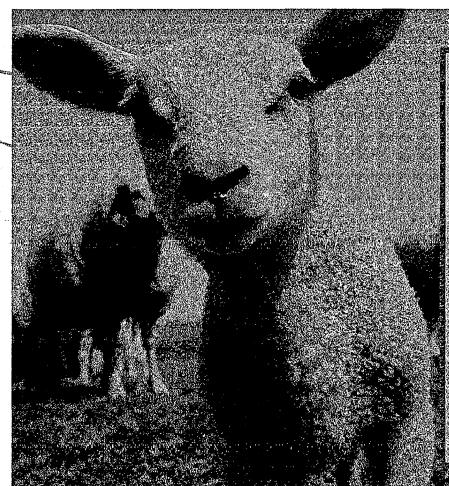
The largest study of blood feeding by mosquitoes ever conducted in the UK has revealed that some species are fussier than others when choosing a host. Researchers aimed to discover which birds and mammals mosquitoes were biting in order to understand the potential for the UK to experience outbreaks of vector-borne diseases. Scientists collected almost 21,000 mosquitoes using special traps which provided shelter for females that had taken a blood meal, as only female mosquitoes bite. Eleven different species of mosquito were collected and DNA was sequenced from 964 individuals. The DNA was then matched to DNA sequences from UK wildlife held on global databases.

The study revealed that mosquitoes varied in their feeding behaviour: Culex pipiens and Culex modestus fed on native and migratory bird species but didn't feed on mammals. Anopheles maculipennis, fed on a range of mammals, including cattle, sheep and rabbits as well as birds. The use of both bird and mammal hosts by mosquitoes can lead to viruses 'spilling' over into new species and potentially humans. This is particularly important because of factors such as environmental change and the potential for exotic mosquitoes to reach the UK which means that diseases previously restricted to more tropical climates could emerge in more traditionally

temperate regions.







### PIRBRIGHT CONFIRMED THE UK IS FREE FROM BLUETONGUE

Pribright demonstrated the importance of its role as a National Capability in protecting the UK from devastating infectious viral diseases of livestock using its expertise in surveillance and diagnostics. We played a key tole in providing assurance that the UK remained free from plue tongue virus (BTV) following the positive test results of four cattle which had moved from Elanceint other north of England and Scotland in October 2017 without sufficient proof of vaccination BTV causes a Usease in farmed animals, such as sheep goats and cattle which can have almajor impactional vestock production and movement. While the UK temans free of BTV accurate surveillance carried out onlive animal consigning in moving from neighbouring countries affected by BIV transmission is suited.

EVALUATING SAMPLING METHODS FOR FOOT-AND-MOUTH DISEASE IN KATHMANDU The Transmission Biology group at Pirbright carried out fieldwork in the Kathmandu Valley, Nepal. The aim of this fieldwork was to evaluate environmental sampling methods for use in the surveillance of foot-andmouth disease virus (FMDV). This ensures that methods developed

in the lab translate successfully to real world situations, providing additional tools for use in surveillance programs. Environmental swabs and aerosol sampling were both used in the detection of FMDV from suspected cases.

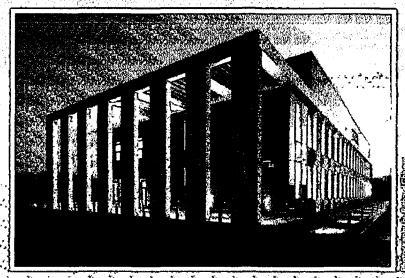






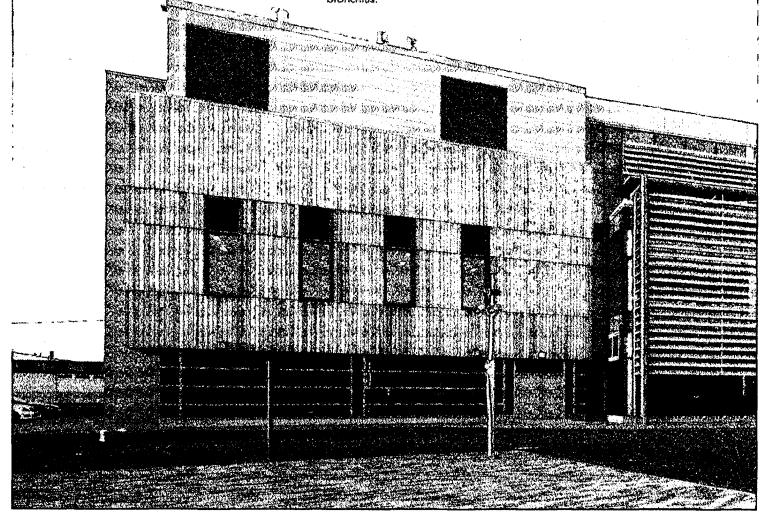
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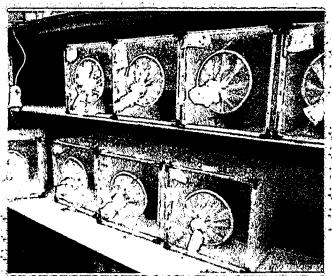
Strategic capital investment of over £350 million from the Biotechnology and Biological Sciences Research Council (BBSRC now part of UKRI) is transforming the Pirbright campus with new world class facilities as part of an overarching masterplan for the site. Together these comprise an National Capability which is enabling our scientists to carry out cutting-edge research and is available to help deal with disease outbreaks in the UK.



## BBSRCNATIONAL VACCINOLOGY CENTRE: THE JENNER BUILDING

The BBSRC National Vaccinology Centre: The Jenner Building, is a low containment laboratory whiteh enables our scientists to undertake research into new ayian vaccines and to gain a better understanding of poultry viruses of huge economic impact such as avian influenza, Marek's disease and infectious bronchitis.





### THE PHILIP MELLOR INSECTARY

The Philip Mellor Insectary is used to create and maintain unique insect colony lines of disease vectors including biting midges such as Cullcoides and mosquitoes including Aedes and Culex. These can be studied in and out of high containment to improve our understanding of the relationship between virus, vector and host. Insect lines are also supplied externally to research organisations. This capability was enhanced through the renovation of an existing laboratory.

### REFERENCE LABORATORIES

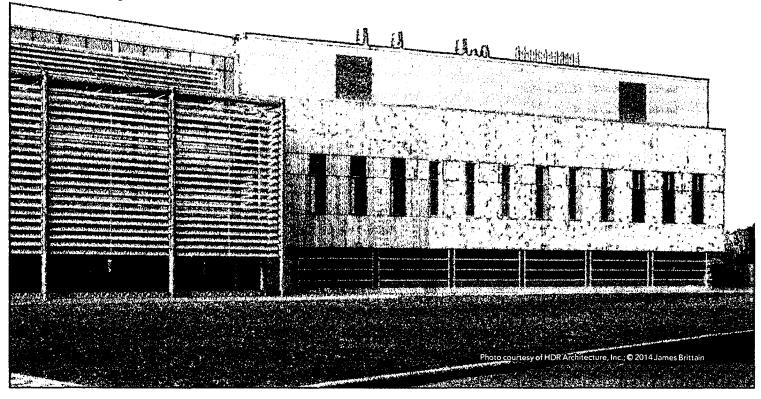
Our reference laboratories, which work on behalf of Defra and capacity. In the international organisations, provide expertise and capacity. In fordiagnostics and surveillance to monitor livestock for high consequence viral diseases underpinning global disease control efforts. This year marks the 60° Anniversary of the World Reference Laboratory for Foot and Morth Disease, which will be celebrated by a two-day symposium in November 2018.

Arbinghts reference laboratories cover ten exotic viral diseases of twesteck including foot-and-mouth disease, African swine fever, bluetongue and lumpy skin disease. Reference laboratories have akilled and expert personnel, validated diagnostic tests, essential reagents and archive materials (viruses, antisera). At Pirbright the reference laboratories work alongside our research programmes enabling Pirbright to respond to outbreaks in a timely manner.



### BBSRC NATIONAL VIROLOGY CENTRE: THE PLOWRIGHT BUILDING

The BBSRC National Virology Centre: The Plowright Building, provides the UK with a unique high containment facility to research and control highly infectious viruses of livestock which include foot-and-mouth disease, African swine fever, lumpy skin disease and bluetongue.



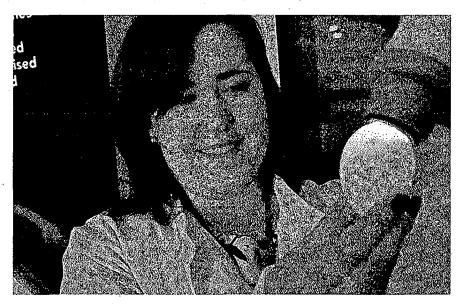
# FUNDING AND INVESTMENT

## BETTER VACCINES FOR DEADLY POULTRY DISEASE

BBSRC has awarded joint funding of £440,000 to Pirbright's Dr Yongxiu Yao and The Roslin Institute to research how the deadly Marek's disease virus (MDV) causes tumours in poultry, and to create a more. effective vaccine. Nearly 22 billion vaccine doses a year are used in an attempt to control the disease which causes losses of up to \$2 billion worldwide, but the virus continues to evolve and form increasingly virulent strains. The team will use CRISPR/Cas9 gene editing to investigate a tumour-inducing gene which will provide a clearer understanding of the pathways involved in tumour formation and aid the creation of better vaccines.



PIRBRIGHT RECEIVES INTERNATIONAL FUNDING TO PROGRESS RESEARCH THAT IMPACTS ANIMAL AND HUMAN HEALTH GLOBALLY



### **FASTER INFECTIOUS BRONCHITIS VIRUS VACCINE DEVELOPMENT**

Dr Erica Bickerton has been awarded over £300,000 by BBSRC to develop a faster and more efficient method for infectious bronchitis virus (IBV) vaccine production. IBV has significant economic impact on chicken production worldwide, reducing weight gain and egg production. The research aims to employ a new method to produce live vaccines in laboratory cell cultures, enabling large volumes of vaccine to be produced, thus reducing the number of eggs used.



### FMD VACGINE RECEIVES COMMERCIAL FUNDING

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## UNDERSTANDING SHEEP IMMUNE RESPONSES TO BLUETONGUE

Dr Karin Darpel has won a BBSRC grant to investigate the immunological responses to bluetongue virus (BTV) infection in sheep, the natural hosts of the disease.

Immune cells called Tlymphocytes are central to the



anti-viral immune response, but little is understood about which subsets are activated when sheep are infected by BTV By studying the levels of virus when each subset is removed, the research will provide much needed data on the specific role of T cell subsets on BTV production, immune responses, clinical signs and virus transmission.

## FIGHTING MOSQUITO-BORNE DISEASES WITH SAFE GENES

Professor Luke Alphey has received a subaward of \$2.66million as part of a research team led by the Massachusetts Institute of Technology in DARPA's Safe Genes programme. The Pirbright team will investigate how 'daisy-drive' gene drive techniques could be employed to suppress populations of mosquitoes in a bid to control vector-borne diseases such as Zika and dengue. Data from research in controlled lab

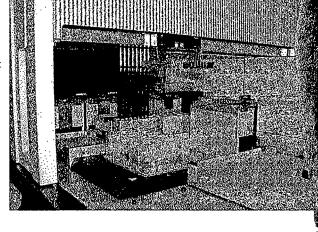
any potential future use of 'daisy-drive' genetically-engineered mosquitoes in the environment.

populations will then inform

detailed risk assessments of

# CAPACITY FOR DNA SEQUENCING BOOSTED

Pirbright's high containment DNA sequencing capacity has received a £550,000 boost from BBSRC to add two more high-throughput sequencers that will enable scientists to perform host and virus gene expression studies during natural infections and analyse how viruses evolve during an infection.



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# SCIENCE IN SOCIETY



# SUPPORTING PIRBRIGHT'S LOCAL COMMUNITY

Pirbright takes engagement with its local community and corporate social responsibility seriously. We sponsored local events, attended the Pirbright Community Games and informed local residents about the latest developments on the Pirbright campus at Parish Council Meetings. Volunteers also continue to maintain the Fox Corner Wildlife Area, a conservation hot spot that is valued by the surrounding neighbourhood.

### BEIS MARKET PLACE

Pirbright scientists represented BBSRC at the Department for Business, Energy and Industrial Strategy (BEIS) Market Place. The Market was hosted as an opportunity for key BEIS staff to engage with researchers and to understand the importance of their work both in the UK and globally.



# SHOWCASING DIAMOND COLLABORATION

Our scientists visited the Diamond Light Source open day in July 2017 to show members of the public how they collaborate with Diamond Light. Using the Diamond facilities, our researchers were able to visualise the foot-and-mouth disease (FMD) virus outer shell, assisting the development of FMD vaccines.



Unline engagement has become a standard platform which our scientists now use to communicate their research. Dr Anthony Wilson, an AAAS Leshner Fellow, took part in an 'Ask Me Anything' forum, where users could ask him anything about his work at Pirbright on infectious diseases that are carried by organisms such as mosquitoes and ticks.

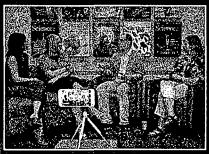


Image @ American Association for the Advancement of Science (AAAS)



### **LEAF OPEN FARM SUNDAY**

On LEAF Open Farm Sunday, farms across the country open their doors to the public to show them what it means to be a farmer and for the public to see firsthand how their food is produced. Our Named Veterinary Surgeon, Dr Ryan Waters, went to the Waitrose Dairy Farm to explain the role Pirbright plays in protecting the dairy herd from diseases, as well as other farm animals across the globe.

This year's Innovate Guildford Science, Festival saw Pirbright's first outing of 'Bug Busters', a new Lego® interactive model demonstrating how our scientists are using CRISPR/Cas9 gene editing to modify mosquitoes. Professor Luke Alphey then gave a public masterclass on how these mosquitoes can be used to control wild populations and prevent them from spreading deadly diseases.



# ORKING WI INDUSTR'



### REDUCING ANIMAL RESEARCH

The National Centre for the Replacement Refinement and Reduction of Animais in Research (NC3Rs) has funded Purbright research which will progress techniques for investigating poultry viral diseases without the need to infect live birds. New methods for studying chicken immune cells in the lab will be developed, thereby improving the tools for understanding economically important poultry infections whilst reducing the number of birds required for research.



## NEW FOOT-AND-MOUTH DISEASE VACCINE **PATENT**

Europe and Korea have joined the USA and China, among others, in granting the patent to Pirbright's virus like particle (VLP) vaccine for foot-and-mouth disease. The vaccine has been engineered to remain intact throughout manufacture, storage and transport, and is able to be produced in low containment laboratories as the VLP contains no genetic material.

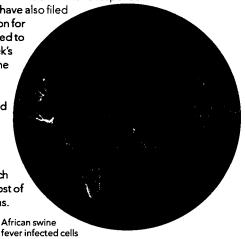


disease virus

### PATENTS TO PROTECT AGAINST AFRICAN SWINE FEVER AND MAREK'S DISEASE

Pirbright has filed a patent application for a vaccine against African swine fever, a deadly pig virus which has spread rapidly across Europe and to which there is currently no vaccine. Developed jointly with Arizona State University, the vaccine uses a modified vaccinia virus to deliver proteins that will generate an immune response in pigs. Researchers have also filed

a patent application for their technique used to engineer the Marek's disease virus vaccine to protect against infectious bursal disease. The method could be used to protect against multiple avian diseases in a single administration, which could reduce the cost of poultry vaccinations.

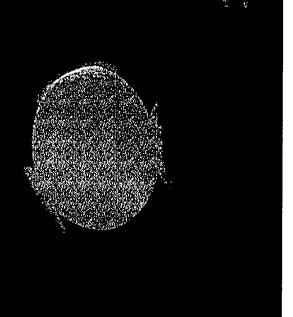


fever infected cells

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### ICKS TO BE **INATED AGAINST IRATORY DISEASE** THE EGG

BBSRC and Zoetis have jointly provided nearly £1.4 million for research on avian respiratory disease which is caused by infectious bronchitis virus (IBV). The research will involve testing three novel strains of vaccine for safety, stability and effectiveness. These vaccines have the potential to be administered to chicks while they are still in the egg, meaning that each chick will receive the correct dose and be protected against IBV before hatching. The research will also aim to determine if it is possible to protect chicks against two strains of IBV with a single vaccine dose prior to hatching.



# WHICH INSECTS ARE CULPRITS IN SPREADING LUMPY SKIN DISEASE? BBSRC and MSD Animal Health has funded Pirbright nearly half, a million.

pounds through a BBSRC Industrial Partnership Award to investigate the most likely vector group responsible for transmission of lumpy skin disease virus (LSDV). The disease affects cattle and is endemic in



Africa and the Middle East where it produces significant economic loss and acts as a barrier to trade, but since 2012

has spread into Turkey, Europe, the Caucasus and Russia. Understanding how the virus is spread will allow scientists to take on the second objective of the grant and assess the risk posed by LSDV and the potential impact of different control measures.



### SUPPORTING STUDENTS IN SCIENCE AND ENGINEERING

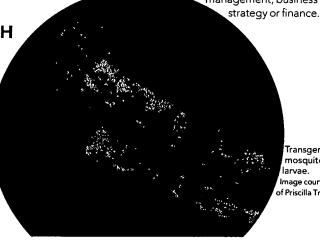
Pirbright has collaborated with multiple industrial partners such as Zoetis, Merial and charities such as the Bill and Melinda Gates Foundation to provide PhD studentships through the BBSRC Collaborative Awards in Science and Engineering programme. The programme enables students to gain experience of an industrial research environment in addition to business-related training in project-

management, business

### PIRBRIGHT SPEARHEADS INDUSTRY **GUIDANCE ON SAFE WORKING WITH GM INSECTS**

The first industry guidance on working safely with arthropods and genetically modified (GM) insects was officially launched at Pirbright in April 2017. Pirbright scientists and biosafety advisors worked with Institute of Safety in Technology and Research (ISTR), the Health and Safety Executive (HSE) and the Advisory Committee on Dangerous Pathogens (ACDP) to create the new publication, which advises on minimum requirements and provides best practice for work with arthropods infected with human or animal pathogens including genetically modified (GM) vectors or pathogens.

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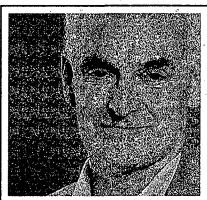


Transgenic mosquito lmage courtesy of Priscilla Tng

# AWARDS AND ACHIEVEMENTS



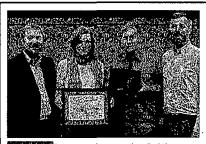
Journal of Comparative Pathology Veterinary Pathologist Medal for 2018 which included an invite to speak at the plenary lecture in September 2018.



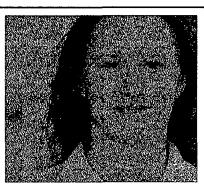
Global expert on foot-and-mouth disease and Director of Pirbright, DE Van Charleston, has been selected to sit on the Research Excellence Framework 2021 sub panel to oversee Agriculture, Veterinary and Food Science.



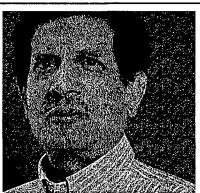
Prilippa Hawes, Pirbright's Head of Bioimaging has recently been appointed Visiting Professor for the Faculty of Health and Medical Sciences (SUND), University of Copenhagen, due to her experience and knowledge in the field of electron microscopy, particularly within a high containment environment.



Entaight has jointly won the Public Engagement category at the fourth annual Understanding Animal Research (UAR) Openness Awards for its contribution to the 360°. Laboratory Animal Tours project. The project involved the creation of a walkthrough video to reveal life inside the high containment animal laboratories and featured interviews with scientists and animal technicians.



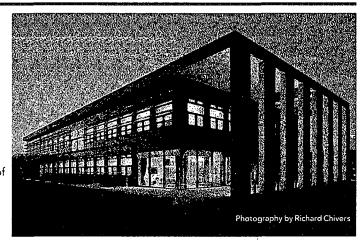
Animal Technician, Louise Carder, has won the Steve Moore Memorial Poster Prize for a poster on 'Target training pigs within an Isolation Unit (pilot study)'. The prize was a trip to the National Meeting of the American Association for Laboratory Animal Science in Texas.



Dr.Munit Igbal, leader of the Avian Influenza Virus group, has been awarded an Honorary Professorship by the Royal Veterinary College. The award will enable both organisations to increase collaboration with South Asia network for work on poultry diseases.

### The BBSRC National Vaccinology Centre:

Award in the New Build category and impressed the judges with its contemporary functional design coupled with strong sustainability credentials. The £17 million building is home to over 100 scientists delivering world-leading research through energy efficient facilities including photovoltaic panels and thermal mass heating that secured the building a BREEAM 'excellent' rating. Designed by architects NBBJ and constructed by John Sisk & Son's, the new laboratory is surrounded by bio-diverse landscaped gardens including a wildlife meadow that was awarded to the Institute as a result of winning the CIRIA biodiversity BIG Challenge Awards in 2017.





VACCINES TO COMBAT ARBOVIRUSES

effective vaccines

Pirbright is proud of its many collaborations with scientists world-wide. This year we welcomed

SKIN DISEASE

Dr James Nyagwange who is a joint fellow between

the cattle antibody response to novel vaccines against arboviruses, aiming to help design and select the most

Pirbright and KEMRI-Wellcome Trust, Kenya. He is studying

#### FUNDING TO DEVELOP NIPAH VACCINE

A £2.36 million grant
has been awarded
by Innovate UK to Dr
Simon Graham to lead
an international team
developing an inexpensive,
safe and effective vaccine
to protect pigs against
Nipah virus (NiV). NiV is
usually found in Old World
fruit bats, but infection in
pigs increases the ability
for the virus to transmit to
humans and cause severe,

often fatal, neurological disease. The grant will allow scientists from Pirbright and partners in the UK, Australia, Malaysia and India to develop a prototype vaccine that will aid the control of NiV outbreaks. As well as minimising impact on the pig industry, the successful candidate will prevent virus transmission and therefore lower the risk to public health.

### GLOBAL DRIVE TO WIPE OUT AFRICAN SWINE FEVER AND LUMPY

Dr Pip Beard has been awarded a five year European Union Horizon 2020 grant named DEFEND to target two viral diseases of livestock which are emerging into Europe and pose a serious threat to the pig and cattle industries. African swine fever (ASF) is a highly contagious disease of pigs which causes a haemorrhagic syndrome with up to 100% fatality. Lumpy skin disease (LSD) is a disease of cattle caused by a poxvirus that spreads rapidly in warm humid conditions, most likely due to insect-borne transmission. DEFEND will involve 31 partners in academia, government and industry from countries across Europe as well as Russia, Canada, South Africa and Australia.

RINDERPEST PROGRAMME OF SEQUENCING AND DESTRUCTION

Rinderpest (RP) is a highly contagious viral disease that primarily affects large cloven hooved animals, especially cattle and buffalo. In 2011 the World Organisation for Animal Health (OIE) formally declared the disease to be eradicated, in which Pirbright played a key role. We are now one of five Rinderpest Holding Facilities globally, approved by the Food and Agriculture Organization (FAO)/OIE for safe storage of material containing rinderpest virus. Dr Carrie Batten, Group Leader of the Non-Vesicular

Disease Reference Laboratory at
Pirbright, has been nominated as
Secretariat for the Rinderpest
Holding Facility Network and
is leading a project along
with Dr Michael Baron to
sequence and destroy stocks
of the virus around the world
to prevent its accidental or
deliberate release.

