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UK Vaccine Network

The UK Vaccine Network brings together industry, academia and relevant funding bodies to make targeted investments in specific vaccines and vaccine technology for infectious diseases with the potential to cause an epidemic.

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Role of the group

Vaccines are widely recognised as an important mechanism in controlling infectious disease outbreaks. However, outbreaks of some of the world's deadliest diseases only occur intermittently, and often in the world's poorest countries, meaning that there may not be a strong market incentive to for the pharmaceutical industry to develop vaccines for such diseases.

The UK government is taking concerted and coordinated action to address this market failure. The UK has committed to invest £120 million between 2016 and 2021 for the development of new vaccines for such diseases, in line with the expert advice provided by the UK Vaccines Network.

The focus of the Network is to support the government to identify and shortlist targeted investment opportunities for the most promising vaccines and vaccine technologies that will help combat infectious diseases with epidemic potential, and to address structural issues related to the UK's broader vaccine infrastructure.

Membership

The UK Vaccine Network is made up of leading experts from academia, industry and policy. All members are invited to join the Network in a personal capacity, not as representatives of specific organisations or bodies.

Chair

Members

- Adrian Hill
- Andrew Pollard
- Bryan Charleston
- Charlie Weller
- Charlotte Watts
- Chris Whitty
- Christian Schneider
- Eleanor Riley
- Fiona Tomley
- Gary Entrican
- Jean Lang
- Jeffrey Almond
- Joann Prior
- Johan Van Hoof
- John Edmunds
- Jonathan Pearce
- Julian Bonnerjea
- June Raine
- Mahesh Kumar
- Massimo Pamlarini
- Melanie Saville
- Michael Francis
- Miles Carroll
- Neil Ferguson
- Nick Adkin
- Peter Openshaw
- Simon Foster
- Stephen Inglis
- Steve Chatfield
- Sue Middleton
- Tarit Mukhopadhyay
- Timothy Atkins
- Xiao-Ning Xu

Working groups

The Vaccine Network operates through a series of working groups. Each group has a specific focus and they feedback their findings to the Network. A full list of contributors for each working group is listed at the bottom of this page.

Working group 1: Identify and prioritise human and zoonotic diseases

Chair: Miles Carrol, Public Health England.

Working group 1 identifies and prioritises human and zoonotic diseases with epidemic potential in human or animal populations, for which vaccines can have an outbreak altering impact. The group also looks for gaps in knowledge

about these diseases (including basic pathogen biology and host immunology), and where human and veterinary vaccinology can learn from each other. The group's findings are used to inform the investment strategy for the £120 million budget.

The pathogens for which investment in vaccine development was identified as a priority by the UK Vaccine Network are:

- Chikungunya virus
- Crimean Congo Haemorrhagic Fever (CCHF) virus
- Ebola virus
- Hantavirus
- Lassa Fever virus
- Marburg virus
- Middle Eastern Respiratory Syndrome (MERS) virus
- Nipah virus
- Plague (*Yersinia pestis*)
- Q fever (*Coxiella burnetii*)
- Rift Valley Fever virus
- Zika virus

Working group 2: Understand how a vaccine will impact on an epidemic disease outbreak

Chair: Eleanor Riley, The Roslin Institute.

Working group 2 aims to develop a systematic, shared understanding of under what circumstances a vaccine is likely or unlikely to have an impact on an epidemic disease outbreak. This includes outbreaks where the pathogen is not currently known, and what vaccine technologies could play an important role in future outbreaks. The group has created a [decision tool](#) based on this work.

Working group 3: Produce a process map for vaccine development, from discovery to deployment

Chair: Tarit Mukhopadhyay, University College London.

Working group 3 produces process maps for vaccine discovery, development, manufacture and deployment. These will help to understand where the main rate limiting steps are for any given vaccine and mean that these can be addressed efficiently. See the [process maps](#).

Working group 4: Look at the manufacture of vaccines

Chair: Jeffrey Almond, University of Oxford.

Working group 4 considers questions around the manufacture of vaccines, such as:

- where could a small scale or large scale facility make a difference in the UK?
- what could we build, and where/with whom could or should we collaborate with?
- what existing facilities are there that could support scale-up for manufacture of small stockpiles?

Competitions

The Department of Health and Social Care is funding a number of projects to develop candidate vaccines for priority pathogens and to develop technologies and processes to support vaccine manufacturing and delivery in low and middle income countries (LMICs). A total of over £71 million has been committed to date.

The following table shows a summary of the research competitions held to identify successful projects. The attachment below the table has further information about individual projects. In addition, in 2016, £2.95 million of the Network's budget was used to make a one-off donation to the PATH product development partnership.

Delivery partner	Competition theme	Funding provided
Innovate UK	Vaccine Development Competition 24 projects supported over 3 competition strands: pre-clinical clinical; and second stage competition to further support successful pre-clinical projects	£18,598,036
	Preclinical Vaccine Development Competition 22 projects supported in the first stage. A second stage competition will offer further support to successful projects	£9,621,879
	Clinical Vaccine Development Competition – 7 projects supported, all including clinical stage work	£21,340,452
National Institute for Health Research (NIHR)	Medical Research Council / Biotechnology and Biological Sciences Research Council (BBSRC) Intramural Centre led projects – 6 projects funded to support late pre-clinical research and early clinical development of vaccine candidates	£12,027,347
Engineering and Physical Sciences Research Council (EPSRC)	Centre for Innovative Vaccine Manufacturing – grant awarded to develop a collaborative vaccine manufacturing hub	£9,947,570
NIHR	Epidemiology for Vaccinology Competition – one large grant and a number of smaller grants to support development of epidemiological models, tools and technologies for use during outbreaks	About £5 million (not yet allocated)
BBSRC	'One-Health' Vaccinology Competition – number of smaller grants to support antigen discovery and disease understanding for viral and bacterial families that impact on animal and human health in LMICs.	About £5 million (not yet allocated)



[Projects currently being funded by the Department of Health through the UK Vaccine Network](#)

PDF, 145KB, 12 pages

Working group contributors

Working Group 1	Working Group 2	Working Group 3	Working Group 4
Adrian Hill	Adrian Hill	Adrian Hill	Adrian Hill
Andrew Simpson	Brendan Wren	Brendan Wren	Andrew Hopkins
Beata Kampmann	Bryan Charleston	Charlie Weller	Bassam Hallis

Bryan Charleston	Chris Whitty	Chris Whitty	Calman MacLennan
Chris Whitty	Dirk Pfeiffer	Diane Williams	Catriona Crombie
Elisabeth Innes	Eleanor Riley	James Wood	Charlie Weller
Gary Entrican	