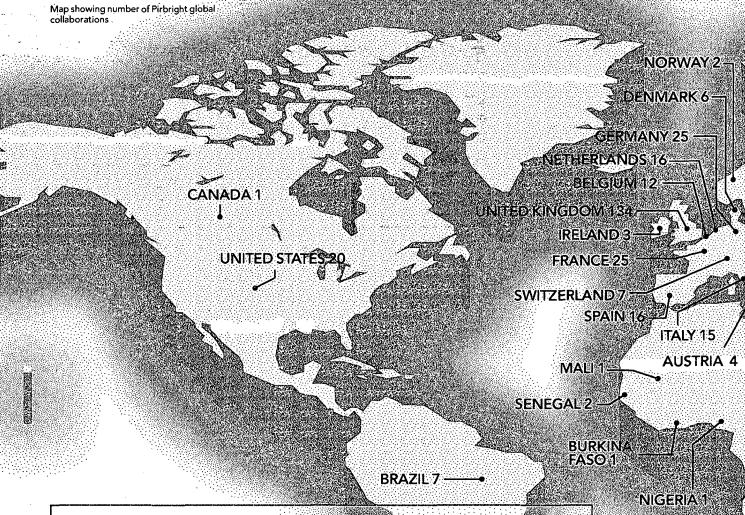
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THE PIRBRIGHT INSTITUTE ANNUAL REPORT 2018 23



Pirbright was involved in 203 collaborations in 50 countries during 2017-18



#### CHAMPIONING COLLABORATION



Fighting avian diseases together Pirbright's Professor Venugopal Nair has co-founded a network, the UK-China CERAD, as a result of the Institute's highly successful collaboration with researchers at Shandong Binzhou Animal Science & Veterinary Medicine Academy and other academic institutions in China. Newton Fund and BBSRC funded a five-year grant to establish the virtual centre for state of the art research and training for UK and Chinese scientists to work more closely in the global fight against poultry disease.



# Overcoming the challenge of vector research

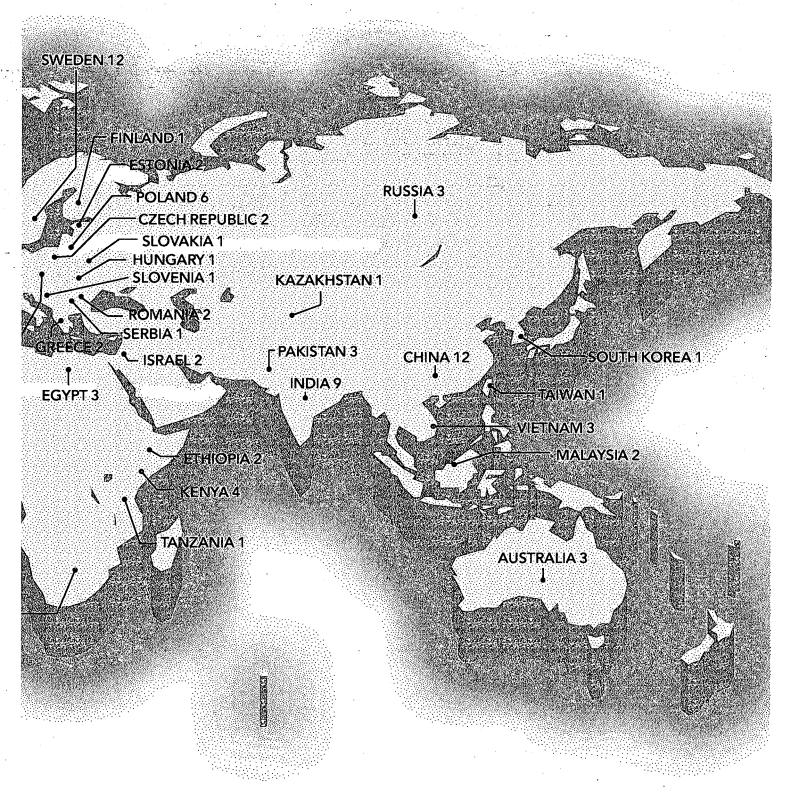
Led by Pirbright's Dr-Simon
Carpenter, the Gnatwork is a
Global Challenges Research Fund
(GCRF) funded network, aiming to
create and maintain a community
of researchers based on shared
technical difficulties across biting
midges, sandflies and blackflies
Through funding of small-scale
studies and hosting of annual
training workshops, its aim is to
create a more resilient research
base for these three neglected
vector groups.



# Pooling expertise to fight

Pirbright Joined with The Roslin Institute to launch an International Veterinary Vaccinology Network (IWN) following their successful £2.1m joint funding bid. Grantfunded by the Medical Research Council and the BBSRC, the new international network will aim to facilitate interaction and collaboration between a range of partners across science and industry in the UK and globally.

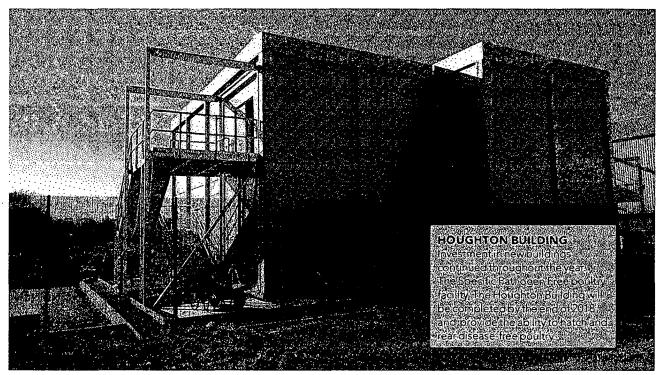
SOUTH AFRICA 4



THE BBSRC NATIONAL VACCINOLOGY CENTRE: THE JENNER BUILDING IS RECOGNISED FOR ITS ENERGY EFFICIENCY WITH A BREEAM 'EXCELLENT' RATING

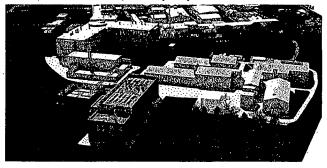


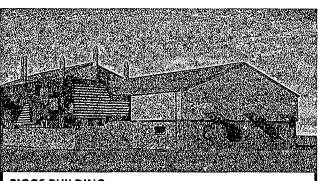




#### **BROOKSBY BUILDING**

Design work began, and a contractor was appointed, for The John Brooksby Building, a high containment large animal facility, for experimental work on livestock (cattle, pigs, sheep, goats and poultry work in isolators). Works are scheduled to start in early 2019 and expected to be completed by early 2021.





#### **BIGGS BUILDING**

Construction of a new low containment poultry experimental facility, The Peter Biggs Building, will commence in late 2018 and is expected to be completed and operational by 2020.

During late 2017 and early 2018, phase one of the decommissioning and demolition of old facilities was completed. This frees up land for future development on the Pirbright site.







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# BUILDING OUR EXPERTISE

The Institute continues to attract world-class researchers in viral diseases of livestock and highly specialised operational experts to support our highly regulated science.

# DEVELOPING OUR CULTURE AND WORKFORCE

In delivering excellence across our science and research, we continue to provide our people with the best support and opportunities available, whether that is through training and development, career progression, wellbeing or performance management.

We have introduced further flexibility around working practices alongside improvements to standardised recruitment policies, recruitment channels and people processes. Senior leadership commitment to our People and Culture Strategy and Leadership Programme has further enhanced the opportunities for training and development in areas of leadership and line management, all focused on attracting and retaining the best people.

The Institute is continuously changing, physically through the creation of new facilities and alongside the enhancements and improvements to working practices, compliance and the addition of ideas and innovation brought about by new people joining. We endeavour to build on our commitment on how we reward and recognise our people, setting out our Remuneration and Recognition strategy to the Trustee Board in early 2018.

Diversity and inclusion are key elements of our people agenda and remain integral in ensuring that everyone has access to the same opportunities and the same, fair treatment.

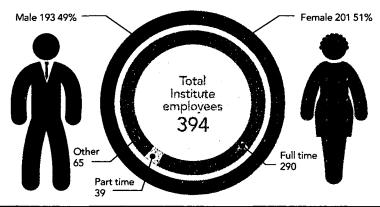
#### **HOW DIVERSE IS OUR WORKFORCE?**

We are transparent about our progress towards becoming a fully diverse and inclusive organisation. We were one of the first organisations to submit our gender pay gap report in August 2017 and we are currently taking forward the actions arising from our recent Athena SWAN success and Employers Network for Equality and Inclusion (ENEI) review.

#### BUT THERE IS STILL MORE WE CAN DO...

We want to lead by example as a social mobility employer – to be recognised as an inclusive organisation where people from all backgrounds are able to work, develop and succeed and we want to use our skills and resources to enable people from disadvantaged backgrounds to make the most of their potential, whether at the Institute or elsewhere.

#### **GENDER BREAKDOWN**



#### **DALAN BAILEY**

Cross-cutting research on viral glycoproteins is the focus of Dr Dalan Bailey's new research group at Pirbright. Dalan's research covers a broad range of areas from vaccine development and testing to fundamental molecular virology and innate immunology. He is particularly interested in comparative research on animal and human viruses - combining projects to deliver impact across the One Health spectrum. Dalan is also passionate about driving policy development in this area and is actively involved in advising agencies such as the OIE, FAO and WHO on relevant control strategies.

### FIONA SIRKETT

of HR roles in the private and not-for-profit sectors, Fiona Sirkett, Senior Strategic HR Business Partner/Deputy Head of HR, joined the Institute in December 2017. Her personal aim is to work closely with colleagues across all areas of the organisation to help them meet their aspirations on both a personal and professional level.

#### YONGXIU YAO

Yongxiu's major interest is in the interactions between oncogenic viruses and their host, particularly focusing on the role of non-coding RNAs such as miRNAs in viral oncogenesis to unravel the molecular mechanisms of induction of tumours by oncogenic viruses. Yongxiu's recent research has focused on the application of CRISPR/Cas9 genome editing of avian herpesviruses for studying viral pathogenesis and developing recombinant vaccines. As the deputy head of Avian Oncogenic Viruses group, she is leading several projects using CRISPR/Cas9 editing tools to ask fundamental questions on host-virus interactions.



# **FUTURE PLANS**

# OBJECTIVES FORTHERIVEYEAR PERIOD FROM 2018/19

Pirorightsprincipal objectives are as follows:

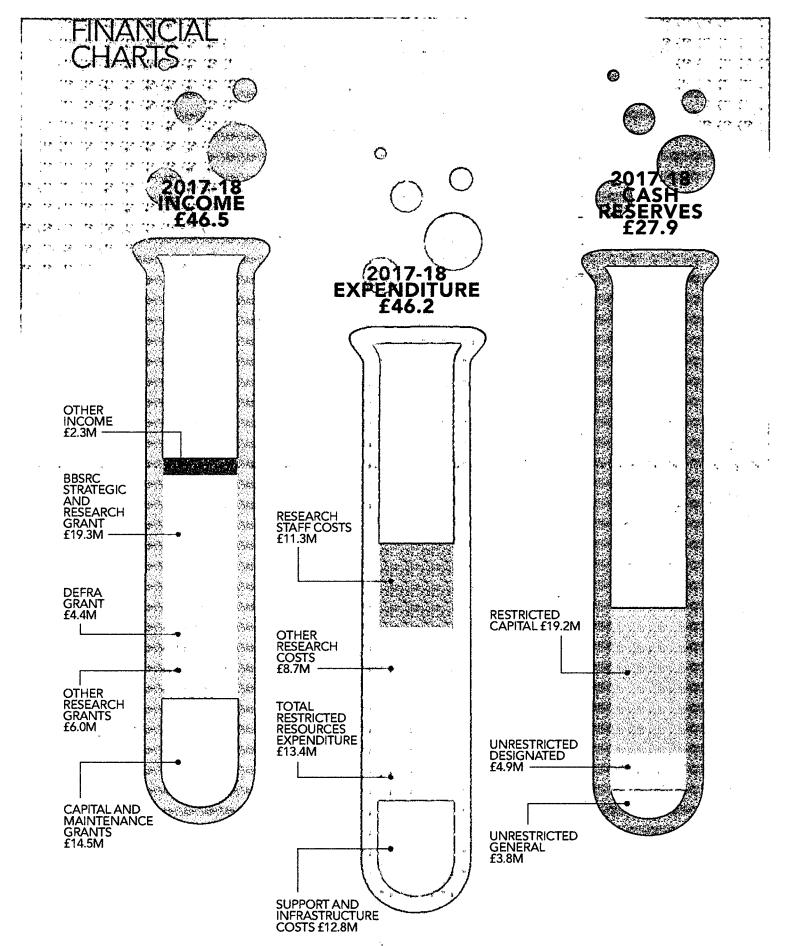
- To continue a world-leading research programme by a publishing ground-breaking scientific research, winning research funding and recruiting and retaining the brightest and the best staff and students.
- To further develop the Pirbright long term vision of scientific research with impactin perticular enhancing our collaborations with agencies improving disease control in low and middle income countries
- To continue to implement the fully funded development programme to provide additional animal research facilities to study high consequence pathogens. These facilities will further facilities will further enhance the Institute as a unique National and International Capability.
- To develop strong strategic collaborations with other global centres of excellence to support the new Institute science programme grants.
- To diversify our funding through greater collaboration with international partners via various new funding opportunities
- To provide training and expertise to external partners in commissioning and maintaining high containment facilities, health and safety, biosafety and biosecurity and quality assurance.



• Publications in relevant scientific journals; being one paper per postdoctoral scientist per year • Submission levels and success rates for research grant proposals; going within five years from 25% to 30% over the \*\* Annual research income

next five years 🙌 🦠

- Recruitment and retention of high quality staff and students; to achieve a 85% and 90% retention for senior and other staff respectively within five years
- of £11m externally won
- funding each year over the next five years
- Compliance with regulatory authorities Maintaining accreditation to appropriate quality standards such as ISO/IEC 17025



....

### FINANCIAL REVIEW

#### INCOME

Total incoming resources, amounted to £46.5m (2017: £34.5m). Investment in tangible fixed assets in the year totalled £12.9m (2017: £4.7m). This was substantially funded by grants from the Institute's principal sponsor Biotechnology and Biological Sciences Research Council (BBSRC) which is now part of United Kingdom Research and Innovation (UKRI) plus from Defra and other grant awarding bodies. The change relates to both a rise in capital funding (£9.2m) and noncapital income being £32.1m in 2018 compared to £29.4m (2017).

#### **EXPENDITURE**

Expenditure for the year amounted to £46.2m (2017: £41.1m). This rise relates to the increased capital activity supporting the ongoing development of the Pirbright site. Staff costs accounted for £16.2m (35%) (2017: £15.9m; 39%) of expenditure. The slight rise in staff costs from 2017 relates to increase in science activity and the pay award for the year.

#### CASH

Cash at March 2018 was £27.9m (2017: £25.3m). Pirbright deposits its cash with UK registered financial institutions. Investment income from cash deposits in the year was £169k (2017: £165k).

#### **GRANT PROPOSALS**

During the year, Pirbright researchers submitted grant proposals with a sponsor value of £67.5m (2017:£45m) and were awarded grants with a value of £20.5m (2016/17: £13m).

#### **GOING CONCERN**

The Trustees have reviewed whether it is appropriate for the financial statements to be prepared on a going concern basis. The Institute has received its five-year strategic grant funding from BBSRC (now part of UKRI), £15m per annum, which was started on the 5 April 2017 and runs to March 2020 with a further provisional award for the subsequent two years to March 2022. This source of confirmed funding, the consistent performance of attracting income from other funding bodies, the successful

occupation of new laboratory facilities and the development of a business plan that is built on an income stream that is very likely to be achievable, provides a high degree of confidence of future financial security. The Trustees are not expecting any change to the Core Capability Grant (CCG) now that BBSRC has merged in to UKRI.

Having considered the risks in respect of future funding, financial forecasts for the period to March 2020 and the level of reserves, the Trustees have concluded that it remains appropriate to prepare the financial statements on a going concern basis.

#### **NET MOVEMENT IN RESERVES**

The Pirbright Institute recorded a net decrease in unrestricted reserves of £1.1m. The reason for the movement being the better operating performance offset by a need to increase the provision for debt which is now in dispute resulting in a decrease of £0.3m in general reserves. This has been further impacted by the undesignated reserve of £0.8m, which was utilised to support the continued Pirbright site development.

Due to the phasing of the Pirbright Development Programme, the restricted reserves increased by £1.2m. Capital expenditure in the year was £12.9m (2017: £4.7m). There has been an ongoing major development in the Pirbright site which has resulted in building new laboratory facilities and providing additional state of the art science equipment.

#### **RESERVES POSITION**

Total Institute reserves increased by £0.2m in the year to £279.1m (2017: £6.6m reduction to £278.9m). Restricted reserves increased by £1.2m to £270.7m, of which £270m relates to a capital reserve in connection with funding received from BBSRC. Unrestricted reserves decreased by £1.1m in the year to £8.3m (2017:£9.4m), of which £4.5m relates to a designated reserve to support ongoing non-operational activity and £3.8m to general reserves.

#### **RESERVES POLICY**

#### **Unrestricted funds**

It is the policy of the Trustees to ensure the General Fund in the Unrestricted Reserves reaches £4.5m by the end of the current business plan cycle being 2021/22 to enable the Institute to manage fluctuations in income and unforeseen cost pressures. At 31 March 2018 unrestricted general funds showed a surplus of £3.8m (2017: surplus of £4.1m). In the event of Unrestricted General Reserves being below £4.5m during this period it is the Institute's policy to ensure a future operating surplus is generated to restore Unrestricted General Reserves back to a level in line with this policy by reducing costs, via efficiency savings and enhancing grant income. In addition, the level of funding expected to be provided by BBSRC (now part of UKRI) for the next fiveyear funding cycle is considered by the Trustees to be sufficient to ensure the Institute has the ability to manage any such fluctuations or pressures. The redevelopment of the site will also provide the world class facilities required to ensure the Institute is best placed to succeed in future grant submissions.

#### Designated funds

The unrestricted designated fund as set out in note 15 comprises of sums set aside for specific purposes as decided by the Trustees to support ongoing non-operational activity and the continued development of the Pirbright site in support of the construction programme.

#### Restricted non-endowment funds

The Institute has been undertaking a significant building programme within the Pirbright site for which funding has been received from BBSRC. The funding of this programme is via grants which are held within the restricted funds and comes to a total of £262.2m. This funding is solely and specifically granted for the purpose of the building programme hence the inclusion within the restricted fund and mostly this represents the value of the buildings which have been constructed.

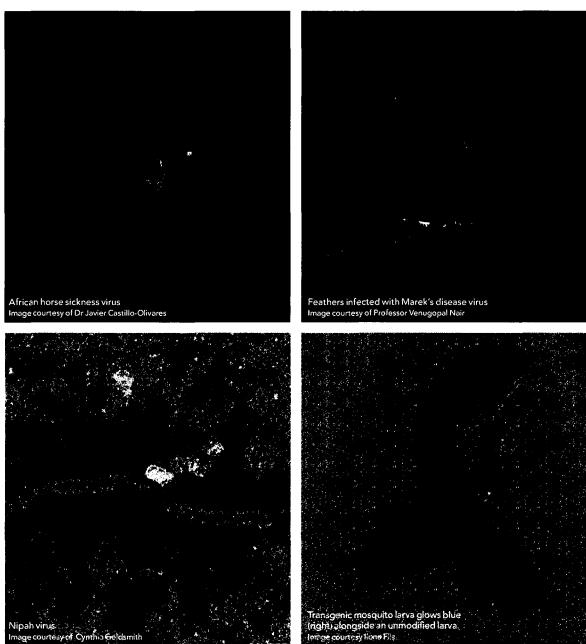
# RISK MANAGEMENT

Pirbright's risk management system is broadly aligned to ISO 31000 and HM Treasury Orange Book. A Risk Policy is in place incorporating the High Reliability Organisation model and Human Factors Management into a risk management framework. A risk assessment process identifies and analyses operational, continuity and strategic risks, and delineates and monitors treatment of those risks. A range of insurance policies are in

place. A risk register is maintained in conjunction with risk owners, supplemented by satellite risk registers in each business area. An internal audit programme provides stakeholders with objective evidence of conformity to systems and effective management of risk. A training programme supports all of this. A Risk & Assurance Directorate provides specialist practitioners to develop and support the risk management

system and processes. Senior Leadership Team take oversight of risk management by regular review of the risk register, relevant leading and lagging metrics, and outcomes of audits and investigations. Trustee Board have established a Risk and Assurance Committee to take similar oversight on their behalf.

Key risks are summarised in the table opposite:



RISK	CONTEXT	CONTROL / MITIGATION
BIOSAFETY (UNINTENTIONAL RELEASE OF OR EXPOSURE TO HIGH CONSEQUENCE PATHOGEN)	Bringhtus classified by the Health & Safety Executive HISEs as 3 Major Hazard Size because clease of the high consequent eviralipatho dens of live stock arimals that the Institute works with such as thot and mouth disease with strough as the rous disease outbreak leading to destruction of matry animals vertensive.	(Physical, operational and management measures for biological containment in compliance with relevant UK legislation (Specified Animal Pathogens Order 2008 Control of Substances Hazardous to Health/Regulations; 2002 (Genetically Modified Organisms Contained Use) Regulations 2014) and associated Approved Codes of Practices and guidance. HSE Major Hazard Intervention Plan, and a staff cohort of Competern biorisk advisers
BIOSECURITY (DELIBERATE RELEASE OF HIGH CONSEQUENCE PATHOGEN)	national fissiph of and series et onomic loss. Some of the pathogens are also zoonotic use can infect humans and reuse serious ulhass.	Physical: operational and management measures for security in conformity, with requirements of the UK National Counter Terrorism. Security Office: oversight by regional Counter Terrorism Security Adviser, background screening of new starters.
QUALITY	As well as being a leading research institute. Publish provides diagnostic reference laboratories for a crange of participant on the UNIF and & Agriculture. The Condition of Ablandship World Organisation (FAD) and the World Organisation of Ablandship World Organisation of Ablandship World Organisation of Ablandship and the World Organisation of Ablandship and the World Organisation of Ablandship of Printing the event of disease of the Bourse of Printing the State of Ablandship of Printing of State of Ablandship of Printing of State of Ablandship of Printing of Pri	Accreditation of reference laboratories to ISO/IEC 1,7025 by the JUK Accreditation Service development and implementation of a quality management system across the institute amenal audit alignment to ISO 9001 in key operational areas.
ANIMAL WELFARE	Research with an mass is an integral part of the see archivity an imass at Pirthright and is carried out to UK standards of ethics and an imal welfare, which are the most stringent in the world, and this is actifical repute to nativist	Chysical, operational and management measures for animal welfare in Compliance with relevant UK legislation (Animal Scientific Procedures) Act. 1986) and associated Approved Codes of Practice and guidance oversight by UK Home Office application of 3Rs (Replace Refine Reduce) and ARRIVE guidance (Animal Research Reporting In Vivo Experiments).
CYBERSECURITY	Prought also face the cypersecurry continuity.	Technical measures for obersecurity in conformity with requirements of HMG Cyber Essentials it certification to HMG Cyber Essentials Plus by an accredited body deployment of backup servers
CONTINUITY	people and financial risks that most organizations in must manage, and the potential consequences of these are amplified because of possible effect on biological and quality risks; eg. a bower failure could cause biological containment plant to fail a difficulty as	Major Incident Plan, Business Continuity Planning in alignment with ISO 22301, backups and contingencies for critical services and supplies, contingency plans for the reference laboratories for disease outbreaks, all plans regularly tested by exercises.
PEOPLE	with recontinent, buildles d. to spanded utilest affishing base, insufficient budget for planned preventative in maintenance could least of lower reliability of a biological containment, plan or a centric equipment.	laient management framework, recruitment and retention and, responsibility allowances; training and development programme career pathways; performance and personal development reviews.  Rigorous systems for financial control, risk management, and quality.
FINANCIAL	BREXIT ista, significant risk as EU funding on the freterence laboratories, will end. EU sources of research	management processes and support to facilitate preparation and submission of competitive funding applications; business development programme fraud policy
BREXIT	funding may no longer be available; collaborations with EU partners thay be respertised. EU hat object on staff may leave and the UK economic situation may a be adversely effected.	Factored into business planning through planned increases in income from competitive funding sources; provision of support for, staff, who are EU/nationals; and political and strategic mitigation.  Factored into business planning through planned increases in income.
INFLATION	inflation is another significant risks. Core for bing 2017;2022;gbes not include an allowaboe for inflation	from Competitive funding sources and savings from improved procurement.

# STRUCTURE, GOVERNANCE AND MANAGEMENT

#### **MEMBERS**

Members of the Institute are as follows:

Chair of the Trustee Board (ex officio)
Chair of the Science Advisory Board
(ex officio)
UKRI formally known as RCUK
The National Farmers' Union
The Royal College of Veterinary
Surgeons

# ORGANISATION AND GOVERNANCE

The Pirbright Institute is a company limited by guarantee and a registered charity. The Annual Report provides information for legal purposes of the charity, its business activities and its main achievements. The financial statements have been prepared in accordance with the Charities Act 2011, the Companies Act 2006, the Memorandum and Articles of Association and Accounting and Reporting by Charities: Statement of the Recommended Practice applicable to charities preparing their accounts in accordance with Financial Reporting Standards applicable to the UK and Republic of Ireland (FRS102), effective 1 January 2015.

### THE BOARD OF TRUSTEES AND ITS INTERESTS

The directors of the Trustee Board during the year were:

Professor Quintin McKellar – Chair Dr Theo Kanellos Mr Roger Louth Dr Vanessa Mayatt OBE Sir Bertie Ross Professor David Rowlands Mr Mike Samuel Professor John Stephenson

The Trustee Board has established three committees to support it in its work: the Finance and Audit Committee, the Risk and Assurance Committee and the Nomination and Governance Committee. The Board and its committee structure work closely with the Director and senjor management of the Institute and are responsible for corporate governance

and for the Institute's scientific strategy and strategic plans.

The Institute's science is organised into two strategic Science Programmes. Each Science Programme is managed by a Head of Programme who reports to the Director. The Trustee Board have appointed a Scientific Advisory Board, to provide advice and recommendations to the Trustee Board and the Director regarding the scientific strategy and activities of the Institute.

# TRUSTEES' INDEMNITY INSURANCE

The Institute maintains liability insurance for its Trustee Board, with an annual aggregate cover limit for all claims against them in that capacity. The Trustees have also been granted a qualifying third party provision under section 233 of Companies Act 2006. Neither the Institute's indemnity nor insurance provides cover in the event that a Trustee Director is proved to have acted fraudulently or dishonestly. The premium and related costs in respect of this policy were £8,288 (2017: £8,140). The Trustees are satisfied they have complied with their duty in section 4 of the Charities Act 2011 to have due regard to public benefit guidance published by the Charities Commission. Based on this guidance, and as described in the Trustees' report, the Trustees believe the activities of The Pirbright Institute to be charitable in nature.

#### TRAINING OF TRUSTEES

The Institute continually reviews its practices for induction and Trustee training. Trustees are encouraged to attend appropriate external training events where these will facilitate the undertaking of their role.

#### SENIOR LEADERSHIP TEAM

The Trustee Board consider that the Senior Leadership Team is accountable for Institute strategy, risk mitigation and governance of day-to-day operational delivery, comprising the Institute Director and the Directorate heads; namely Director of Risk and Assurance, Director of

Capability and Head of Finance and Company Secretary.

The remuneration and benefits of the Senior Leadership Team is based on the agreed and recognised salary banding for the Institute and reviewed and agreed annually via the Senior Remuneration Committee, comprising of the Chair Trustee Board, Institute Director and Head of HR and Corporate Development. The Senior Remuneration Committee operates independently on issues relating to senior managers salaries and benefits and is responsible for considering and recommending the remuneration package for the SLT and senior management members. In fulfilling these responsibilities, the Senior Remuneration Committee will seek relevant and appropriate information to support its activities and also obtain necessary external independent professional advice as necessary.

# APPROACH TO EQUALITY, DIVERSITY AND INCLUSION (EDI)

The Institute is committed in ensuring that everyone has access to the same opportunities and the same fair treatment. It discharges all appropriate governance and accountability for EDI through the Equality, Diversity and Inclusion Steering Group, chaired by the Head of HR and Corporate Development and endorsed by the Institute Director and Senior Leadership Team. The Institute has further committed to the Athena SWAN charter principles and achieved bronze status in 2017. The Institute continues to introduce flexible policies, processes and working practices covering Recruitment, Dignity at Work and Equality, Diversity and Inclusion, ensuring that every employee is able to give their best, unlock their potential and feel engaged with the Institute, and are openly able to celebrate their differences, experiences and backgrounds.

Institute and management decisions are transparent, based on merit and equality of opportunity.

Discrimination of any type is identified

as abhorrent and not tolerated at the Institute.

#### TRADES UNION RECOGNITION

The Institute recognises collective bargaining arrangements of all appropriate trade unions representing BBSRC staff employed at its laboratories. National collective bargaining arrangements are not recognised for the workforce employed under The Pirbright Institute terms and conditions.

The Trades Unions recognised for collective bargaining are Prospect and PCS (Public and Commercial Services).

The Institute arranges joint consultation forums including an Institute Negotiating and Consultative Committee (INCC) and the Institute Change Committee (ICC). Where feasible, membership is drawn equally from the management and trade union representative community. This provides the necessary machinery for dealing with the local and national consultation and negotiation of

the terms and conditions of service previously agreed by the BBSRC Joint Negotiating and Consultative Committee (JNCC) and now directly accountable through The Pirbright Institute.

#### **RELATED PARTIES**

The Institute's subsidiary undertaking, Avrico Limited, last traded in 2003 and is currently dormant. Avrico Limited was formed as part of the Institute's role in the 2001 UK foot-and-mouth disease outbreak and provided diagnostic and testing services to Defra.

The Institute also has investments in two associate undertakings. Genecom Limited was incorporated in July 2004 as a company limited by guarantee. The company was established by way of grants from the Department of Innovation, Universities and Skills and the European Regional Development Fund and is a new business development vehicle. The primary aim of the company is to build capacity to develop more effective

commercial exploitation platforms for the members' technologies, share experience and expertise. The Institute has equal membership in this company with The Roslin Institute and the Moredun Research Institute. The Company has now disbursed all of its remaining grants and has ceased to be a Company during 2017.

Genomia Management Limited was formed on 16 April 2004 and is also a company limited by guarantee. The company was established by way of grants from the Department of Innovation, Universities and Skills and the European Regional Development Fund. The company manages the Genomia Fund the objective of which is to assist in the development of research output from the members into commercially realisable opportunities. The Institute has equal membership in this company with The Roslin Institute, Moredun Research Institute, The Rowett Institute and the Scottish Agricultural College.

# TRUSTEES' RESPONSIBILITIES STATEMENT

The Trustees who are also Directors of the charitable company for the purposes of company law are responsible for preparing the Trustees' Report and financial statements incorporating the Strategic Report and financial statements in accordance with applicable law and regulations. Company law requires the Trustees to prepare financial statements for each financial year. Under that law the Trustees have elected to prepare the financial statements in accordance with United Kingdom Generally Accepted Accounting Practice (United Kingdom Accounting Standards and applicable laws), including FRS102 (the Financial Reporting Standard applicable in the UK and Republic of Ireland). Under company law the Trustees must not approve the financial statements unless they are satisfied that they give a true and fair view of the state of affairs of the charitable company and the incoming resources and application of resources, including the income and expenditure, of the charitable company for that period.

In preparing these financial statements, the Trustees are required to:

- select suitable accounting policies and then apply them consistently;
- observe the methods and principles in the Charities SORP (FRS102);
- make judgments and accounting estimates that are reasonable and prudent;
- state whether applicable UK Accounting Standards have been followed, subject to any material departures disclosed and explained in the financial statements;
- prepare the financial statements on the going concern basis unless it is inappropriate to presume that the charitable company will continue in business.

The Trustees are responsible for keeping adequate accounting records that are sufficient to show and explain the charitable company's transactions and disclose with reasonable accuracy at any time the financial position of the company and enable them to ensure that the financial statements comply with the Companies Act 2006. It is also responsible for safeguarding the assets of the charitable company and hence for taking reasonable steps

for the prevention and detection of fraud and other irregularities.

The Trustees confirms that:

- so far as each Trustee Director is aware, there is no relevant audit information of which the charitable company's auditor is unaware; and
- the Trustees have taken all steps that they ought to have taken to make themselves aware of any relevant audit information and to establish that the auditor is aware of that information.

The Trustees are responsible for the maintenance and integrity of the corporate and financial information on the charitable company's website. Legislation in the United Kingdom governing the preparation and dissemination of the financial statements may differ from legislation in other jurisdictions.

It has been agreed by the Trustees to retender the appointment of auditors during 2018 with the appointment being in place for the following year's audit process starting in January 2019.

The Report of the Trustees incorporating the Strategic Report was approved and signed on behalf of the Trustee Board.

WOO.

**Professor Quintin McKellar CBE**Trustee Director

Approved by the Board of Trustees on 25 July 2018

# INDEPENDENT AUDITOR'S REPORT TO THE MEMBERS OF THE PIRBRIGHT INSTITUTE (LIMITED BY GUARANTEE)

#### **OPINION**

We have audited the financial statements of The Pirbright Institute for the year ended 31 March 2018 which comprise the Principal Accounting Policies, the Statement of Financial Activities, the Balance Sheet, the Statement of Cash Flows and the related notes. The financial reporting framework that has been applied in their preparation is applicable law and United Kingdom Accounting Standards, including Financial Reporting Standard 102, The Financial Reporting Standard applicable in the UK and Republic of Ireland (United Kingdom Generally Accepted Accounting Practice).

In our opinion the financial statements:

- give a true and fair view of the state of the charitable company's affairs as at 31 March 2018 and of its incoming resources and application of resources including its income and expenditure for the year then ended;
- have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice; and
- have been prepared in accordance with the requirements of the Companies Act 2006.

#### **BASIS FOR OPINION**

We have been appointed as auditor under the Companies Act 2006 and report in accordance with regulations made under that Act. We conducted our audit in accordance with International Standards on Auditing (UK) (ISAs (UK)) and applicable law. Our responsibilities under those standards are further described in the Auditor's responsibilities for the audit of the financial statements section of our report. We are independent of the charitable company in accordance with the ethical requirements that are relevant to our audit of the financial statements in the UK, including the FRC's Ethical Standard, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

#### WHO WE ARE REPORTING TO

This report is made solely to the charitable company's members, as a body, in accordance with Chapter 3 of Part 16 of the Companies Act 2006. Our audit work has been undertaken so that we might state to the charitable company's members those matters we are required to state to them in an auditor's report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the charitable company and the charitable company's members as a body, for our audit work, for this report, or for the opinions we have formed.

### CONCLUSIONS RELATING TO GOING CONCERN

We have nothing to report in respect of the following matters in relation to which the ISAs (UK) require us to report to you where:

- the Trustees' use of the going concern basis of accounting in the preparation of the financial statements is not appropriate; or
- the Trustees have not disclosed in the financial statements any identified material uncertainties that may cast significant doubt about the charitable company's ability to continue to adopt the going concern basis of accounting for a period of at least twelve months from the date when the financial statements are authorised for issue.

#### OTHER INFORMATION

The Trustees are responsible for the other information. The other information comprises the information included in the Trustees' Annual Report incorporating the strategic report (set out on pages 3 to 36) other than the financial statements and our auditor's report thereon. Our opinion on the financial statements does not cover the other information and, except to the extent otherwise explicitly stated in our report, we do not express any form of assurance conclusion thereon. In connection with our audit of the financial statements, our responsibility is to read the other information and, in

doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated. If we identify such material inconsistencies or apparent material misstatements, we are required to determine whether there is a material misstatement in the financial statements or a material misstatement of the other information. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact.

We have nothing to report in this regard.

# OPINION ON OTHER MATTERS PRESCRIBED BY THE COMPANIES ACT 2006

In our opinion, based on the work undertaken in the course of the audit:

- the information given in the Trustees' Annual Report incorporating the strategic report for the financial year for which the financial statements are prepared is consistent with the financial statements:
- the Trustees' Annual Report incorporating the strategic report has been prepared in accordance with applicable legal requirements.

#### MATTER ON WHICH WE ARE REQUIRED TO REPORT UNDER THE COMPANIES ACT 2006

In the light of the knowledge and understanding of the charitable company and its environment obtained in the course of the audit, we have not identified material misstatements in the Trustees' Annual Report incorporating the strategic report.

# MATTERS ON WHICH WE ARE REQUIRED TO REPORT BY EXCEPTION

We have nothing to report in respect of the following matters where the Companies Act 2006 requires us to report to you if, in our opinion:

 adequate accounting records have not been kept or returns adequate for our audit have not been received from branches not visited by us; or

- the financial statements are not in agreement with the accounting records and returns; or
- certain disclosures of Trustee
   Directors' remuneration specified by law are not made; or
- we have not received all the information and explanations we require for our audit.

#### RESPONSIBILITIES OF TRUSTEES FOR THE FINANCIAL STATEMENTS

As explained more fully in the Trustees' Responsibilities Statement on page 36, the Trustees (who are also the directors of the charitable company for the purposes of company law) are responsible for the preparation of the financial statements and for being satisfied that they give a true and fair view, and for such internal control as the Trustees determine is necessary

to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the Trustees are responsible for assessing the charitable company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the Trustees either intend to liquidate the charitable company or to cease operations, or have no realistic alternative but to do so.

# AUDITOR'S RESPONSIBILITIES FOR THE AUDIT OF THE FINANCIAL STATEMENTS

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes

our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs (UK) will always detect a material misstatement when it exists.

Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

A further description of our responsibilities for the audit of the financial statements is located on the Financial Reporting Council's website at: www.frc.org. uk/auditorsresponsibilities. This description forms part of our auditor's report.

Gran Monh Uncer

Carol Rudge

Senior statutory auditor

For and on behalf of Grant Thornton UK LLP Statutory Auditor, Chartered Accountants, London 25 July 2018

# PRINCIPAL ACCOUNTING POLICIES

The following accounting policies have been applied consistently in dealing with items which are considered material in relation to the Institute's financial statements.

#### **BASIS OF ACCOUNTING**

The financial statements have been prepared in accordance with Accounting and Reporting by Charities:

Statement of Recommended Practice applicable to charities preparing their accounts in accordance with the Financial Reporting Standard applicable in the UK and Republic of Ireland (FRS 102) (effective 1 January 2015) - (Charities SORP (FRS 102)), the Financial Reporting Standard applicable in the UK and Republic of Ireland (FRS 102) and the Companies Act 2006.

The Institute meets the definition of a public benefit entity under FRS102. Assets and liabilities are initially recognised at historical cost or transaction value unless otherwise stated in the relevant accounting policy note(s).

#### **GOING CONCERN**

The Trustees have reviewed whether it is appropriate for the financial statements to be prepared on a going concern basis. The Institute has received its five-year strategic grant funding from BBSRC (now part of UKRI), £15m per annum, which was started on the 5 April 2017 and runs to March 2020 with a further provisional award for the subsequent two years to March 2022. This source of confirmed funding, the consistent performance of attracting income from other funding bodies, the successful occupation of new laboratory facilities and the development of a business plan that is built on an income stream that is very likely to be achievable, provides a high degree of confidence of future financial security. The Trustees are not expecting any

change to the CCG following BBSRC merging with UKRI.

Having considered the risks in respect of future funding, financial forecasts for the period to March 2020 and the level of reserves, the Trustees have concluded that it remains appropriate to prepare the financial statements on a going concern basis.

### GROUP FINANCIAL STATEMENTS

The Institute is exempt from the requirement to prepare consolidated financial statements by virtue of section 405(2) of the Companies Act 2006 as the result of its dormant subsidiary undertaking, Avrico Limited, is not material for the purposes of providing a true and fair view. Accordingly, these financial statements present information about the Institute as an individual entity and not its group.

The associated companies, as detailed in note 10, have also been excluded from the consolidation on the grounds of these being immaterial to the Institute's financial statements.

#### INCOME

Income comprises unencumbered grants received from research councils; grant income from collaborative, commissioned and competitively awarded research projects; sales of produce from research farm operations; income from miscellaneous charitable activities; commercial and residential rents from the letting of Institute controlled property; and interest earned on the temporary investment of surplus funds.

Income is recognised when the Institute becomes legally entitled to the income and the amount can be quantified with reasonable accuracy.

All core BBSRC grants are recognised as revenue in the year they are received. Grant income including research

grants received in advance of conditions being met is deferred until those conditions are fully satisfied. Sales of produce are recognised on dispatch, rental and interest income is recognised based on the period to which it relates.

Capital grants are recognised in the statement of financial activities when entitlement passes, and once the criteria of certainty and measurement are met.

#### **EXPENDITURE**

Costs of charitable activities comprises costs incurred directly or in support of scientific research whether carried out in the Institute's own facilities or in other laboratories. Raising funds represents the costs associated with trading and raising income including the Institute's rental activities and tenant services and investments.

All costs are allocated between the expenditure categories of the Statement of Financial Activities on a basis designed to reflect the use of the resource. Costs relating to a particular activity are allocated directly. Support costs, representing the staffing and associated costs of finance, personnel and general administration in supporting the operations of the Institute, are apportioned on an appropriate basis (see note 5).

# RESTRICTED NON ENDOWMENT FUNDS

Income received by way of grants, sponsorship, donation or legacy which is directed by the provider as to be applied for specific purposes is accounted for within restricted income. Awards applied within the terms dictated by the awarding authority on the acquisition or improvement of tangible fixed assets are also accounted for within restricted non endowment funds in full. The balance of the restricted fixed

asset fund is reduced by the depreciation or amortisation charges over the expected useful life of the asset. This treatment has been applied to reflect the assets being on land owned by a third party, therefore at the end of the lease they will revert to that third party (see further explanation below regarding the ownership of land and buildings). In addition, as detailed in note 19, there is a contingent liability to account to the BBSRC (now part of UKRI) for the net proceeds of disposal of fixed assets acquired with grant assistance and for recurrent grant in excess of the financing requirements.

#### **DESIGNATED FUNDS**

Unrestricted designated funds comprise sums set aside by the Trustees for specific purposes including the acquisition and improvement of tangible fixed assets, the presentation of scientific conferences, and contributions towards capital to be replaced using the fully economic costing policy adopted by the Institute.

#### UNRESTRICTED FUNDS

Income received which is not directed by the provider to be applied for specific purposes to an extent which exceeds the constraints of the Institute's constitution is accounted for within unrestricted general funds.

#### **FIXED ASSETS**

Fixed assets with a cost of £10,000 or more are capitalised and depreciated to their estimated residual values basis as set out below. Plant and machinery and fixtures and fittings with a cost of less than £10,000 are expensed in year of purchase.

Land and buildings
- on a component basis,
between 15 and 50 years
Plant and machinery
- 5 years on a straight line basis
Fixtures, fittings, tools and

equipment

 - 5 years on a straight line basis
 No depreciation is provided on assets in the course of construction.

The Institute includes in its financial statements leasehold land and buildings owned by third parties, that it occupies and enjoys through peppercorn leases, at their full value. The current lease for the Pirbright North site ended in May 2016 and the lease for the Pirbright South site ended in March 2015. Neither have yet been renewed, however the Institute is protected under the LTA. The Institute is in negotiations with BBSRC with the expectations of being granted new long term Pirbright leases. The Trustees consider that in substance the risks and rewards of ownership of the assets have passed to the Institute, and as such follow a policy of recognising the assets on the balance sheet to reflect the continuing occupancy of these assets for the foreseeable future. The only circumstance under which the Institute could be asked to vacate the site is due to a failure to deliver the required programme, which in the Trustees' view is highly unlikely.

Individual freehold and leasehold properties at the Pirbright site were revalued to fair value upon transition to FRS 102 (1 April 2014) with the surplus on book value being transferred to the revaluation reserve, except that a deficit which is in excess of any previously recognised surplus over depreciated cost relating to the same property, or the reversal of such a deficit, is charged (or credited) to the Statement of Financial Activities. The fair value at the transition date was recognised as the deemed cost of the assets

#### **LEASED ASSETS**

Rentals payable under operating leases are charged

to the Statement of Financial Activities on a straight line basis over the lease term.

Assets acquired under finance leases are capitalised as tangible fixed assets and depreciated over their useful lives. Finance charges and interest are taken to the income and expenditure account in proportion to the remaining balance of capital repayments or net obligations outstanding.

#### **INVESTMENTS**

Quoted investments are valued at market value. Investments in subsidiary undertakings are carried at the lower of cost and net realisable value. The policy of the Institute is to write down investments where a permanent diminution in value is deemed to have occurred.

#### STOCK

Laboratory supplies are valued at the lower of cost and net realisable value.

#### **DEBTORS**

Trade and other debtors are recognised at the settlement amount due after any trade discount offered. Prepayments are valued at the amount prepaid.

### CREDITORS AND PROVISIONS

Creditors and provisions are recognised where the Institute has a present obligation resulting from a past event that will probably result in the transfer of funds to a third party and the amount due to settle the obligation can be measured or estimated reliably. Creditors and provisions are normally recognised at their settlement amount.

#### **FINANCIAL INSTRUMENTS**

The Institute only has financial assets and financial liabilities of a kind that qualify as basic financial instruments. Basic financial instruments are initially recognised at transaction value

and subsequently measured at their settlement value.

# FOREIGN CURRENCY TRANSLATION

Monetary assets and liabilities denominated in foreign currencies are translated into sterling at the rates of exchange ruling at the balance sheet date. Transactions in foreign currencies are recorded at the rate ruling at the date of the transaction.

### STAFF AND PENSION COSTS

Staff engaged at the Institute prior to April 2015 were previously employed by BBSRC (now part of UKRI) and deployed back to the Institute. Following the Transfer of Undertakings (Protection of Employment) exercise as of 1 January 2017, all BBSRC employees are now covered under the Institute's position as a separate legal entity. The Institute therefore retains responsibility for paying employment costs in relation to all employees, including basic pay and allowances, contractual payments, tax, national insurance and pension contributions. Employees engaged prior to April 2015 remain members of the Research Councils' Pension Scheme (RCPS), a defined benefit scheme for multiple employers. The BBSRC **Employment Code remains** applicable and frozen at the date of TUPE transfer. The Institute does not have any liability for pensions other than for monthly employer contributions, the rate of which is determined by the Government Actuary's Department on a periodic basis. The cost of providing pension and related benefits is charged to the statement of financial activities. Some payments are to a defined benefit scheme as explained above and in note 8 but there are no separately

identifiable assets and the actuarial cost to the Institute is not known. Consequently, it is not possible to supply the information referred to in Financial Reporting Standard 102, Section 28 and the Institute has accounted for the scheme as though it were a defined contribution scheme.

#### **TAXATION**

The Pirbright Institute is a registered charity within the meaning of the UK Taxes Acts and is, therefore, eligible to claim exemptions to income tax and capital gains tax.

# JUDGEMENTS IN APPLYING ACCOUNTING POLICIES AND KEY SOURCES OF ESTIMATION UNCERTAINTY

Preparation of the financial statements requires management to make significant judgements and estimates.

The items in the financial statements where these judgements and estimates have been made include:

Depreciation, which has been charged in line with the accounting policy above.

The amount of depreciation charged and net book value of the assets is included in note 9.

The Institute includes in its financial statements leasehold land and buildings owned by third parties because the Trustees consider that in substance the risks and rewards of ownership of the assets have passed to the Institute, and as such follow a policy of recognising the assets on the balance sheet to reflect the continuing occupancy of these assets for the foreseeable future. These assets are held at their deemed cost, being their fair value at the transition date. The judgements applied and the revaluation adjustments and net book value of the assets is included in note 9.

# STATEMENT OF FINANCIAL ACTIVITIES For the year ended 31 March 2018

				2018	2017
	Note	Unrestricted	Restricted	Total	Total
		Funds	Funds	Funds	Funds
		£'000	£'000	£'000	£′000
Income from Donations					
Core strategic grant	1	15,351	•	15,351	13,128
Charitable activities		*			
Grants and contracts	2	14,556	14,316	28,872	18,085
Research farm operation	2	1	-	1	574
Other charitable income	2	1,408	•	1,408	1,623
	2	242		242	4.005
Investment income	3_	819	<del></del>	819	1,085
Total	_	32,135	14,316	46,451	34,495
Expenditure on .					
Raising funds					
Rental income and tenant services		300	373	673	647
Investment management costs		15	-	15	12
Charitable activities					
Scientific research		31,270	11,869	43,139	36,930
Research farm operation		-	-	-	1,197
Rental income and tenant services		923	1,060	1,983	1,901
Other charitable activities	_	376	61	437	451
Total	4_	32,884	13,363	46,247	41,138
Net gains on investments		18	-	18	2
Net income/(expenditure) before tax	_	(731)	953	222	(6,641)
Tax payable		40	-	40	-
Transfers between funds	15	(289)	289	-	-
Net movement in funds	_	(1,060)	1,242	182	(6,641)
Balances brought forward		9,409	269,495	278,904	285,545
Balances carried forward	_ 16	8,349	270,737	279,086	278,904
	_	<del></del>		<del></del>	

All incoming resources and resources expended derive from continuing activities. The accompanying accounting policies and notes form an integral part of these financial statements.

### **BALANCE SHEET**

#### At 31 March 2018. Company Number 00559784

		2018		2017		
	Note	£′000	£'000	£'000	£'000	
Fixed assets						
Tangible fixed assets	9		251,773		250,605	
Investments	10	_	151		133	
			251,924	,	250,738	
Current assets						
Stocks	11	153		96		
Debtors	12	9,683		10,998		
Cash at bank and in hand		27,928		25,332		
		37,764		36,426		
Creditors: amounts falling due within one year	13	(10,602)		(8,260)		
Net current assets			27,162		28,166	
		_		_		
Total assets less current liabilities		_	279,086	_	278,904	
		_	<u></u>			
Net assets		_	279,086		278,904	
Financed by						
Unrestricted funds	15		8,349		0.400	
	15		0,349		9,409	
Restricted	15		242.240		240.747	
Fixed asset fund (including revaluation reserve of	15		262,210		260,767	
£14,876k [per note 16] (2017: £15,517k))	45		0.507		0.700	
Other restricted reserve	15		8,527		8,728	
Total 6 de	4.4	_	270.004	-	270.004	
Total funds	16	_	279,086		278,904	

The Institute includes in its financial statements leasehold land and buildings owned by third parties, these are detailed further in note 9.

Approved by the Board of Trustees on 25 July 2018 and signed on their behalf on 25 July 2018

**Professor Quintin McKellar CBE**Trustee Director

**Mr Roger Louth** Trustee Director

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The accompanying accounting policies and notes form an integral part of these financial statements.

# STATEMENT OF CASH FLOWS For the year ended 31 March 2018

	2018	В	2017	
	£'000	£'000	£'000	£'000
New and many indeed by a reconstitute and interest			•	
Net cash provided by operating activities	200			
Net movement in funds	222		(6,641)	
Interest and rent receivable	(819)		(1,085)	
Depreciation charged	11,759		12,461	
Corporation tax paid -	(40)		•	
Revaluation gain on investments	(18)		(2)	
(Increase)/decrease in stocks	(57)		402	
Decrease/(increase) in debtors	1,315		(1,050)	
Increase/(decrease) in creditors	2,342	_	(3,821)	
Net cash provided by operating activities		14,704		264
Cash flows from investing activities:				
Interest and rents received	819		1,085	
Purchase of property, plant and equipment	(12,927)		(4,746)	
Net cash used in investment activities	_	(12,108)	<del></del>	(3,661)
Change in cash and cash equivalents in the reporting period		2,596		(3,397)
Cash and cash equivalents at the beginning of the reporting period		25,332		28,729
Cash and cash equivalents at the end of the reporting period	_	27,928		25,332

The accompanying accounting policies and notes form an integral part of these financial statements.

#### 1 INCOME FROM DONATIONS

	2018	2017
	£'000	£'000
BBSRC – core strategic grant	15,351	13,128
All income from donations in the current and prior year was unrestricted.		

#### **2 INCOME FROM CHARITABLE ACTIVITIES**

	2018	2017
	£′000	£′000
Grant income		
BBSRC – research grants	3,973	4,586
BBSRC – other grants	14,539	5,622
Other research grants	10,360	7,877
	28,872	18,085
Research farm operation	1	574
Other charitable activities	1,408	1,623
	30,281	20,282

Income from charitable activities includes restricted income from grants and contracts of £14,316k (2017: £5,121k) All other income from charitable activities in the current and prior year was unrestricted.

The analysis by region is set out below:

	2018	2017
	£′000	£′000
United Kingdom	27,669	17,699
Europe	1,313	913
North America	1,103	1,603
Others	196	67
	30,281	20,282

#### INCOME FROM CHARITABLE ACTIVITIES (CONT)

	Unrestricted £'000	Restricted £'000	2018 Totai £'000	2017 Total £'000
Analysis of grant income				
BBSRC				
- Competitive Project Grant – research grants	3,973	-	3,973	4,586
- Other grants	223	14,316	14,539	5,622
Total BBSRC	4,196	14,316	18,512	10,208
Defra "Umbrella" contract commission projects	2,641	-	2,641	2,094
Defra Surveillance	1,726	-	1,726	1,543
Other government departments, public sector	-	-		119
European Union	958	-	958	1,136
Industry, levy boards	956	-	956	238
Trusts, foundations, charities	2,852	-	2,852	2,482
Other research grant income	1,227	-	1,227	265
Total incoming resources – grants including research	14,556	14,316	28,872	18,085

Ancillary trades and activities

Other charitable income consists of trades and activities which are ancillary to the charitable activities of the Institute:

·	Unrestricted £'000	Restricted £'000	2018 Total £'000	2017 Total £'000
Royalties	317	-	317	303
Diagnostic kits	46	-	46	188
Other	1,045		1,045	1,132
	1,408	-	1,408	1,623

#### **3 INVESTMENT INCOME**

	2018 £'000	2017 £'000
Rental income and tenant services	650	920
Bank interest	169	165
	819	1,085

All investment income in the current and prior year was unrestricted.

#### 4 ANALYSIS OF EXPENDITURE

•	Staff costs £'000	Other direct costs £'000	Allocated support costs £'000	2018 Total £'000	2017 Total £'000
Unrestricted funds					
Costs of raising funds		•			
Rental income and tenant services	-	-	300	300	274
Investment management costs	-	7	8	15	12
Charitable expenditure	•				
Grants and contracts for scientific research	11,359	8,569	11,342	31,270	26,617
Research farm operation	-	-	-	-	711
Rental income and tenant services		(21)	944	923	917
Other charitable activities		180	196	376	389
Total unrestricted resources expended	11,359	8,735	12,790	32,884	28,920
Restricted funds					
Cost of raising funds	-	-	376	376	372
Charitable expenditure	-	•	12,987	12,987	11,846
Total restricted resources expended	-	-	13,363	13,363	12,218
Total resources expended	11,359	8,735	26,153	46,247	41,138
Total resources expended – 2017	10,936	5,768	24,434	41,138	

Included in allocated support costs are normal staff costs of £2,911,630 (2017: £2,291,709).

#### **5 ANALYSIS OF SUPPORT COSTS**

	Rental income and tenant services £'000	Investment management costs £'000	Grants and contracts for scientific research £'000	Science rental income and tenant services £'000	Staff restaurant and nursery £'000	Other charitable activities £'000	Total 2018 £'000	Total 2017 £′000	Basis of allocation
Unrestricted									
Premises	171	-	7,372	857	64	-	8,464	8,577	% of floor area
Financial costs	21	8	472	36	21	21	579	540	time spent
Management	28	-	663	11	13	7	722	274	time spent
Human resources	63	-	460	-	19	-	542	507	time spent
Information technology	9	-	1,821	20	10	20	1,880	1,663	time spent
Purchasing and procurement	6	-	498	19	13	6	542	507	time spent
Governance	2		56	1	1	1	61	148	time spent
	300	8	11,342	944	141	55	12,790	12,216	
Restricted									
Depreciation	367	•	10,351	980	61	-	11,759	12,461	
Repairs / compliance	9		1,511	84		-	1,604	(243)	
	376		11,862	1,064	61		13,363	12,218	
	676	8	23,204	2,008	202	55	26,153	24,434	

#### **6 OPERATING COSTS**

	2018 £'000	2017 £'000
Operating costs stated after charging:		
Auditor's remuneration		
- audit services	49	47
- non-audit services	23	33
Depreciation	11,759	12,461
Profit on foreign exchange translations	-	1
Hire of plant and machinery	5	7
Rental of land and buildings	219	243

Operating costs are stated net of laboratory supplies carried forward in stock amounting to £153,166 (2017: £96,223).

#### 7 REMUNERATION OF THE MEMBERS OF THE TRUSTEE BOARD

None (2017: none) of the members of the Trustee Board received any remuneration from the Institute during the year. Seven members (2017: four members) of the Trustee Board had travel expenses of £7,196 (2017: £6,957) reimbursed during the year and none (2017: one member) received consultancy fees (2017: £Nil), as permitted under the Institute's articles.

#### **8 STAFF NUMBERS AND COSTS**

The average number of persons employed by the Institute (including members of the Governing Council) during the year, analysed by category, was as follows:

	Number of employees	
	2018	2017
Office, management and estate support	114	121
Scientific	208	200
	322	321
The aggregate payroll costs of these persons were as follows:	٠	
	2018 £′000	2017 £′000
Wages and salaries	12,557	12,046
Social security costs .	1,236	1,296
Other pension costs	2,375	2,545
	16,168	15,887

#### STAFF NUMBERS AND COSTS (CONTINUED)

Some employees of the Institute are members of the Research Councils' Pension Schemes, which are funded principally through employer and employee contributions. The pension schemes are by analogy to the Principal Civil Service Pension Scheme (PCSPS), except that while the schemes that are defined benefit schemes and provide retirement and related benefits on final emoluments, redundancy and capability ill health are administered and funded by the council, the pension schemes are administered by the Research Councils' Joint Superannuation Services and the schemes' finances are administered by BBSRC (now part of UKRI). It is an unfunded scheme, and there are no separately identifiable assets and the actuarial cost to the Institute is not known. Consequently, it is not possible to supply the information referred to in Financial Reporting Standard 102, Section 28 and the Institute has accounted for the scheme as though it were a defined contribution scheme.

The Institute pays employers' contributions, at a percentage of scheme members' pensionable pay and emoluments assessed by the Government Actuary's Department on a periodical basis. The rate for the year was 26.0%, which was established following GAD's most recent assessment. The pension costs represent contributions payable by the Institute to the scheme and amount to £1,577,799 (2017: £2,140,904). Since April 2015, all new staff (including promoted staff) are employed directly by the Institute, rather than BBSRC, under the Institute's own

terms and conditions. These staff are members of The Pirbright Company Pension, a defined contribution scheme administered by Aviva on behalf of the Institute. The Institute contributes 10% of scheme members' pensionable pay and emoluments. The pension costs represent contributions payable by the Institute to the scheme and amount to £748,051 (2017: £404,221).

Staff engaged at the Institute prior to April 2015 were previously employed by BBSRC and deployed back to the Institute. Following the Transfer of Undertakings (Protection of Employment) exercise as of 1 January 2017, all previous BBSRC employees are now covered under the Institute's position as a separate legal entity. The Institute therefore retains responsibility for paying employment costs in relation to all employees, including basic pay and allowances, contractual payments, tax, national insurance and pension contributions. Employees engaged prior to April 2015 remain members of the Research Councils' Pension Scheme (RCPS), a defined benefit scheme for multiple employers. The BBSRC Employment Code remains applicable and frozen at the date of TUPE transfer. The Institute does not have any liability for pensions other than for monthly employer contributions, the rate of which is determined by the Government Actuary's Department on a periodic basis.

The key management personnel of the Institute comprise the senior leadership team and the trustees (note 7). The total employee benefits (including wages and salaries, employer's national insurance and pension costs) of the key management personnel of the Institute were £534,070 (2017: £666,494).

The number of staff with emoluments greater than £60,000, (excluding pension costs), was:

	2018 Number	2017 Number
£60,000 - £69,999	11	11
£70,000 – £79,999	6	3
£80,000 - £89,999	2	2
£90,000 – £99,999	2	1
£100,000 - £109,999	-	2
£110,000 - £119,999	-	1
£130,000 - £139,999	-	1
£140,000 - £149,999	1	-

The number of staff earning over £60,000 for whom retirement benefits are accruing under defined benefit schemes amounted to eight (2017:18) and the amounts paid in the year were £152,130 (2017: £278,900).

#### 9 TANGIBLE FIXED ASSETS

	Land and buildings £'000	Plant and machinery £'000	Fixtures, fittings, tools and equipment £'000	Payments on account and assets in course of construction £'000	Total £′000
Cost/revaluation					
At 1 April 2017	247,664	16,912	1,283	23,119	288,978
Additions	-	1,765	-	11,162	12,927
Disposals	(3,343)	-	<u>-</u>	<u> </u>	(3,343)
At 31 March 2018	244,321	18,677	1,283	34,281	298,562
Depreciation					
At 1 April 2017	25,372	11,718	1,283	-	38,373
Charge for year historic	9,073	2,045	-	-	-11,118
Charge for year revaluation	641	-	-	-	641
Disposals	(3,343)	<u> </u>	<u>-</u>		(3,343)
At 31 March 2018	31,743	13,763	1,283		46,789
Net book value at 31 March 2018	212,578	4,914	-	34,281	251,773
Net book value at 31 March 2017	222,292	5,194	-	23,119	250,605

Land and buildings include land with a book value of £10,363K. All of the tangible assets of the Charity are used for charitable purposes.

The Institute includes in its financial statements leasehold land and buildings owned by third parties, that it occupies and enjoys through peppercorn leases, at their full value. The current lease for the Pirbright North site ended in May 2016 and the lease for the Pirbright South site ended in March 2015. Neither have yet been renewed, however the Institute is protected under the LTA. The Institute is in negotiations with BBSRC (now part of UKRI) with the expectations of being granted new long term Pirbright leases. The trustees consider that in substance the risks and rewards of ownership of the assets have passed to the Institute, and as such follow a policy of recognising the assets on the balance sheet to reflect the continuing occupancy of these assets for the foreseeable future. The only circumstance under which the Institute could be asked to vacate the site is due to a failure to deliver the required programme, which in the trustees' view is highly unlikely.

The Institute used the option in FRS102 to use fair value at the date of transition to FRS102, (1 April 2014), as deemed cost on transition. GVA Grimley Limited, Chartered Surveyors and an independent valuer, derived these values from a professional valuation.

#### 10 INVESTMENTS

	2018 £'000	2017 £'000
UK listed investments held as fixed assets		
Market value at 1 April 2017	133	131
Unrealised profit .	18	2
Market value at 31 March 2018	151	133
Represented by:		
Genus plc	90	67
Dairy Crest	61	66
Total	151	133

#### Investment in subsidiary undertaking

Avrico Limited, which is incorporated in England and Wales, previously undertook foot-and-mouth disease testing on behalf of the Institute, was dormant during the current and previous year. The Institute owns the entire share capital of 100 ordinary shares of £1 each.

The assets and liabilities of the subsidiary were:

	2018 £'000	2017 £'000
Current assets	-	•
Creditors: amounts falling due within one year	(8)	(8)
Net liabilities	(8)	(8)
Aggregate share capital and reserves	(8)	(8)

The Institute has provided for the deficit shown by the subsidiary undertaking by writing off the amount owed to it by Avrico Limited.

#### Investment in associated undertakings

Genecom Limited was incorporated in July 2004 as a company limited by guarantee. The company was established by way of grants from the Department of Innovation, Universities and Skills and the European Regional Development Fund and was a new business development vehicle whose primary aim of was to build capacity to develop more effective commercial exploitation platforms for the members' technologies, share experience and expertise. The Institute has equal membership in this company with Roslin Foundation and the Moredun Research Institute. The company's turnover for the year ended 31 March 2018 was £Nil (2017: £Nil) and its net assets as at 31 March 2018 were £nil (2017: £Nil). The Company has now disbursed all of its remaining grants, and has ceased to be a Company during 2017.

Genomia Management Limited was formed on 16 April 2004 and is also a company limited by guarantee. The company was established by way of grants from the Department of Innovation, Universities and Skills and the European Regional Development Fund. The company manages the Genomia Fund the objective of which is to assist in the development of research output from the members into commercially realisable opportunities. The Institute has equal membership in this company with Roslin Foundation, Moredun Research Institute, Rowett Institute of Nutrition and Health and the SRUC. The company's turnover for the year ended 31 March 2018 was £280,000 (2017: £211,000) and its net assets as at 31 March 2018 were £157,000 (2017: £430,000).

11	1	ST	O	C	K	5

	2018 £′000	2017 £'000
Laboratory supplies	153	96
The Institute's stock consists of laboratory supplies for research purposes.		
The institute's stock consists of aboratory supplies for research purposes.		
12 DEBTORS		
	2018	2017
Trade debtors	£'000	£'000
	1,068	981
Prepayments Accrued income	1,569	743
	3,306	3,307
Other debtors	3,740	5,967
	9,683	10,998
13 CREDITORS: AMOUNTS FALLING DUE WITHIN ONE YEAR		
	2018 £′000	2017 £'000
Trade creditors	4,110	1,724
Taxation and social security	583	594
Other creditors	508	53
Accruals	1,250	1,203
Deferred income	3,708	4,250
Short-term compensated absences	443	436
	10,602	8,260
14 RECONCILIATION OF MOVEMENT IN ACCRUED AND DEFERRED GRANT INCO	•ME	
	2018	2017
	£'000	£'000
Accrued income	3,306	3,307
Deferred income	(3,708)	(4,250)
	(402)	(943)
Net deferred research grant income at the beginning of the year	(943)	(518)
Research grant income received during the year	(14,015)	(13,389)
Research grant money released to SOFA during the year	14,556	12,964
·	(402)	(943)
		<del></del>

#### 15 FUNDS

	Balance April 1 2017 £′000	Net incoming/ (outgoing) resources £'000	Transfer between funds £'000	Balance March 31 2018 £'000
Unrestricted funds:				
General	4,081	15	(289)	3.807
Designated	5,328	(786)	-	4,542
Restricted non endowment funds:				
Fixed Asset Fund	260,767	1,350	93	262,210
Other restricted funds:				
Fixed Asset Project Support Costs	3,043	-	-	3,043
Equipment	596	-	(596)	-
BCIC Projects	. 2	-	(2)	-
DP2 phase2 occupation	3,961	(53)	799	4,707
IS4L Interim Insectary	-	6	-	6
Innovation at Pirbright	209	(359)	150	-
Hostel	851	-	(155)	696
Other	66	9	<u> </u>	75
	278,904	182		279,086

#### Unrestricted designated funds

Unrestricted designated funds comprise sums set aside for specific purposes including the acquisition and improvement of tangible fixed assets, the presentation of scientific conferences, and contributions towards capital to be replaced using the fully economic costing policy adopted by the Institute. This includes £92k for change management (2017: £179k), £2,768k for occupation costs relating to capital projects (2017: £4,912k), £271k for decommissioning (2017: £nil), £355k for spoil clearance (2017: £nil), £862k for group leaders (2017: £nil) and £194k for other projects (2017: £237k).

#### Restricted non endowment funds

Restricted non endowment funds comprise grants received from funders specifically to be applied in the acquisition or improvement of tangible fixed assets or otherwise applied for such purposes as specified by the grants provided.

	2018 £'000	2017 £'000
Fixed Asset Fund		
Balance brought forward	260,767	269,003
Grants received	13,190	3,466
Depreciation/ impairment (note 6)	(11,759)	(12,461)
Revenue spend	(81)	549
Transfers	93	210
Balance carried forward	262,210	260,767

The Fixed Asset Fund is not an endowment fund, but represents funding received, principally from BBSRC, for the past and future acquisition of tangible fixed assets. These assets are built on land that is not owned by The Pirbright Institute. The capital fund has been set up to assist in identifying those funds that are not free funds and it represents the net book value of tangible fixed assets held by the charity and amounts received for capital but not yet spent. The unexpended balance of unrestricted designated funds and restricted funds is invested in temporary deposits and appears in the balance sheet under current assets.

#### **FUNDS (CONTINUED)**

#### Other restricted funds

Fixed Asset Project Support Cost grants have been received from BBSRC to provide funding towards support costs and overrun costs relating to the DP1 capital projects.

The Capital Rebuild Grant, Additional Construction Support has on approval from BBSRC been transferred to DP2 phase 2 occupation fund. As part of the ongoing development project funds from these reserves have been transferred to the Fixed Asset Fund.

The Equipment fund contains funding received from BBSRC for the purchase of equipment.

BCIC project income was received specifically for use on the BCIC projects.

The Innovation at Pirbright reserve contains funding received specifically to refurbish existing buildings and create a state of the art conference facility on the Pirbright site.

The Hostel funds were received from BBSRC to cover the cost of the rents payable at the Compton site. Redundancy funds have been specifically received from BBSRC to fund the redundancies in the year.

#### Transfers between funds

	Unrestricted general funds £'000	Unrestricted designated funds £'000	Restricted funds £'000
Transfer of funds from general reserves	(289)	-	289

The transfers during the year are as follows:

- A transfer of £294,000 has been made from general reserve to the Fixed Asset restricted fund in respect of a piece of equipment specifically funded from a research grant.
- A transfer of £150,000 has been made from general reserve to the Innovation at Pirbright restricted fund to reflect a proportion of this project that has been funded from general reserves.
- The Hostel restricted fund transfer of £155,000 has been made to set rents paid in the year against the restricted grant received for this purpose.
- Transfers of £596,000, and £2,000 have been made from the Equipment restricted fund, and the BCIC Projects restricted fund respectively to the Fixed Asset restricted fund to finance elements of the remaining DP2 Phase 2 occupation.
- A Transfer of £799,000 has been made from the Fixed Asset restricted fund to the DP2 Phase 2 occupation restricted fund in respect of construction in future years.

#### 16 ANALYSIS OF NET ASSETS BETWEEN FUNDS

	Fixed assets £'000	Net current assets £'000	Total £'000
Unrestricted funds	151	8,198	8,349
Restricted funds			
Capital fund	236,897	10,437	247,334
Revaluation reserve	14,876	-	14,876
Other restricted funds		8,527	8,527
	251,924	27,162	279,086
	·		
			£'000
Revaluation Reserve			
Revaluation reserve brought forward			15,517
Depreciation charged (note 9)		_	(641)
Revaluation reserve carried forward		•	14,876
17 FINANCIAL INSTRUMENTS			
		2018 £′000	2017 £'000
Financial assets measured at amortised cost		4,808	6,948
Financial liabilities measured at amortised cost		(5,201)	(2,371)
		(393)	4,577

Financial assets measured at amortised cost comprise trade debtors, amounts owed by related parties and other debtors. Financial liabilities measured at amortised cost comprise trade creditors, other tax and social security and other creditors.

#### 18 COMMITMENTS

(a) Capital commitments at the end of the financial year for which no provision has been made:

	2018	2017
	£′000	£′000
Authorised but not contracted for	7,774	2,607

The capital commitments of £7,774k (2017: £2,607k) will be significantly funded by the BBSRC (now part of UKRI)

#### **COMMITMENTS (CONTINUED)**

#### (b) Operating lease commitments

The Institute is committed to the following charges in respect of:

	2018 £'000	2017 £'000
Land and buildings		
Within one year	363	266
In two to five years	1,302	1,065
In over five years	906	1,012
Plant and machinery		•
Within one year	39	39
In two to five years		39

#### 19 CONTINGENT ASSETS AND LIABILITIES

There is a contingent liability to account to the Biotechnology and Biological Sciences Research Council (now part of UKRI) for the net proceeds of disposal of fixed assets acquired with grant assistance and for recurrent and capital grant in excess of the financing requirements. No such liabilities existed at either 31 March 2018 or 31 March 2017.

#### 20 RELATED PARTY TRANSACTIONS

#### Biotechnology and Biological Sciences Research Council (BBSRC now part of UKRI)

The BBSRC provides substantial funding to the Institute. The Institute is affiliated with the BBSRC along with seven other institutes. Details of grants received from BBSRC are detailed in notes 1 and 2. During the year, the BBSRC charged the Institute £45,318 (2017: £151,676) for other costs.

#### REFERENCE AND ADMINISTRATIVE DETAILS

Trustees: Professor Quintin McKellar CBE Chair

Dr Theo Kanellos Mr Roger Louth Dr Vanessa Mayatt Sir Bertie Ross

Professor David Rowlands

Mr Mike Samuel

Professor John Stephenson

Director of the Institute: Dr Bryan Charleston MRCVS

Secretary: Mr Keith Simpson BA ACMA

Registered office: Pirbright Laboratory

Ash Road, Pirbright Woking, Surrey GU24 0NF Auditor: Grant Thornton UK LLP

Statutory Auditor Chartered Accountants 30 Finsbury Square London EC2P 2YU

Bankers: Lloyds Bank plc

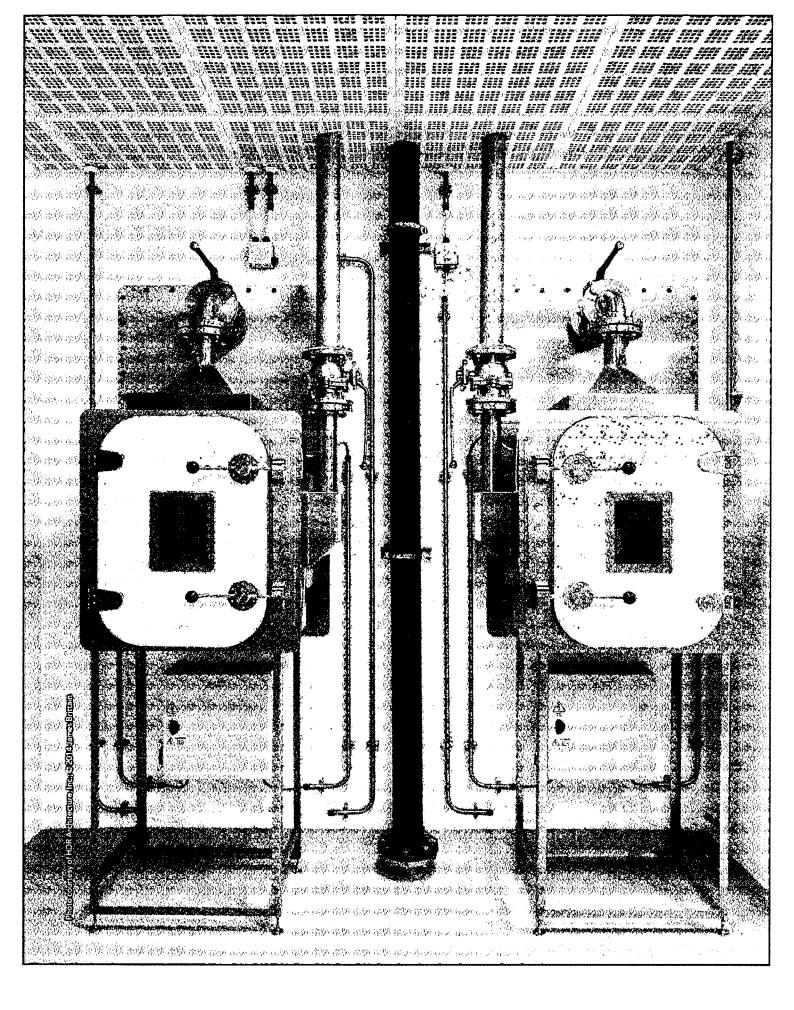
5 High Street Swindon SN1 3EN

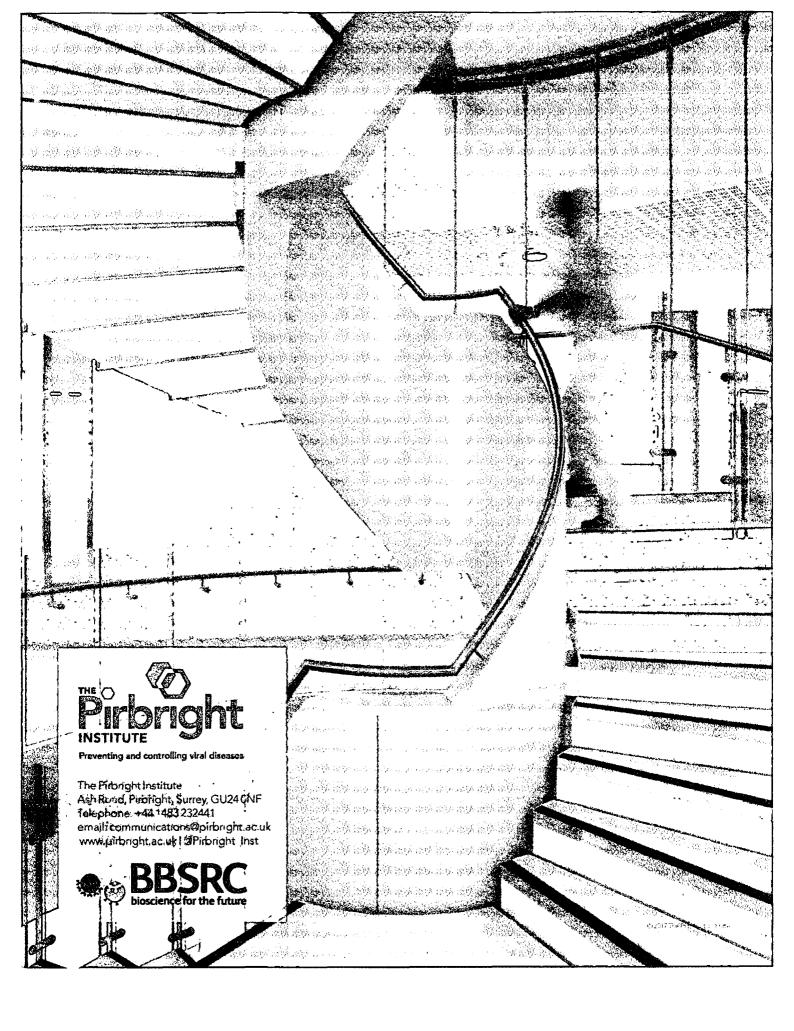
Solicitors: Charles Russell LLP

Buryfields House Bury Fields Guildford Surrey GU2 4AZ Penningtons Manches LLP 3 Worcester Street Oxford OX1 2PZ

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## USPTO PATENT FULL-TEXT AND IMAGE DATABASE

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## Searching US Patent Collection... **Results of Search in US Patent Collection db for:** AN/Pirbright: 11 patents. Hits 1 through 11 out of 11 [ASSIGNEE: THE PIRBRIGHT INSTITUTE (Woking GB Great Britain); funded by WELLCOME TRUST Jump To (UK), EU, DARPA, BILL & MELINDA GATES **FOUNDATION** See attached PIRBRIGHT 2019 annual report. AN/Pirbright Refine Search PAT. NO. **Title** 1 10,507,237 Attenuated African swine fever virus vaccine 2 10,294,277 Stabilised FMDV capsids 3 10,202,578 Chicken cells for improved virus production 4 <u>10,130,701</u> Coronavirus 9,969,777 Mutant spike protein extending the tissue tropism of infectious bronchitis

virus (IBV) 6 9,457,075 Modified foot and mouth disease virus (FMDV) VP1 capsid protein

7 9,243,230 Construct for producing empty virus capsids

8 9,145,548 Foot and mouth disease virus with increased stability and its use as vaccine

9 8,828,407 Chimaeric protein

10 8,501,466 Vector

11 8,455,201 Diagnose of mycobacterial infections by determination of IFN-gamma

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## **A VISION FOR HEALTH**

**Director's Welcome** 

**About Pirbright** 

Scientific Impact

**Science for Everyone** 

Investment in the Future

Working with Industry Global Collaborations

**Developing Our Culture** 

**World Class Expertise** 

**Pirbright Performance** 

**Financial Performance** 

**Our Success Stories** 

and Workforce

A Global Centre of Excellence 15

10

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30

**Our Expertise** 



Emerging diseases, particularly viruses that have the potential to cause pandemics in animals and humans, are a growing concern, and international disease control agencies quite rightly recognise the need for funding in scientific research to combat these threats. The viral diseases Pirbright studies pose some of the world's biggest threats, not just to animal health, but to food and economic security, so impacting on human health.

Pirbright's unique combination of high containment laboratories and animal facilities, and expertise in biosafety and research enables us to study many highly infectious viruses, their hosts and the interaction between the two. Foot-and-mouth disease virus (FMDV), a highly infectious disease affecting cloven-footed animals, has a huge impact globally and our research is facilitating the development of a safer, cheaper and effective vaccine against multiple strains of the disease, designed to improve animal and human health.

In 2018-19 African swine fever (ASF), a deadly haemorrhagic disease of pigs, swept through Eastern Europe and China resulting in the death of at least 150 million animals so far, threatening global food supplies and causing economic hardship. It is still spreading throughout Asia. There is no vaccine or cure and since this highly infectious virus can remain viable in the environment for many weeks, controlling the disease relies on strict biosecurity measures and culling.

Pirbright is one of the few laboratories in the world that has continued research into ASF over the past 20 years and we are currently working to develop a vaccine as well as testing antivirals for this devastating disease. This highlights our position as a global leader in the field of animal and human health, where our knowledge and expertise inform policy on disease prevention and control around the world.

The Institute has undergone significant change over the past ten years and has received over £350 million of capital investment from BBSRC UKRI to ensure it has the capacity to respond swiftly and effectively to these global threats. We are now seeing the benefits of this investment as new specialist buildings come on stream and construction commences on a high containment large animal laboratory and a pathogen-free poultry facility. We continue to operate efficiently and cost-effectively compared to similar high containment research facilities, delivering good value for UK Government.

Our new laboratories will give us the flexibility to respond to new and emerging diseases, particularly those that spread between animals and people (zoonoses). In preventing and controlling viral diseases of animals we are playing a key role in protecting human health and furthering research in these viruses and tools to combat their spread, fulfilling the 'One Health' agenda.

The Institute studies four zoonotic viruses highlighted by the World Health Organization as a priority for research - Crimean-Congo haemorrhagic fever, Nipah, Rift Valley fever,

and Zika – as well as carrying out research on their livestock hosts and insect vectors. All have epidemic potential and insufficient control measures, and our research will support the drive to be ready to respond. Work has already begun on developing a vaccine against Nipah for pigs; trials are underway to test a more effective vaccine against Rift Valley fever; and we continue to develop genetic engineering solutions to control the spread of diseases like Zika and dengue by the Aedes aegypti mosquito.

Much of our work is done in collaboration with partners, both commercial and academic, and we are proud of the fact that in 2018-19 we were involved in 154 partnerships and networks across 53 countries.

Our collaborative approach in sharing our scientific expertise is highlighted further with the launch of the immunological toolbox, a web-based repository for antibodies, reagents and information to advance veterinary vaccine development through knowledge exchange and working together.

Working with partners and engaging with the public and key stakeholders globally remains a top priority to ensure we are well positioned to respond rapidly and effectively to outbreaks and protect the world's health, food and economic security.

**Professor Bryan Charleston** Director and CEO The Pirbright Institute

Image: Cells infected with African swine fever virus (ASFV). Nuclear proteins in blue, endoplasmic reticulum proteins in red, early ASFV proteins in green The Pirbright Institute www.pirbright.ac.uk

African buffalo (Syncerus caffer)

are the primary carrier host of foot-and-mouth disease virus

(FMDV) in African savannah ecosystems, where the disease

is endemic. The cover image shows one of the captured

buffalo housed in the veterinary facilities in Skukuza, Kruger National Park, South Africa. The

studies showed some viruses persist for up to 400 days in

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### **OUR VISION**

Pirbright's purpose is to eliminate viral diseases of livestock and those that spread from animals to people (zoonoses). We receive strategic funding from BBSRC UKRI and work to enhance the UK's capability to eliminate and control economically important diseases through highly innovative fundamental and applied bioscience.

### **OUR VALUES**

The Institute employs around 375 staff, research students and visiting scientists, and is situated in Pirbright, Surrey. We promote a culture of openness and transparency which is underpinned by our core values which are:

**Passion** – for the highest quality standards, delivery and performance

**Reliability** – in everything we do: leadership, learning, biosecurity, problem anticipation and containment of unexpected events

**Innovation** – the driving force behind our fundamental and applied research. Our work is positioned at the cutting edge of science to deliver solutions for global good

**Dignity and respect** – we respect and trust all in our diverse community

**Excellence** – we aim to deliver the best in all aspects of our work including health, safety, biosafety, scientific research, stakeholder support and protecting the environment.

We take **PRIDE** in being a world-class organisation where knowledge, expertise, facilities, professional excellence and rigorous academic, biosafety and ethical standards combine to generate global health and economic impacts.

### **GOVERNANCE**

The Pirbright Institute was established as a tuberculosis cattle testing station in 1914 and over the past 100 or so years both the scientific

research and facilities at Pirbright have evolved to provide the UK with its capability to prevent and control viral diseases of livestock.

The Pirbright Institute is an independent company, limited by guarantee and a registered charity, governed by a Board of non-executive Trustee Directors. Research at the Institute is reviewed by an independent group of leading scientists who comprise the Science Advisory Board and whose role it is to provide advice and guidance on science strategy and direction.

BBSRC UKRI provides capital funding for campus development and research funding for our two science programmes as well as

our core capability grant. The Institute also received grants from other funders including Wellcome Trust, the Bill & Melinda Gates Foundation, Department for Environment, Food and Rural Affairs (Defra) and Defence Advanced Research Projects Agency (DARPA). Our current Trustee Board members are:

Chair: Professor John Stephenson
Trustees: Ian Bateman, Ian Black, Jon Coles,
Professor Vince Emery, Roger Louth,
Dr Vanessa Mayatt OBE, Dr Sandy Primrose,
Sir Bertie Ross, Professor David Rowlands and
Jane Tirard.



### **OUR SCIENCE**

Pirbright provides the UK with its capacity to predict, detect, understand and respond to the threat of specific potentially devastating viral livestock diseases. We have two research programmes - one linked to the study of viruses, the other to the study of hosts-which are funded by BBSRC UKRI over a five-year period. One of Pirbright's strengths is that it has the capability to study both viruses (particularly highly infectious viruses that must be studied under high containment) and the natural hosts (livestock and insects also under high containment), and the relationship between the two. Unusually Pirbright combines fundamental and applied research to develop a range of scientific methods to prevent, diagnose and control these diseases.

## PROGRAMME 1: ENHANCED HOST RESPONSES FOR DISEASE CONTROL

Professor John Hammond heads up the host research programme which focuses

on immunology, genetics, entomology, vaccinology and bio-informatics to investigate host-virus interactions from the perspective of the host. This includes virus vectors such as arthropods (mosquitoes, midges and ticks), host responses to viral infection and the translation of this knowledge to develop new methods to control viral diseases.

### PROGRAMME 2: UNDERSTANDING AND PREVENTING VIRAL DISEASES

Dr Toby Tuthill oversees the virus research programme which studies the interaction between virus and host from the perspective of the virus. It explores those properties of viruses that determine their ability to cause disease, replicate, evolve and spread. By understanding how viruses behave at many levels, including molecular and cellular biology, and how they evolve within the host, we can better reconstruct and predict how viruses are spread and cause disease with the aim of creating new vaccines, diagnostic tests and predictive models.

PROTECTING THE UK
Pirbright provides the UK
with its capacity to respond
to high consequence
livestock and zoonotic

to high consequence livestock and zoonotic viral pathogens to protect our food and economic security and improve health and wellbeing.

The Institute is a world centre of excellence that ensures the UK remains prepared in the event of a major viral disease outbreak of livestock. Pirbright's capabilities include:

- World-class scientists who are experts in the fields of virology, vaccinology, immunology, epidemiology, entomology, biomathematics and genetic engineering
- Unique high containment research facilities to study animal viruses of economic importance in the natural host (in vitro and in vivo study facilities)
- International Reference Laboratories accredited to ISO/IEC 17025, a UKAS accredited laboratory number 4025
- Genetically defined and inbred lines of animals, collections of arthropod vectors and a range of well characterised virus stocks
  - Production and engineering of recombinant antibodies for veterinary research

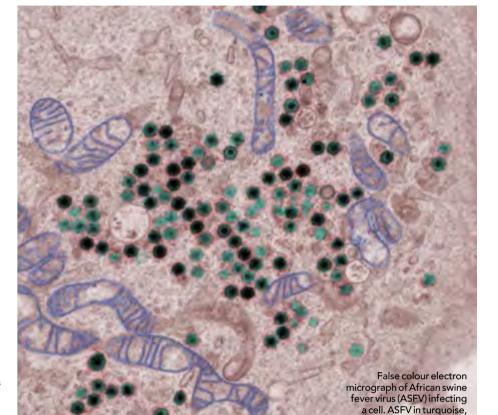
 Multidisciplinary immunological research to enable detailed understanding of recognition and control of viral infection by the natural host

mitochondria in blue

- Facilities for infection of vectors with viruses
- Next generation sequencing and in vitro bioimaging in high containment
- High biocontainment engineering and health, safety and biosafety expertise

### **OUR PARTNERS AND STAKEHOLDERS:**

- Biotechnology and Biological Sciences Research Council (BBSRC), part of UK Research and Innovation (UKRI)
- UK Department for the Environment, Food and Rural Affairs (Defra)
- Other UK research funding agencies
- International funding and disease control agencies, such as the World Organisation for Animal Health (OIE), Food and Agriculture Organization of the United Nations (FAO), World Health Organization (WHO), the European Commission, and Bill & Melinda Gates Foundation
- Veterinary vaccine manufacturers and animal breeding companies
- Farmers and livestock keepers



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## OUR EXPERTISE

### **ANIMAL RESEARCH SERVICES**

Pirbright's animal facilities are managed by a small specialist trained team who are highly experienced in the care and welfare of animals. Each animal unit has a Named Animal Care and Welfare Officer (NACWO) to ensure high standards of welfare, husbandry and care are in place. Pirbright staff go above and beyond the legal requirements set by the Home Office for the use of animals in research. We have a culture of care to ensure that animals are treated with compassion and respect which positively impacts on our quality of science. The Institute is a signatory to the Concordat on Openness on Animal Research in the UK, demonstrating our commitment to enhance our communication about the use of animals in our research and its importance in improving animal health.

### **BIORISK**

Pirbright's work with high consequence pathogens poses one of the highest inherent risks to the UK, and as such, Pirbright is licenced as a Major Hazard site, subject to intensive scrutiny by regulatory agencies. To manage and control this biorisk, Pirbright maintains a complex, advanced high containment infrastructure, and applies rigorous operational and management systems, policies and processes. This utilises extensive in-house risk management and engineering specialist expertise and is achieved in conjunction with world-class scientists and good leadership. Pirbright works in close cooperation with regulators and stakeholders on biorisk, including safety, security, quality, environmental

and engineering aspects, and plays a leading role nationally and internationally in these areas.

Pirbright offers
bioimaging facilities
inside and outside of
containment featuring
confocal and electron
microscopes, flow
cytometry and cell sorters.
The imaging and analytical



techniques available within high containment can be used to image, analyse and sort live cells from host animals infected in high containment.

### **BIOINFORMATICS**

Modelling is a crucial element of disease prediction and control and requires complex mathematical calculations to build a picture of how disease can spread, depending on different factors such as where farms are located, how many animals they keep, how animals are moved between them and the weather. Understanding transmission is essential for improving disease control and surveillance. This can be done using data from transmission experiments or from disease outbreaks to estimate how long animals are infectious for and how likely they are to spread infection to others.

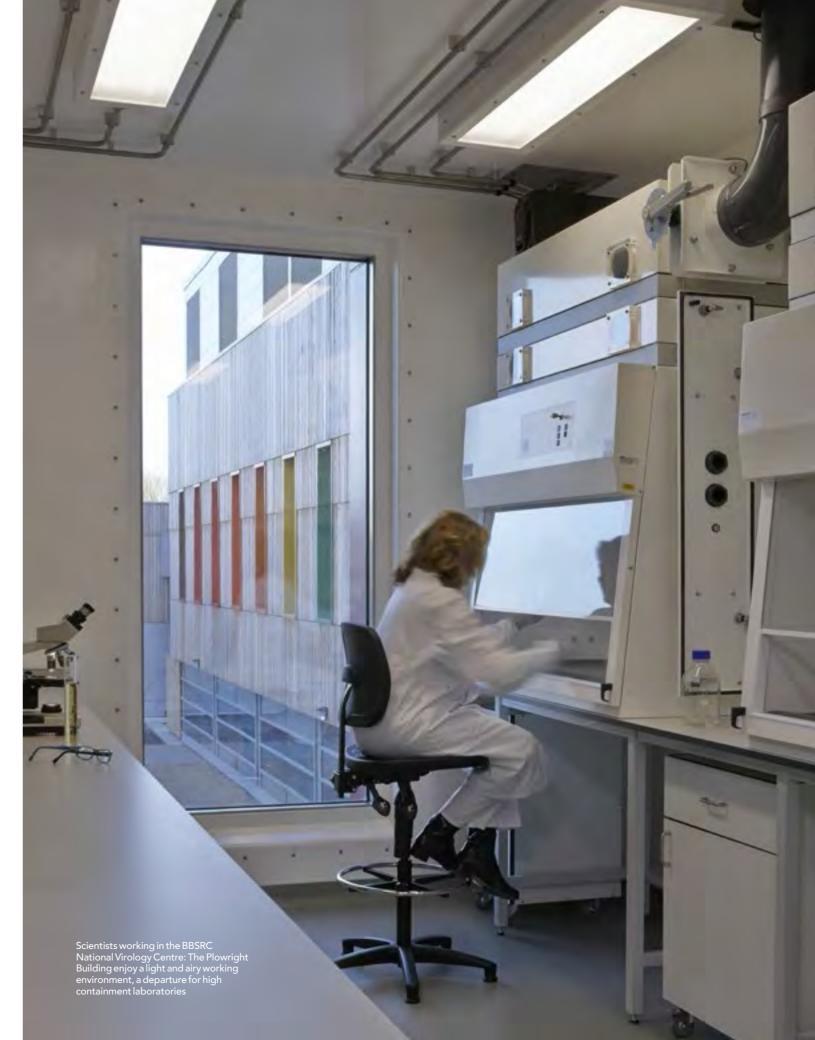
### REFERENCE LABORATORIES

The reference laboratories at Pirbright provide the UK with its national capability for diagnostics and surveillance to monitor livestock for ten diseases of high consequence such as foot-and-mouth disease (FMD), African swine fever (ASF), lumpy skin disease (LSD) and bluetongue (BT). This work underpins global disease control and is

delivered through a combination of skilled and expert personnel, high containment facilities, effective and reliable diagnostic tests, reagents and archive materials. The reference laboratories work closely with our research programmes, enhancing our ability to control disease through fundamental understanding of viruses, their hosts and vectors and their interrelationships.

### **TRAINING**

Pirbright's global training activities contribute to the prevention and control of viral diseases of animals worldwide. Courses in laboratory diagnosis of viral diseases provide a platform where the Institute shares its scientific expertise and knowledge internationally and in-country through twinning projects and collaborations. Pirbright's impact has recently increased through the development of online e-learning courses which are accessible, despite geographical boundaries, and costeffective, particularly to allow all scientists to participate. Pirbright also utilises staff's specialised expertise in biosafety and high containment engineering to deliver highquality training in response to the needs of the global community.



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## **SCIENTIFIC IMPACT**

Pirbright's work has global impact, touching the lives of people who depend on livestock for survival, informing policy on disease control and helping to rid the world of devastating disease through vaccination, prevention and control.

### **UNDERSTANDING THE PIG IMMUNE SYSTEM**

Researchers from Pirbright, together with the University of Bristol, Cardiff University and University of Oxford, have generated tools to improve understanding of the pig immune

system. Researchers used a unique line of Babraham inbred pias to develop novel tools for tracking the response ofimmune cells, killer T cells, following influenza infection or vaccination. These tools will enhance our understanding of how best to vaccinate animals

and humans to achieve powerful protective

immune responses and are particularly important for studying fluin pigs because they act as 'mixing vessels' for the creation of new virus strains with pandemic

### **PIRBRIGHT REDUCES** THE NEED FOR **CHICKENS IN RESEARCH**

Our birnavirus researchers have established a lab procedure which allows the response of chicken immune cells to infectious bursal disease virus (IBDV) to be studied without infecting live chickens. The protocol shows scientists how to isolate the immune cells, called B cells, and grow and infect them in the lab via a published video. The work has received funding from the National Centre for the 3Rs (reduction, refinement, and replacement of animals used in research) to improve the control of different immunosuppressive viruses in



### **DESIGNING AFRICAN SWINE FEVER VACCINES**

African swine fever (ASF), a deadly haemorrhagic disease of pigs, has affected an estimated 150-200 million pigs since August 2018 in China alone, threatening global food supplies and causing economic hardship. The virus is still spreading and currently there is no vaccine. Pirbright has maintained a research programme on African swine fever virus (ASFV) since 1963, even when the disease was restricted to Africa and did not attract research funding. We continue to provide knowledge, diagnostic tests and reagents to global disease control agencies to find solutions for this emergency.

Pirbright scientists are developing a vaccine against ASF by identifying and deleting an ASFV gene that codes for a protein that is thought to play a role in suppressing the pig immune system. The resulting weakened strain of ASFV does not appear to cause severe disease or death in pigs and protects them against natural strains of ASFV.

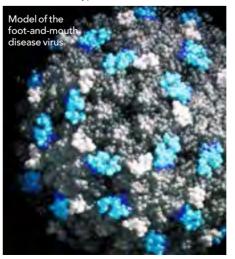
Further research is being undertaken on other viral proteins thought to play a role in the immune response.

### **GETTING TO GRIPS WITH** THE MIDGE GENOME

Experts in genetics and bioinformatics at Pirbright and the European Bioinformatics Institute (EBI) have built a complete Culicoides biting midge genome, paving the way for better disease control. Midges transmit a range of important animal viruses on UK farms including bluetongue virus (BTV). The genome sequence is freely available to scientists with the aim of improving our knowledge about which genes are involved in the transmission of livestock viruses. It will also allow comparisons to be drawn with other groups of vectors, including in disease control could be made via genetic manipulation of the midge vector, now the genome is fully sequenced.

## VIRUSES TO MAKE BETTER **VACCINES**

In a quest to create foot-and-mouth disease viruses (FMDV) with improved stability. which will increase the effectiveness of FMDV vaccines, collaborative research led by scientists at Pirbright has resulted in the generation of a 'hybrid' FMDV. The team genetically engineered a virus of the Southern African Territories (SAT) 2 serotype by replacing most of its internal material with that of an O serotype virus, which is known to be more stable. The resulting 'hybrid' and wild type vaccines were then exposed to elevated temperatures and only the hybrid was shown to induce antibody responses predicted to protect against foot-and-mouth disease (FMD) infection. The study shows that this could be an effective method for improving other FMD serotype vaccines.

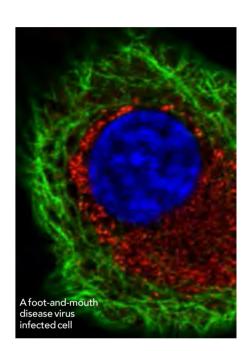


### THE COMMON COLD **COULD BECOME LESS COMMON**

Most remedies for the common cold rely on treating the symptoms of the infection rather than the virus that causes the infection. Researchers at Imperial College London, Queen's University Belfast, University of Dundee and University of York worked with scientists at Pirbright to test a molecule designed to target the virus-infected host instead of the virus itself, since the virus mutates rapidly making it more difficult to target. The new molecule targets a protein in the host called N-myristoyl transferase (NMT) which helps construct the protein 'shell', or capsid, that protects the virus' genetic material. Without NMT the virus is unable to replicate. Researchers demonstrated that this drug was active against multiple viruses in the same family as the common cold, including poliovirus and FMDV, without affecting host cells, though further study is needed to make sure it is not toxic in whole organisms.

### **MILK SAMPLES USED** TO DETECT FOOT-AND-**MOUTH DISEASE**

Control of foot-and-mouth disease (FMD) is heavily reliant on the rapid and accurate detection of the virus, but current tests normally use tissue or blood samples. Scientists from Pirbright and the US Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS) have shown it may be possible to detect FMDV in pooled milk samples stored in bulk tanks. These encouraging results demonstrate that milk testing could play a key role in disease surveillance during and after outbreaks. It also removes the need to test animals individually, or require a vet to be on hand, reducing both testing costs and the potential stress to animals. Further research also showed that milk samples collected in the field in Tanzania could be used successfully to detect cattle infected with FMD. These results provide an accessible and cost-effective way of monitoring FMD outbreaks, which could strengthen surveillance capabilities.



### **REWRITING THE EVOLUTIONARY HISTORY OF FOOT-AND-MOUTH DISEASE VIRUS**

Pirbright scientists have reconstructed the global evolutionary history of FMDV lineage that is currently spreading widely outside of the Indian subcontinent. Using samples submitted to the World Reference Laboratory for Foot-and-Mouth Disease (WRLFMD), researchers revealed evidence of 'recombination events', where genetic sequences coding for the FMDV outer shell proteins, known as the capsid, were exchanged between lineages. These recombination events previously prevented scientists from accurately interpreting FMD virus movements, leading to the new recommendation that only sequences encoding capsid proteins should be used for broad-scale mapping of lineage distributions.

Further analysis of recombination events in buffalo has provided insight into the molecular evolution of the virus and showed that the role of recombination as a generator of genetic variability in FMDV has been greatly underestimated.

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mosquitoes and sandflies. Further innovations CREATING HYBRID FMDV

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# HOW PIRBRIGHT'S KNOWLEDGE IS HELPING CURB THE SPREAD OF LUMPY SKIN DISEASE

this burden to improve peoples lives

Lumpy skin disease (LSD) is a disease of cattle which has recently spread from Africa, where it is endemic, to Greece and much of the Balkans. To better understand more about how LSD is spread between animals Pirbright scientists have developed a bovine model of LSD to investigate the mechanism of transmission, particularly by insect vectors. The stable fly Stomoxys calcitrans is thought likely to be the most efficient at transmitting lumpy skin disease virus (LSDV), with the mosquito Aedes aegypti also seen as an efficient vector, although there remains uncertainty regarding exact transmission from insect to bovine. However, the longterm persistence of LSDV in a range of insect vectors, and the existence of subclinical LSDV have filled key knowledge gaps and enabled Pirbright to offer advice to help control the LSD epidemic in Southeast Europe in 2015-2018 and inform strategy on the prevention and control

of LSD in the UK, making us better prepared in the event of an outbreak.

# FOOT-AND-MOUTH DISEASE VACCINATION STRATEGY COULD REDUCE RURAL POVERTY

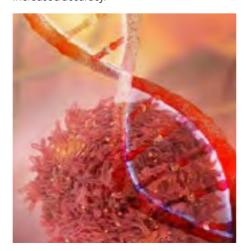
Targeted vaccination programmes against FMD could help alleviate poverty in eastern Africa. Research undertaken with the University of Glasgow and Pirbright showed that livestock production losses due to FMD are estimated to be around \$2.3 billion each year in Africa, affecting national economies, food security and the livelihoods of livestock keepers - 85% of which live in extreme poverty. The study found that in East Africa FMD serotypes pass through livestock in slow waves, but that it was rare for livestock to become infected by viruses circulating in wild buffalo. Understanding this pattern of infection means that scientists can tailor control methods to make them more effective, rather than copying methods used in other regions that may not work. This could provide a cost-effective vaccination strategy that would aid in alleviating poverty in communities that are dependent on their livestock for income.

### PIRBRIGHT HELPS THE UK REMAIN BLUETONGUE FREE

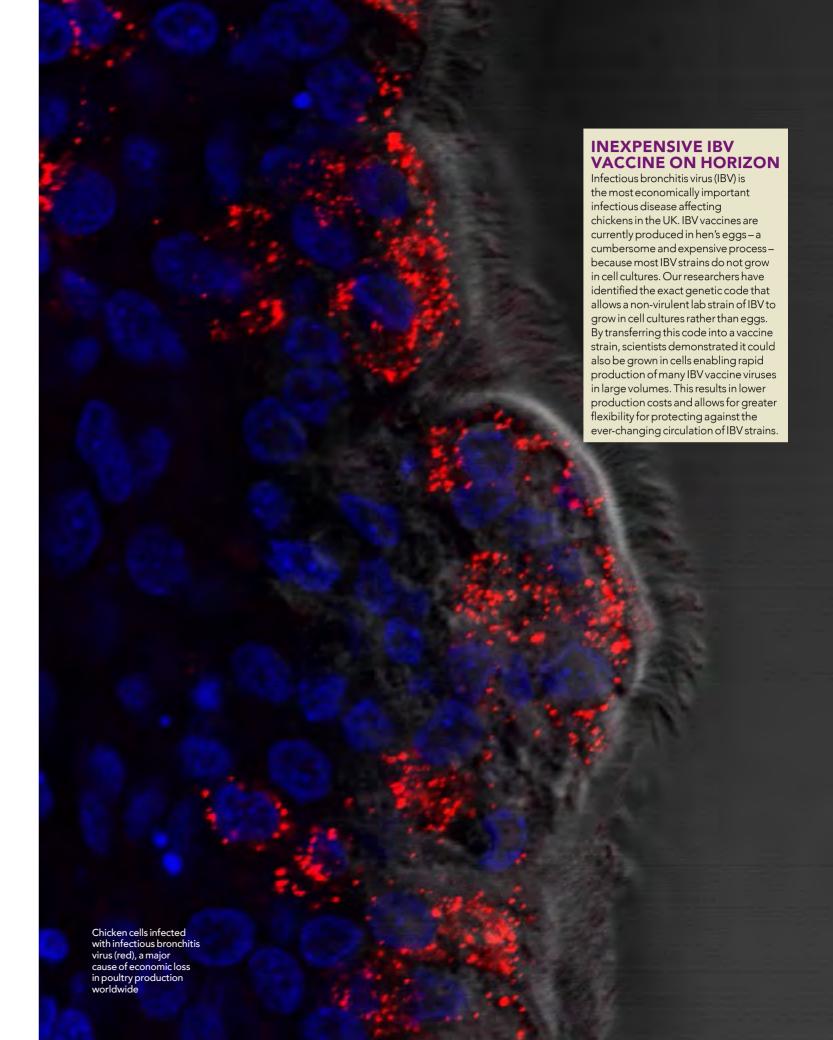
Bluetongue virus (BTV) type 8 was successfully identified in imported cattle on at least two occasions in 2018-19 by the National Reference Laboratory for Bluetongue Virus, part of the Non-Vesicular Disease Reference Laboratory Group's (NVDRL) diagnostic facilities. BTV affects domestic farmed animals such as cows, sheep and goats, and infection can reduce milk yield and cause infertility, which has a massive impact on livestock production and movement. This shows the importance of the routine post-import testing regime in place, and that active surveillance carried out on live animal consignments moving from neighbouring countries where BTV is circulating is vital in the control of disease.

# GROUND-BREAKING METHOD PINPOINTS HOW LIVESTOCK VIRUS COULD BECOME A ZOONOSIS

Peste des petits ruminants virus (PPRV), which causes disease in sheep and goats, and is a close relative of the measles virus, could overcome barriers that currently prevent it from entering human cells. The study revealed that a single amino-acid change to the PPRV haemagglutinin protein enables it to use the receptor SLAMF-1 to gain entry into human cells. It is important to note that this does not mean the virus would have the potential to cause disease in humans as many other factors are required for the virus to successfully replicate and cause clinical symptoms, but it does indicate that these viruses have the potential to jump from animals to humans given the right mutations and conditions. The innovative techniques used for the study negated the requirement for live infectious virus and high containment laboratories, which meant modified live viruses with potential zoonotic capability were not, and will not, be generated. These techniques could give researchers the ability to monitor and predict the emergence of such viruses with increased accuracy.



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## A GLOBAL CENTRE OF EXCELLENCE

Pirbright's campus comprises both high and low containment research laboratories and high and low containment animal research facilities which enable us to study viruses of livestock, and those that spread from animals to people and develop methods to combat their spread.

## PIRBRIGHT RESEARCH FACILITIES

## THE BBSRC NATIONAL VIROLOGY CENTRE – HIGH CONTAINMENT LABORATORY

The BBSRC National Virology Centre: The Plowright Building became fully operational in April 2015 and is the result of £135 million government investment to develop a new high containment laboratory for research of viruses of high consequence such as foot-and-mouth disease (FMD) and African swine fever (ASF). The laboratory houses 160 staff, including 125 scientists, and is essential to underpin the Institute's two scientific programmes for the purposes of in vitro research into virus diseases of livestock. At the highest level of containment to study animal diseases (SAPO 4), it is designed to ensure virus research can be undertaken safely so no virus can be released. It is named in honour of Walter Plowright who played a key role in the eradication of rinderpest and was a leading scientist at the Institute.

### BBSRC NATIONAL VACCINOLOGY CENTRE – LOW CONTAINMENT LABORATORY

The award-winning BBSRC National Vaccinology Centre: The Jenner Building was opened in 2017 by The Princess Royal as part of phase two of the redevelopment of the Pirbright site. This facility houses a wide range of groups working on strategically important endemic and exotic viral pathogens that can be handled under low containment including Marek's disease virus (MDV), infectious bronchitis virus (IBV), and low pathogenicity animal influenza viruses. The Jenner Building replaces old laboratory space at Pirbright (and the now closed Compton campus) and is home to over 100 scientists.

## THE HOUGHTON FACILITY – DISEASE FREE POULTRY LABORATORY

The Houghton Facility is a Specific Pathogen Free (SPF) hatchery that allows Pirbright to hatch and grow poultry under clean conditions. This maintains the diseasefree status of the birds for use in animal experiments to study viral disease which is important to the welfare of chickens and ultimately to ensure security of food supply for the UK. Part of a £250 million investment by BBSRC UKRI, the £4 million poultry facility is a purpose-built animal house dedicated to the incubation, hatching and growth of SPF chickens. Houghton was named after the poultry research station that was started at Houghton Grange, Cambridgeshire in 1948 and will be fully operational in late 2019.

## THE PHILIP MELLOR INSECTARY – NON CONTAINMENT LABORATORY

Research on viruses spread by insect vectors requires expertise in insect production and supply. The Philip Mellor Insectary, which was named in honour of Professor Philip Mellor who established entomology research at Pirbright, is outside of containment and is used for the production and maintenance of unique insect colony lines of disease vectors of veterinary, medical and agricultural importance. Species include biting midges Culicoides, and mosquitoes such as Aedes and Culex, including genetically modified lines. These insects can be studied in and out of high containment (using The Plowright Building) to improve our understanding of the relationship between virus, vector and host. Insect lines are also supplied externally to research organisations.

## RESEARCH FACILITIES UNDER DEVELOPMENT

## THE BROOKSBY BUILDING – HIGH CONTAINMENT ANIMAL FACILITY FOR LARGE ANIMALS

This laboratory, which is currently under construction, is designed for experimental work on high consequence pathogens such as foot-and-mouth disease virus (FMDV). The building will have all the engineering

features of high containment to the highest international standards that will allow safe working for our staff and protect the environment. The new high containment building will provide a stand-alone SAPO4 and Advisory Committee on Dangerous Pathogens Containment Level 3 (ACDP3) large animal facility with sufficient flexibility to house small animals (mice, quinea pigs, rabbits). for in vivo experiments. The Brooksby Building is crucial in the overall development of the Pirbright campus and will be a key component that allows sustained success in livestock and zoonotic pathogens research. It is named in honour of John Brooksby who joined the Foot-and-Mouth Disease Research Institute at Pirbright in 1939 and became Director in 1964. The laboratory was designated the World Reference Laboratory for Foot-and-Mouth Disease (WRLFMD) in 1958.

## THE BIGGS BUILDING – LOW CONTAINMENT AVIAN RESEARCH LABORATORY

The Biggs Building is an avian research facility operating at Containment Level 2 which will be used for *in vivo* avian research and is named after Peter Biggs, who was the first to isolate a herpesvirus, the causative agent of Marek's disease. The project will consist of the repurposing and refurbishment of an existing *in vivo* high containment large animal facility. Investment of £6.5 million from BBSRC UKRI has facilitated the project and will enable the transfer of current avian research from temporary facilities. The laboratory is due for completion in 2020.

### **FUTURE PLANS**

Pirbright's vision is to deliver a campus that fulfils the following objectives under its masterplan outline planning:

- New insectary
- New low containment in vitro building
- Stores and facility management centre
- New administration building



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## **SCIENCE FOR EVERYONE**

Pirbright researchers are committed to engaging with the public on all aspects of their research including controversial topics such as the use of animals in research and genetic engineering. Over 120 Pirbright staff (83 scientists) undertook 43 public engagement activities including national science festivals, agricultural shows and events, Science, Technology, Engineering and Maths (STEM) careers events and hands-on school workshops. There were over 70 STEM careers ambassadors who actively promoted the benefits of working in STEM careers to students at all key stages.

the choices scientists and public health officials should make during a pandemic of an unknown deadly virus, therefore shaping the ultimate outcome.

### **CONSERVING** COMMUNITY WILDLIFE

Local engagement is particularly important to the Institute, and every year volunteers dedicate time to maintaining the Fox Corner Community Wildlife Area, which is used by the public and many community groups. This year participants helped to remove invasive plant species and clear the pond to allow native wildlife to flourish.

> VIRAL SURVIVAL Innovate Guildford 2019, a local science and arts festival, saw the debut of Pirbright's 'Viral Survival' exhibit, which introduced

### **ROYAL INSTITUTION FAMILY FUN DAY**

Lab (see right).

animals to people) and why the viruses

that cause them are of global concern. Pirbright's exhibit

ncluded a containment box

crack codes based on how scientists study viruses,

that required visitors to

a genetic build a virus

the challenges our

identifying viral diseases

and preventing their spread

and Dr Zoo's Travelling Science

scientists face in

puzzle that highlighted

Pirbright researchers represented BBSRC UKRI at the Royal Institution Family Fun Day where they showcased how cutting-edge CRISPR genetic technology is used to modify mosquitoes so they are unable to spread viral diseases like Zika and dengue. With a LEGO®inspired Bug Busters exhibit, our scientists as they demonstrated how gene editing research can be used to control viral diseases



Our scientists attended the biannual British Pig and Poultry Fair to speak to farmers, vets and industry workers about the key avian and swine viral diseases being studied at Pirbright. African swine fever, a fatal disease of pigs was of particular interest due to its rapid spread throughout Eastern Europe and Asia and there is currently no cure or vaccine.

### **BUSTING BUGS**

Pirbright wowed visitors at the 2018 Cheltenham Science Festival with 'Bug Busters', a LEGO® interactive created to showcase innovative genetic engineering research that allows the control of mosquito populations to manage viral disease. We also sponsored two interactive talks. 'How safe are our food supplies?' explored the ways livestock and crop disease have a direct impact on food and economic security and what approaches scientists are taking to combat these diseases. 'Pandemic Live', an interactive event, saw audiences making live decisions on





## **INVESTMENT IN** THE FUTURE

Our funding continues to grow as we attract investment from a diverse range of organisations.

Dr Don King and Dr Anna Ludi have been awarded £1.2 million from the World Organisation for Animal Health (OIE) to assist the African Union Pan African Veterinary Vaccine Centre (AU-PANVAC) in Ethiopia to assess the quality of FMD vaccines used in Africa.

The Bill & Melinda Gates Foundation has awarded Professor John Hammond £1.1 million to investigate antibody responses to a new foot-and-mouth disease (FMD) vaccine in cattle. This research will help improve the protective properties of the vaccine by pinpointing the regions on the surface of foot-and-mouth disease virus (FMDV) that cattle antibodies recognise to control infection.

Professor Munir Igbal has received £640,000 as part of a new 'One Health Poultry Hub', led by the Royal Veterinary College, one of twelve global research hubs funded by the Global Challenges Research Fund (GCRF) of UK Research and Innovation (UKRI) worth more than £18.1 million. The Hub aims to work in collaboration to address the significant challenges faced by the poultry industry from avian diseases especially in light of the increasing demand for poultry meat and egg production.

BBSRC UKRI has awarded Dr Shahriar Behboudi £484.000 to study immune responses to Marek's disease virus (MDV), which causes lymphoma in chickens. The study aims to understand why MDV vaccines fail to control virus replication, allowing the virus to evolve and form increasingly virulent strains, by looking at specific cells in the immune response called T-lymphocytes which are responsible for controlling tumour formation and viral replication.

Dr Simon Carpenter has been funded £483,000 from Defra to investigate the factors that determine transmission of arboviruses such as bluetongue virus (BTV) and Schmallenberg virus (SBV). The project aims to define limitations such as the infectious period for BTV in cattle, the survival rate of Culicoides during the winter, and seasonality in arbovirus transmission to provide tools that could enable prediction of disease outbreaks more accurately.

> Funding of £443,000 from the Medical Research Council (MRC) was awarded to Dr Toby Tuthill to study part of the virus that causes the common cold, the human rhinovirus. His team will investigate how VP4 (a protein on the cell membrane that allows the virus to replicate) is affected by antibodies during immune response.

Dr Holly Shelton has been awarded £187,000 from BBSRC UKRI as part of a project to generate flu resistant chickens, which is led by Professor Wendy Barclay at Imperial College along with collaborators at The Roslin Institute. If successful, this project could pave the way for breeding flu resistant chickens.



Professor Munir Iqbal has received £167,000 from BBSRC UKRI Zoonoses and Emerging Livestock Systems (ZELS) programme to develop tailor-made vaccines and



The Defence Advanced Research Projects Agency (DARPA) has awarded a consortium led by Professor Luke Alphey US\$1.4 million to develop proofof-concept tools that could prevent mosquitoes from transmitting a broad range of viruses. The project forms part of DARPA's Preventing Emerging Pathogenic Threats (PREEMPT) programme, which aims to predict and contain viral mutations to prevent cross-species transmission of viral infectious disease from animals and insects to humans

> As part of a project with investigators at The Jenner Institute (University of Oxford), Dr Elma Tchilian has been awarded £826,000 from the Medical Research Council (MRC) to test influenza vaccines combining multiple antigens in viral vectors in pigs as a model for human influenza. The study will address the impact of route of administration on vaccine efficacy.

BBSRC UKRI has funded Dr Jarek Krzywinski £746,000 to adapt a gene-drive system created in the fruit fly Drosophila, for disease control in the mosquito Aedes aegypti. This 'Medea' gene drive system aims to introduce, and rapidly spread through the natural mosquito populations, genetic elements that suppress the ability of mosquitoes to transmit diseases such as dengue, chikungunya, and Zika.

Dr Elma Tchilian has been awarded £471,000 from the Bill & Melinda Gates Foundation to identify and test antibodies for their ability to protect against influenza virus infection. Pigs and humans are infected by the same subtypes of virus and have the same distribution of sialic acid receptors in their respiratory tract. The pig is genetically, immunologically, physiologically and anatomically more similar to humans than small animals. The similarity of clinical disease and pathogenesis of flu infection in the two species make pigs an excellent animal model to study the effectiveness of antibodies for their ability to protect against influenza.

BBSRC UKRI has invested £440,000 in Dr Andrew Broadbent's research to investigate why some vaccines against infectious bursal disease virus (IBDV) fail. This virus is responsible for Gumboro disease in chickens, which is a worldwide concern for the poultry industry.

Professor Satya Parida has received £172,000 as part of an Innovate UK award, led by Biogene, to develop a molecular diagnostics approach for in-field animal testing capable of differentiating peste despetits ruminants virus (PPRV) from foot-and-mouth disease virus (FMDV), which cause similar clinical signs in small ruminant livestock.

Dr Toby Tuthill has been awarded around £78,000 in funding from Genomia for further development of a validated universal test to ensure production of effective foot-and-mouth disease (FMD) vaccines. The goal is to develop this test into a commercial product.

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Diseases of poultry have a major impact on the farming industry and animal health. Our research is helping

to prevent avian disease through

vaccine development and a bette understanding of the viruses that

## **WORKING** WITH **INDUSTRY**

Collaborations around the world are a priority for Pirbright. We teamed up with eight industrial partners, which included vaccine developers, biotech companies, global disease networks and other international organisations and academic institutes on 19 projects. We also filed three new patent applications and our researchers disclosed three new inventions.

### PATENTS AIDING AVIAN VACCINE **DEVELOPMENT**

Pirbright has been granted two patents to develop vaccines to protect against infectious bronchitis virus (IBV). Every 10% reduction in the incidence of IBV would be worth an estimated £654 million to the global poultry industry. Patent one, which was granted in both Europe and the USA, is for research that has led to the ability to grow IBV in cell lines rather than eggs. This will facilitate rapid production of many IBV vaccine viruses in large volumes, thereby lowering production costs. Granted in the USA, patent two, results from research funded by BBSRC UKRI and Zoetis, and will aid the development of an IBV vaccine that can be delivered into the egg (in ovo) thus protecting the chicks before they hatch.

Another patent has been granted in both Europe and the USA for a novel way to enhance the growth of vaccines using editing technology. Pirbright scientists working closely with Horizon Discovery Group plc, a global leader in gene editing and gene modulation technologies, have shown that removal of the IFITM gene from chickens allows researchers to develop cell lines that grow viruses to higher yields. Developed with funding from BBSRC UKRI and the International Development Research Centre (IDRC), this project will make vaccines for diseases such as influenza cheaper to produce and more accessible to livestock owners in developing nations.





### **NEW PATENTS FOR AFRICAN SWINE FEVER AND FOOT-AND-MOUTH DISEASE VACCINES**

Pirbright has been granted a patent in Africa for a vaccine against African swine fever virus (ASFV). To develop the vaccine our scientists deleted an ASFV gene that codes for a protein thought to play a role in suppressing the pig immune system. This resulted in a weakened strain of ASFV that does not cause severe disease or death in pigs and protects them against natural strains of ASFV.

Indonesia is the latest country to grant a patent for Pirbright's virus-like particle (VLP) capsid vaccine for foot-and-mouth disease. Patents have already been granted in major markets including Europe, USA, China and

### **PROTECTING GOATS AGAINST PESTE DES PETITS RUMINANTS**

Peste des petits ruminants (PPR), a viral disease that mainly infects goats and sheep across Africa, Middle East and India, currently costs the agricultural economy between US\$1.4 billion and US\$2.1 billion per year. Pirbright scientists have filed a patent application for a vaccine that will protect against PPR. The new vaccine is the first that will enable differentiation between infected animals and vaccinated animals with a simple test (DIVA). This validated test will verify whether

an animal has PPR disease or whether it has been vaccinated, enabling livestock owners to continue to trade and protect animals. To further enhance disease control for PPR, an Innovate UK-funded collaboration has been established to develop new diagnostic methods for PPR with Biogene Ltd and the Royal Veterinary College (RVC).

### **DEVELOPING VACCINES FOR MULTIPLE BIRD DISEASES**

Many poultry vaccines currently use a modified herpesvirus of turkeys (HVT) to induce protection against a number of different poultry diseases including Marek's disease (MD) and infectious bursal disease (IBD). Our scientists have successfully shown that they can complement HVT vaccines with a licensed vaccine strain for MD that also protects against IBD. This MD vaccine vector offers the scope for developing commercial vaccines capable of giving protection against three or more avian diseases in a single dose. A 'triple insert' HVT vaccine is also in development to combat multiple diseases in a single vaccine. Pirbright scientists are working with several major vaccine manufacturers to develop bespoke vaccines for them.

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WORKING TOGETHER

THE PIRBRIGHT INSTITUTE ANNUAL REPORT 2019 Pirbright THE PIRBRIGHT INSTITUTE ANNUAL REPORT 2019

WORKING TOGETHER

## GLOBAL COLLABORATIONS

We are proud of the fact that we share our knowledge and expertise globally to advance scientific solutions in the fight against infectious viral diseases of livestock.



Pirbright is proud to be involved in twinning projects with multiple partners through the World Organisation for Animal Health (OIE), including the African Union Pan-African Veterinary Vaccine Center (AU-PA

Veterinary Vaccine Center (AU-PANVAC). As part of this project we supplied training and other operational assistance to further knowledge and expertise. Following an audit at the Center conducted by experts from Pirbright, AU-PANVAC was later granted ISO/IEC 17025 accreditation, which is the accreditation given to organisations that can demonstrate testing competence, testament to the success of Pirbright's involvement.

## A 'ONE HEALTH' VACCINE TRIAL FOR RIFT VALLEY FEVER

A trial of a vaccine for Rift Valley fever (RVF) designed to protect both animals and humans is under way in Kenya. RVF is a mosquitoborne disease that has spread to many African countries and the Arabian Peninsula, causing disease outbreaks affecting millions of livestock and hundreds of thousands of humans. Madeleine Clark (Pirbright student) and George Warimwe, (Group Leader, KEMRI-Wellcome Trust Research Programme, Kenya and Associate Professor, Centre for Tropical Medicine & Global Health, University of Oxford) have been conducting the trial at the International Livestock Research Institute (ILRI) Kapiti farm with a vaccine strain already proved to be safe for use against human diseases such as influenza, malaria, and Ebola. By developing a cross-species vaccine the researchers are adopting a 'One Health' approach to vaccine design.

## COMBATTING CRIMEAN-CONGO HAEMORRHAGIC FEVER

Pirbright's Dr Nick Lyons and Dr Georgina Limon-Vega, together with veterinarians from the Bulgarian Food Safety Agency, have begun a Crimean-Congo haemorrhagic fever (CCHF) vaccine trial in an area of Bulgaria known to be high risk for the disease. CCHF affects livestock animals but can also be transmitted to humans through the bites of infected Hyalomma ticks or contact with blood or fluids from infected animals or humans, with 10-40% of cases resulting in death.

Results from this study will show whether the vaccine, developed by Public Health England (PHE), is able to prevent infection after the animals are exposed to a natural variant of the virus under field conditions. Protecting susceptible animals will prevent CCHF from spreading between herds and reducing the risk to people. If successful, this could pave the way for the first licensed vaccine effective against CCHF.

## NEXT STEP IN ERADICATION OF PESTE DES PETITS RUMINANTS

Peste des petits ruminants (PPR), also known as goat plague, is highly contagious and infects small ruminants such as sheep and goats, causing up to 90% mortality. The disease is prevalent across large parts of Africa, the Middle East, India and China and is estimated to cost between US\$1.4 billion and US\$2.1 billion globally each year. In 2017, a global eradication programme was introduced to reduce the devastating impact PPR has in affected countries.

Pirbright scientists along with 40 vets co-ordinated a PPR vaccination campaign in a small village in India, where over 400 sheep and goats were vaccinated in a day. Farmers and local vets were also provided with expert guidance on diagnosing clinical signs of PPR and the measures they could take to reduce its spread. The initiative was funded by BBSRC UKRI and the Indian Government's Department of Biotechnology.

### **NETWORK GOES GLOBAL**

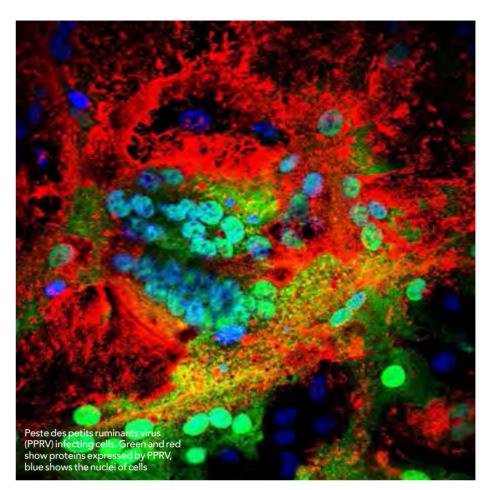
The Veterinary Vaccinology Network (VVN) officially handed over operations to the International Veterinary Vaccinology Network (IVVN) after its final annual conference in January 2019. Previous work undertaken by the VVN will continue through IVVN on an international scale. The IVVN, a partnership between Pirbright and The Roslin Institute funded by Medical Research Council (MRC) and BBSRC UKRI will provide conferences, workshops, funding, lab exchanges and scholarships, with a remit to address specific challenges in vaccinology for priority livestock and zoonotic diseases impacting low- and middle-income countries.

### POOLING EXPERTISE IN BIOIMAGING

Delegates from BBSRC UKRI institutes and close collaborators attended the first meeting of the Inter-Institute Imaging Network (IIIN) at Pirbright in November 2018. New technologies have rapidly improved the



Delegates from BBSRC UKRI institutes come together for the Inter-Institute Imaging Network





precision and functionality of the tools that can be offered to scientists to answer their biological research questions, which is an essential tool for researchers across multiple fields of biology. However, many research institutes have unique bioimaging challenges due to the type of research they conduct. The network has been set up to promote collaboration and encourage discussion on the challenges and solutions of working in bioimaging and increasing the resources available across the network.

## A PARTNERSHIP FOR CONTROLLING LIVESTOCK DISEASE IN MONGOLIA

Pirbright researchers have partnered with scientists in Mongolia in order to improve their ability to assess the effectiveness of livestock vaccines. A series of workshops were held to help Mongolian scientists develop a progressive control pathway for foot-and-mouth disease, sheeppox and goatpox, a series of incremental steps that will help better manage these diseases. The workshops entailed setting up models for the study of vaccines used in the field to show whether they have been effective at protecting the animals. The results of these tests inform national control plans for these diseases.

## PIRBRIGHT JOINS NEW 'ONE HEALTH' POULTRY HUB

The potential for new animal diseases to emerge and 'spill over' into humans continues to cause global concern. To combat the increasing risk from viral diseases that spread from animals to humans Pirbright is among the international experts that have formed the 'One Health' Poultry Hub. The 'One Health' approach taken by the Hub, which is funded by UK Research and Innovation (UKRI) through the Global Challenges Research Fund (GCRF), recognises that human, animal and environmental health are inter-related, and so collaborative, interdisciplinary efforts in research, policy and management of zoonoses are needed.

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Pirbright has established partnerships all over the world and was involved in 154 projects with both commercial and academic partners and collaborators in 53 countries during 2018-19.



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## **OUR SUCCESS STORIES**

Our staff have been recognised for their successes, both within the Institute through our staff awards and by external stakeholders and partners, reinforcing the value placed on Pirbright's role in preventing and controlling viral disease.



Professor Bryan Charleston, Director and CEO of The Pirbright Institute, has oeen awarded an Honorary Professorship from the Jniversity of Edinburgh.



Dr Claire Colenutt received the Innovation in Animal Healthcare award at the 2018 Guildford Innovation Awards. Dr Colenutt won the award for the creation of a new foot-andmouth disease virus (FMDV) field test, which improves disease surveillance



PhD student Veronica Martini received the In Vivo Skills Award from BBSRC UKRI. The £17,600 funding will give Veronica the opportunity to learn new skills to progress her swine influenza research.



Professor Satya Parida, who leads the Vaccine Differentiation Group has oeen awarded an Honorary Professorship from the Royal Veterinary College.



Dr James Kelly was elected to sit on the Microbiology Society Policy Committee from January 2019. This committee is responsible for overseeing the development and delivery of the policy

framework to support the Society's strategic objectives.

and alleviates the burden that it places on many smallholders and subsistence farmers who are reliant on foot-and-mouth disease

(FMD) susceptible livestock.



At the European foot-andmouth disease (EuFMD) open session conference in October 2018 research assistant **Emma Brown** won best poster prize for her poster 'Evaluating

the efficiency of environmental sampling methods for the detection and quantification of foot-and-mouth disease virus'.



Dr Britta Wood, a postdoc at the Institute in the World Reference Laboratory for Foot-and-Mouth Disease (WRLFMD) and Deputy of the WRL Virology Section, won best oral

presentation at the European Association of Veterinary Laboratory Diagnosticians 2018 conference.



Animal Technician Louise Carder won Pirbright's 3Rs award for her invaluable work in training pigs in order to reduce stress in a high containment laboratory environment. The annual

Pirbright 3Rs Award aims to highlight an outstanding contribution to the 3Rs animal research framework at the Institute (Reduction in numbers, Refinement of procedures, Replacement with laboratory procedures) by recognising an individual, team or group who have implemented alternative approaches with a direct benefit to the 3Rs.

Students Rachel Nash, Matthew Edmans and Fatoumatta Jobe won the best talk prizes at Pirbright's Student Day, while Lucy Gordon, Matthew Brownsword and Veronica Martini were awarded prizes for their poster presentations. Prizes were also awarded for public engagement to Abigail Hay, David King and Sofia Riccio.

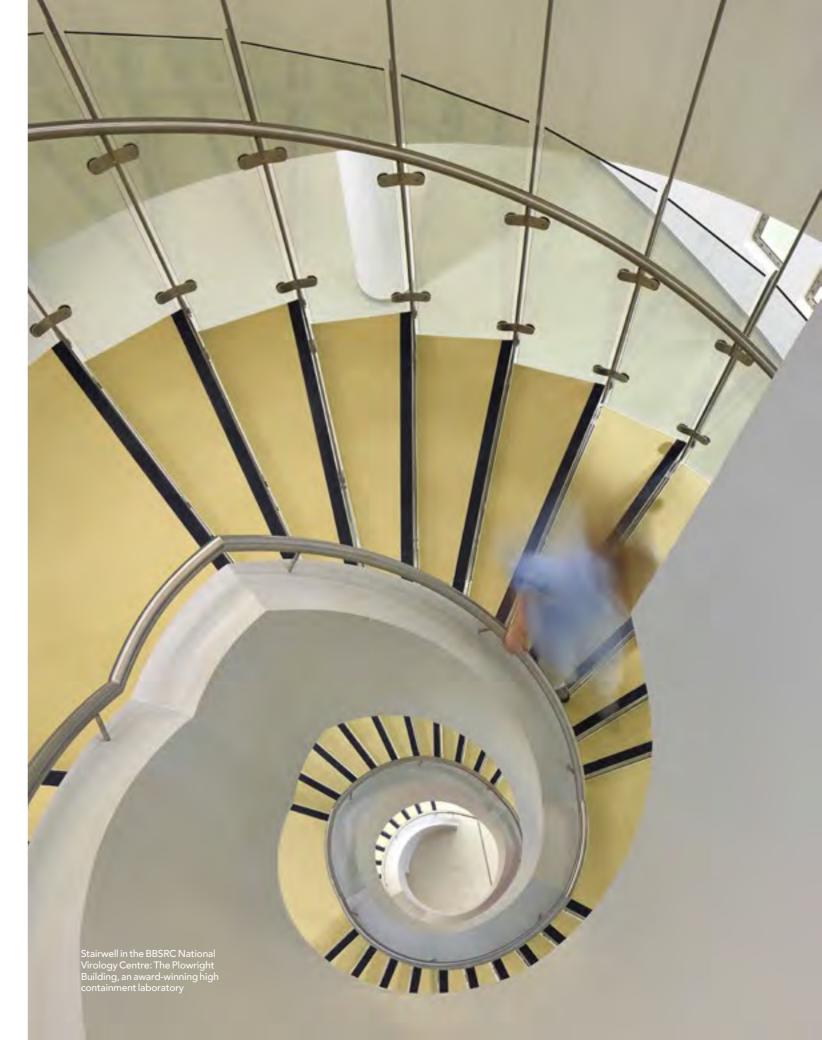


From left to right: Fatoumatta Jobe, Matthew Edmans, Lucy Gordon, Matthew Brownsword, Rachel Nash



### **CELEBRATING 60 YEARS OF THE WRLFMD**

The World Reference Laboratory for Foot-and-Mouth Disease (WRLFMD) celebrated its 60 Year Anniversary in November 2018 with a two-day symposium which brought together leading scientists from around the globe. The milestone was marked with the erection of 'The Bull', a complete replica of the original brick bull that was set into the brickwork of the original reference laboratories in 1967, that could not be saved during demolition of the labs in 2018. The WRLFMD provides the UK with its capability to respond and control any potential outbreak of FMD as well aiding its prevention by offering diagnostics and surveillance services and advice to countries worldwide.



THE PIRBRIGHT INSTITUTE ANNUAL REPORT 2019 Pirbright PIRBRIGHT'S PEOPLE Pirbright THE PIRBRIGHT INSTITUTE ANNUAL REPORT 2019 **PIRBRIGHT'S SUCCESS** 

## **DEVELOPING OUR CULTURE AND WORKFORCE**

Pirbright's people are passionate about delivering outstanding scientific research and operational support, and we are committed to making Pirbright a fantastic place to work and one where our staff can choose to develop their careers. Pirbright's PRIDE values (Passion, Reliability, Innovation, Dignity and Respect, Excellence) underpin all aspects of the culture at Pirbright and promoting equality, inclusion and valuing diversity is fundamental to Pirbright's mission and goals.

#### **CELEBRATING DIVERSITY**

We continue to enjoy success in recruiting talent from around the globe with new starters joining last year from 18 different countries. These employees enrich the community within the Institute by bringing diverse experiences and view-points, helping us attract the best staff and building our reputation in the UK and globally. To further enhance this, we provide unconscious bias training and ensure that our interview panels are diverse.

We take our commitment to Equality and Diversity seriously and this remains integral to how we develop and improve our people

Total students

**GENDER** 

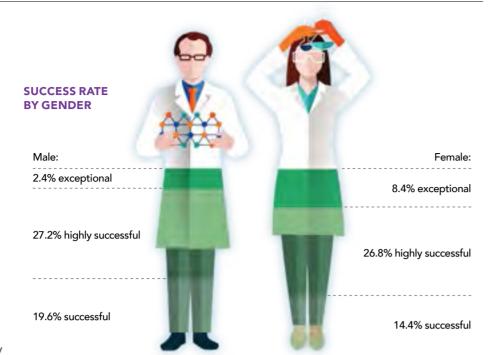
**BREAKDOWN** 

Female staff

178 (50%)

Male students

26 (39%)



Managing performance is a key management priority, in terms of supporting people to meet organisational objectives and their own personal development objectives. Females outperformed their male colleagues in the 'exceptional' performance category last year, with other ratings being relatively evenly split.

practices and ensure that everyone has access to the same opportunities and fair treatment. We support a range of different working patterns to provide flexibility and are pleased that a number of people have taken advantage of shared parental leave. We are committed to reducing the gender pay gap at Pirbright and in our pay award in 2018 58.2% of female employees and 47.4% of male employees received a bonus performance reward. Our gender pay gap report is published annually on our website. We are working hard to address our gender pay gap through ensuring that our processes and approaches align to our equality, diversity and inclusion (EDI) culture.

In 2018-19 an extensive programme of training and development for our employees

Male staff

178 (50%)

Female students

41 (61%)

Total full-time staff

314 (88%)

Total staff

356

Total part-time staff

staff and

students

was delivered, and a comprehensive e-learning portfolio is available to all. In addition, the apprenticeship programme has provided opportunities in a range of

During the year our leaders and managers have all participated in a leadership training programme which will be followed up with a practical management skills programme to ensure that our managers continue to grow their capability and competence to support and encourage our people to reach their full potential.

#### LOOKING AFTER OUR PEOPLE

Employee wellbeing is hugely important and increasingly our focus is on holistic wellbeing (mind and body). We provide a comprehensive health surveillance programme, monthly occupational health clinics, and a free, confidential Employee Assistance Programme. We ran a Wellbeing Day in November 2018 where a range of health and wellbeing benefits were provided - over 150 people were involved. We regularly promote health awareness topics and have trained a number of our staff as mental health first aiders to provide a first line of peer support to those who may need it. We also provide workshops for managers to give guidance and support in managing absences.

All of these initiatives signal our desire to provide our employees with the best pride in contributing to our world-leading, ground-breaking research and the positive impact we create.

opportunities and environment to reach their personal and professional fulfilment and take

### **WORLD-CLASS EXPERTISE**

Pirbright prides itself in attracting top talent, whether it be scientists, technical biosafety experts or skilled engineers. By attracting the best people, we continue to deliver leading-edge research to combat the spread of devastating diseases.



studied mosquito immune responses to Rift Valley fever virus (RVFV) at the University of Glasgow before moving to the University of Oxford to study immune recognition of RNA viral genome composition and structure. With the emergence of arboviruses such as Zika, chikungunya and RVF and the associated significant threat to public and animal health and local economies, Isabelle's work aims to identify novel strategies to control arbovirus replication and transmission by their mosquito



**ERICA BICKERTON** Originally joining Pirbright in 2006 as a PhD student.

Erica has recently become a Group Leader of Coronaviruses following a successful fellowship. Erica's work utilises molecular virology, next generation sequencing and reverse genetics to characterise the pathogenicity determinants of the gammacoronavirus, infectious bronchitis virus (IBV). The aim of this research is to develop new vaccines for better control of IBV and other coronaviruses.



strategic oversight of all information technologies and oversee the IT department. Chris has over 25 years of experience in information technology across a diverse range of sectors, 18 years of which have been in a management position. Chris has a keen interest in cloud technology and will be exploring ways to develop and utilise emerging technology at Pirbright.

> **JAROSLAW KRZYWINSKI** Jarek's research focuses on the molecular systemics and

genomics of mosquitoes. He heads up Pirbright's Vector Molecular Biology Group which explores novel ways, rather than insecticides, to control mosquito-borne diseases. His group's research is designed to gain a greater understanding of the basic biology of mosquitoes, particularly the mechanisms of sex determination and sperm production in Anopheles gambiae and how this can be applied to controlling mosquito populations, thus preventing the spread of disease.

## **PIRBRIGHT PERFORMANCE**

### FROM 2019/20 PIRBRIGHT'S PRINCIPAL OBJECTIVES ARE:

- 1 To continue a world leading research programme by publishing groundbreaking scientific research, winning research funding and recruiting and retaining the brightest and the best staff and students.
- 2 To further develop the Pirbright long term vision of scientific research with impact, in particular enhancing our collaborations with agencies improving disease control in low and middle-income countries.
- **3** To continue to implement the fully funded development programme to provide additional animal research facilities to study high consequence pathogens. These facilities will further enhance the Institute as a unique National and International Capability.
- **4** To develop strong strategic collaborations with other global centres of excellence to support the Institute science programme grants.
- 5 To diversify our funding through greater collaboration with international partners via various new funding opportunities.
- 6 To maintain our high containment infrastructure, to manage the safety, security, environment and quality risks from our work with high consequence pathogens, and to provide training and expertise to external partners in these areas.

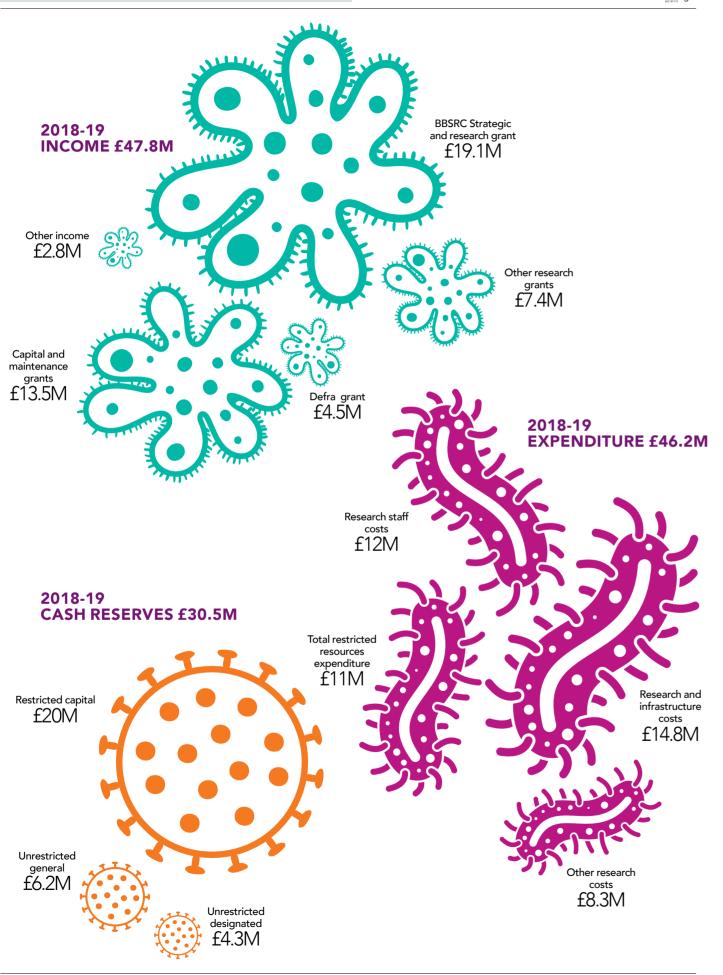
### PIRBRIGHT'S KEY PERFORMANCE INDICATORS ARE:

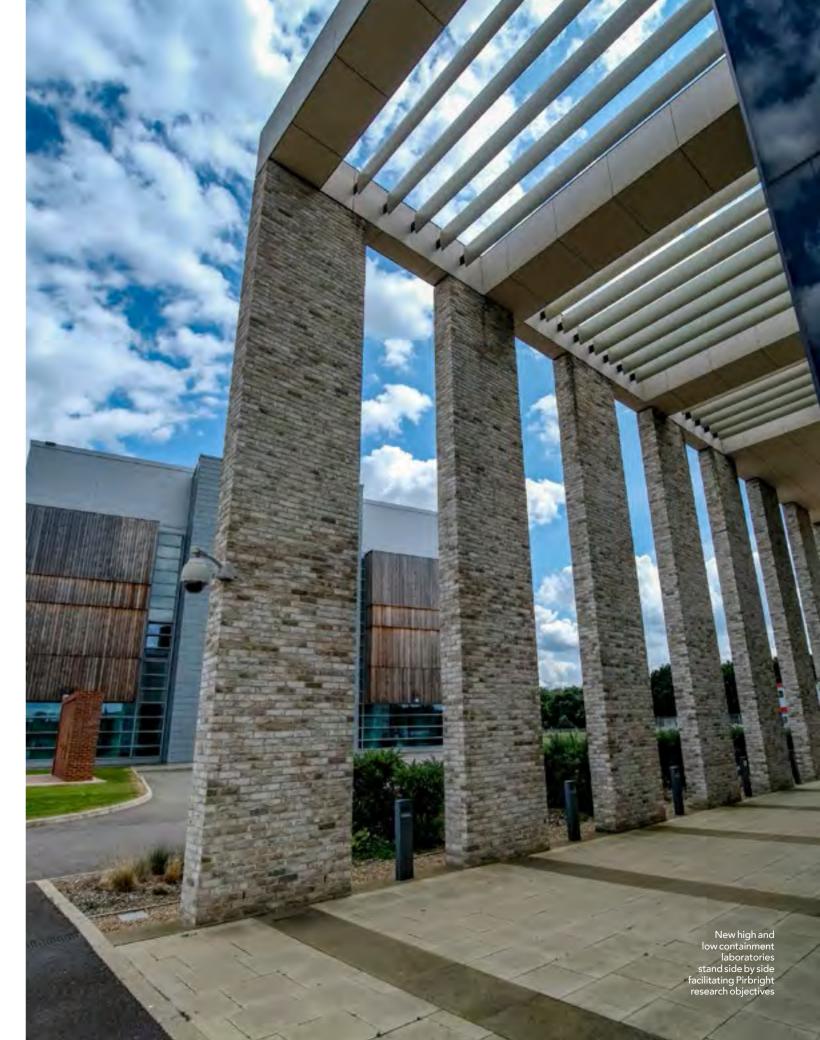
- Publications in relevant scientific journals; being one paper per postdoctoral scientist per year
- Submission levels and success rates for research grant proposals; going from 25% to 30% over the next five years
- Recruitment and retention of high-quality staff and students; to achieve less than 15% annual staff turnover within five years
- Annual research income of £11 million externally won funding each year over the next five years
- Compliance with all statutory requirements as a Major Hazard site, close cooperation with regulators, and conformity to applicable standards such as ISO/IEC 17025.

### **OUR PERFORMANCE AGAINST KPIS 2018-19:**

- •We published 131 papers in a range of high-impact journals achieving an average 1.05 publications per post-doc in the year
- Grant application success rates for 2018-19 were 58%, the average success rate over the past three years was 46%
- The annual grant income for 2018-19 was £17 million, exceeding the £11 million target by over 50%

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+ Fees + Supplemental Resources &	Select Application Trans New Case Data His		Published Address & Supplemental Assignments Reference Occuments Attorney/Agent Content Assignments Reference	y Download <b>Ve</b> es					
Support	Bibliographic Data								
Patent Information	Application Number:	15/328,179	Correspondence Address Customer Number:	4743					
Patent Guidance and General Info	Filing or 371 (c) Date:	01-23-2017	Status:	Patented Case					
<ul><li>(http://www.uspto.gov/patents/index.</li><li></li></ul>	Application Type:	Utility	Status Date:	10-31-2018					
★ Employee & Office Directories     ★ Resources & Public Notices	Examiner Name:	LI, BAO Q	Location: (i) (http://www.uspto.gov/ebc/portal/info_location.htm)	ELECTRONIC					
Patent Searches	Group Art Unit:	1648	Location Date:	-					
Patent Official Gazette (http://www.uspto.gov/news/og/pater   Search Patents & Applications	ட்டூரிக்கூசுந்தா Number:	6270	Earliest Publication No:	US 2017- 0216427 A1					
+ Search Biological Sequences	Attorney Docket Number:	30699/51455	Earliest Publication Date:	08-03-2017					
+ Copies, Products & Services	Class / Subclass:	424/205.100	Patent Number:	10,130,701					
Other	First Named Inventor:	Erica Bickerton , Pirbright, Woking, (GB) all Inventors	Issue Date of Patent:	11-20-2018					
Copyrights (http://www.uspto.gov/main/profiles/o	First Named Applicant: opyright.ntm)	THE PIRBRIGHT INSTITUTE , Pirbright, Woking, (GB) all Applicants	International Registration Number (Hague):	-					
Trademarks (http://www.uspto.gov/trademarks/ind	Entity Status:	Undiscounted	International Registration Publication Date:	-					
Policy & Law (http://www.uspto.gov/main/policy.htm Reports	ATA (Final Tananahan ka	Yes							
(http://www.uspto.gov/main/checksta	tus.htm)								
	Title of Invention:	Coronavirus							
	about Patent Applica • If you experience te 1 800-786-9199.	Electronic Business Center at (866) 217-9197 (toll free) or ation Information Retrieval (PAIR). chnical difficulties or problems with PAIR outside normal Pa ons about USPTO programs to the USPTO Contact Center (	atent Electronic Business Center hours (M-F, 6AM to 12	2AM ET), please call					

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	Select Applic New Case Da	cation Transaction Image File Patent Te ata History Wrapper Adjustmen		Display eferences				
	Transaction History							
	Date	<b>Transaction Description</b>						
Patent Information Patent Guidance and General Info	11-20-2018	Sequence Moved to Public Da	tabase					
(http://www.uspto.gov/patents/index.	s <b>þ1-20-2018</b>	Recordation of Patent Grant Mailed						
<ul><li>★ Codes, Rules &amp; Manuals</li><li>★ Employee &amp; Office Directories</li></ul>	11-01-2018	Email Notification	Email Notification					
	10-31-2018	Issue Notification Mailed						
	11-20-2018	Patent Issue Date Used in PTA	A Calculation					
Patent Searches Patent Official Gazette	10-05-2018	Dispatch to FDC						
(http://www.uspto.gov/news/og/patent	199/04F2018	Application Is Considered Rea	dy for Issue					
<ul><li>★ Search Patents &amp; Applications</li><li>★ Search Biological Sequences</li></ul>	10-03-2018	Issue Fee Payment Verified						
Copies, Products & Services	09-17-2018	Workflow - Drawings Finished						
Other	10-03-2018	Issue Fee Payment Received						
Copyrights	07-11-2018	Sequence Forwarded to Pubs on Tape						
(http://www.uspto.gov/main/profiles/documents)	% <sup>1</sup> 97-261	Email Notification						
(http://www.uspto.gov/trademarks/ind	Ф7js⊉7-2018	Mail PUB other miscellaneous	communication to applicant					
Policy & Law (http://www.uspto.gov/main/policy.htm	07-13-2018	PUB Other miscellaneous com	nmunication to applicant					
	07-03-2018	Electronic Review						
	07-03-2018	Email Notification						
	07-03-2018	Mail Notice of Allowance						
	06-29-2018	Notice of Allowance Data Veri	fication Completed					
	06-25-2018	Reasons for Allowance						
	06-02-2018	Date Forwarded to Examiner						
	05-18-2018	Response after Non-Final Acti	on					
	02-20-2018	Electronic Review						
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	02-20-2018	Mail Non-Final Rejection						
	02-15-2018	Non-Final Rejection	Privac	cy - Terms				

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02-14-2018	Information Disclosure Statement considered	
08-10-2017	Email Notification	
08-03-2017	Application ready for PDX access by participating foreign offices	
08-03-2017	PG-Pub Issue Notification	
07-27-2017	Case Docketed to Examiner in GAU	
07-26-2017	Email Notification	
07-26-2017	Email Notification	
06-26-2017	371 Completion Date	
07-25-2017	Application Is Now Complete	
07-25-2017	Application Dispatched from OIPE	
07-25-2017	FITF set to YES - revise initial setting	
06-26-2017	Patent Term Adjustment - Ready for Examination	
07-26-2017	Notice of DO/EO Acceptance Mailed	
07-26-2017	Filing Receipt - Updated	
06-23-2017	Additional Application Filing Fees	
06-26-2017	Preliminary Amendments	
01-23-2017	Copy of the International Application	
06-26-2017	A statement by one or more inventors satisfying the requirement under 35 USC 115, Oath of the	Applic
04-24-2017	Information Disclosure Statements	
04-24-2017	Information Disclosure Statement (IDS) Filed	
04-24-2017	Electronic Review	
04-24-2017	Email Notification	
04-24-2017	Email Notification	
04-24-2017	371 Supplemental Fees Missing - Form M923	
04-24-2017	Filing Receipt	
01-23-2017	PTO/SB/69-Authorize EPO Access to Search Results	
01-23-2017	Applicants have given acceptable permission for participating foreign	
01-23-2017	CRF Disk Has Been Received by Preexam / Group / PCT	
02-01-2017	CRF Is Good Technically / Entered into Database	
01-23-2017	Cleared by OIPE CSR	
01-23-2017	ENTITY STATUS SET TO UNDISCOUNTED (INITIAL DEFAULT SETTING OR STATUS CHANGE)	
01-23-2017	Initial Exam Team nn	Privacy - Terms

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**USPTO BACKGROUND** 

FEDERAL GOVERNMENT

## federal Employee Profile — Bao Q. Li

## Bao Q. Li

Title: Patent Examiner (Job titles are sourced from the OPM. Keep in mind that the OPM has a limited set of job classifications with which to describe a wide variety of employees, so in some cases a generic job classification will be used if a more specific one is not available.)

Agency: Patent and Trademark Office

In 2018, Bao Q. Li was a Patent Examiner at the Patent and Trademark Office in Frederick, Maryland. As our dataset only goes as far back as 2004, it is likely that has worked in the federal government prior to 2004.

Bao Q. Li is a GS-14 under the general schedule payscale.

Year	Occupation	Paygrade	Base Salary	Bonus	Location
2018	Patent Examining	GS-14	\$140,666	\$3,067	Frederick, Maryland
2017	Patent Examining	GS-14	\$136,759	\$3,067	Frederick, Maryland
2016	Patent Examining	GS-14	\$135,405	\$4,013	Frederick, Maryland
2015	Patent Examining	GS-14	\$130,232	\$5,500	Frederick, Maryland
2014	Patent Examining	GS-14	\$128,941	\$5,369	Frederick, Maryland
2013	Patent Examining	GS-14	\$123,911	\$5,575	Frederick, Maryland
2012	Patent Examining	GS-14	\$123,911	\$6,490	Frederick, Maryland
2011	Patent Examining	GS-14	\$120,156	\$700	Alexandria, Virginia
2010	Patent Examining	GS-13	\$111,213	\$0	Alexandria, Virginia
2009	Patent Examining	GS-13	\$109,572	\$0	Alexandria, Virginia
2008	Patent Examining	GS-13	\$103,443	\$986	Alexandria, Virginia
2007	Patent Examining	GS-13	\$98,643	\$0	Alexandria, Virginia
2006	Patent Examining	GS-13	\$87,621	\$0	Alexandria, Virginia
2005	Patent Examining	GS-13	\$83,219	\$0	Arlington, Virginia
2004	Patent Examining	GS-13	\$78,652	\$0	Arlington, Virginia

### FederalPay's Employee Information Policy

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Q Run a people search on Bao Q. Li 🗗

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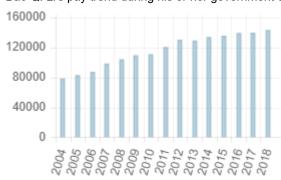
Bao Q. Li's 2018 pay is



higher than the average Patent Examiner across all agencies. Bao Q. Li's 2018 pay is



higher than the average pay of a GS employee at the Patent and Trademark Office. Bao Q. Li's pay trend during his or her government career in the Patent and Trademark Office:



### **Data Sources**

The information provided on these pages is sourced from the Office of Personnel Management (OPM) 🗗 Enterprise Human Resources Integration (EHRI) 🗗 dataset. Postal Service data is managed exclusively by the USPS 🗗. All information is displayed unmodified and as provided by the source agency.

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<sup>\*\*</sup> This Document Provided By www.FederalPay.org - The Civil Employee's Resource \*\*
Source: www.federalpay.org/employees/patent-and-trademark-office/li-bao-q

A / <u>USPTO</u> / <u>TC 1600</u> / <u>Group 1640</u> / <u>Art Unit 1648</u> / <u>Examiner Li</u>

## **Examiner Bao Q Li**

## **Employment Information**

Group:	Immunology, Receptor/Ligands, Cytokines Recombinant Hormones, and Molecular Biology
Classes:	compositions  435 — Chemistry: molecular biology and microbiology  506 — Combinatorial chemistry technology: method, library, apparatus  514 — Drug, bio-affecting and body treating compositions  530 — Chemistry: natural resins or derivatives; peptides or proteins; lignins or reaction products thereof  536 — Organic compounds — part of the class 532-570 series  800 — Multicellular living organisms and unmodified parts thereof and related processes
Art Unit:	1648
Title:	Patent Examiner
Phone:	(571) 272-0904
Location:	Alexandria
Degree:	First Professional
Service:	19 years
Grade:	GS-14

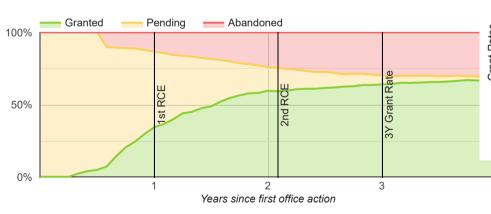
## **Grant Rate and Difficulty Ranking**

3-Year Grant rate:	64% over 292 cases
Difficulty: 2	Medium
Difficulty Percentile: 2	50th

With Examiner Li, you have a 64% chance of getting an issued patent by 3 years after the first office action. Examiner Li is a medium examiner and in the 50th percentile across all examiners (with 100th percentile most difficult).

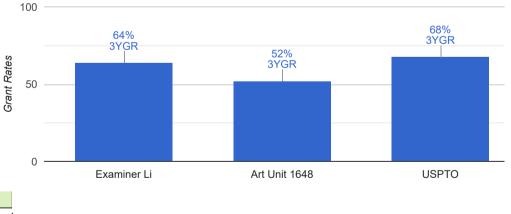
## **Grant Rate Timeline**

Below is the grant rate timeline for Examiner Li, where the timeline is relative to the date of the first office action. The three-year grant rate is the percentage of applications granted at three years after the first office action.



## Comparison with Art Unit 1648

Examiner Li's grant rate is higher than that of Art Unit 1648 and lower than that of the USPTO.



### **Grant Rate without Interview**

Examiner Li has granted 106 of 187 cases without any applicant-requested interviews for a grant rate of 57%.

Loading...

### **Grant Rate with Interview**

Examiner Li has granted 81 of 105 cases with at least one applicant-requested interview for a grant rate of 77%.

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### Interview Benefit

With Examiner Li, conducting an interview increases your chance of getting a patent granted by 35%.

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## **Recent Dispositions**

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Number	Title	Status	0
US20190248875A1	Zika Virus Vaccine Composition And Application Thereof	Patented	View
US20170340722A1	Novel Immunization Agents And Methods Of Use	Patented	View
US20180028833A1	Recombinant Self-Assembling Protein Comprising Target-Oriented Peptide And Use Thereof	Patented	View
US20180250385A1	Methods For Inducing Protective Immunity Against Human Immunodeficiency Virus Infection	Patented	View
US20170233450A1	Virus Like Particle Comprising Pd-1 Antigen Or Pd-1 Ligand Antigen	Patented	View
US20160022807A1	Methods And Compositions For In Vivo Immune Stimulation And Antigen Production	Patented	View
US20180127728A1	Baculovirus-Based Production Of Biopharmaceuticals Free Of Contaminating Baculoviral Virions	Patented	View
US20150306203A1	Synthetic Peptide-Based Emergency Vaccine Against Foot And Mouth Disease (Fmd)	Patented	View
US20170362278A1	Mammalian Cells Expressing Cytomegalovirus Antigens	Patented	View
US20180216201A1	Compositions And Methods For Detecting Human Papillomavirus Nucleic Acid	Patented	View
US20170326224A1	Compositions, Methods And Uses For Improved Human Papilloma Virus Constructs	Patented	View
US20180117104A1	Cancer Therapy With A Parvovirus Combined With A Bcl-2 Inhibitor	Patented	View
US20180155696A1	Methods And Compositions Relating To Viral Latency	Abandoned	View
US20170009284A1	Compositions And Methods For Detection Of Hepatitis A Virus Nucleic Acid	Patented	View
US20160200775A1	Virus Like Particle Comprising Modified Envelope Protein E3	Patented	View
US20170369931A1	Compositions And Methods For Detecting Zika Virus	Patented	View
US20160331832A1	Purification Of Herpes Virus	Patented	View
US20180127480A1	High Affinity Cd47 Analogs	Patented	View
US20170224807A1	Newcastle Disease Virus Vectored Avian Vaccines	Patented	View
US20170320918A1	Recombinant Proteins Of Parapoxvirus Ovis And Pharmaceutical Compositions Therefrom	Abandoned	View

### **Appeals Statistics Available with Subscription**

We have history of 29 appeals for this examiner. Please <u>subscribe</u> for full access to appeals statistics.

## **Appeals Statistics Available with Subscription**

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# 288a

APPOINTMENT of director or secretary (NOT for resignation (use Form 288b) or change of particulars (use Form 288c))

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County / F	Region					Country			
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†Other directo		LLOYDS TSB GROUPPHU ZENECA GROUP PIC							
(additional space ov	enear) r	I consent to act as ** director / secretary of the above named company							
Consent sign * Voluntary details.	ature	Band	1 /0 /	ine		Date	6.31	4/47	
† Directors only.	, Г	A directo	or, secretary	etc mus	t sign	the form be	elow.		
Si	gned	$\mathcal{L}$	~			Date	03 #	<i>777</i> /30	¢ 1987
** Please delete as appropriate		(**a-director	/ secretary / a <del>dmir</del>	iotrator/ad	minietrat	tive receiver-/rec	eiver-manag	or / rocoivor)	<u> </u>
Please give the name, address telephone number and, if available a DX number and Exchange of the person Companies House should contact if there is any guery.	e, of	JARY V	warsina une Ar war Mesa	ANVW	<del>ار بد</del>	032 Mu 2-2800	Mest.	<u> </u>	هس
contact if there is any query.	_	DX num			exch	ange		-	
		When you have completed and signed the form please send it to the							

Form revised March 1995

\*AYDQM0WT\*

COMPANIES HOUSE 05/11/97

Registrar of Companies at:

Companies House, Crown Way, Cardiff, CF4 3UZ DX 33050 Cardiff for companies registered in England and Wales or

Companies House, 37 Castle Terrace, Edinburgh, EH1 2EB

for companies registered in Scotland DX 235 Edinburgh

	Company Number		r
† Directors only.	<sup>†</sup> Other directorships	·	
	ru ve ve s		

### **NOTES**

Show the full forenames, NOT INITIALS. If the director or secretary is a corporation or Scottish firm, show the name on surname line and registered or principal office on the usual residential line.

Give previous forenames or surname(s) except:

- for a married woman, the name by which she was known before marriage need not be given.
- for names not used since the age of 18 or for at least 20 years

A peer or individual known by a title may state the title instead of or in addition to the forenames and surname and need not give the name by which that person was known before he or she adopted the title or succeeded to it.

### Other directorships.

Give the name of every company incorporated in Great Britain of which the person concerned is a director or has been a director at any time in the past five years.

You may exclude a company which either is, or at all times during the past five years when the person concerned was a director, was

- dormant
- a parent company which wholly owned the company making the return, or
- another wholly owned subsidiary of the same parent company.



## **CH02** (ef)

## **Change of Particulars** for Corporate Director



THE INSTITUTE FOR ANIMAL HEAD Company Name:

Company Number: 00559784

Received for filing in Electronic Format on the: 12/11/2009

Details Prior to Change

Position: **DIRECTOR** 

Original Name: THE BIOTECHNOLOGY AND BIOLOGICAL SCIENCES RESEARCH

COUNCIL

New Details

12/11/2009 Date of Change:

New Service Address: POLARIS HOUSE POLARIS WAY

> **SWINDON** WILTSHIRE

UNITED KINGDOM

**SN2 1UH** 

European Economic Area (EEA) Company

New Register Location: POLARIS HOUSE, POLARIS WAY, SWINDON, SN2 1UH

New Registration Number: XXXX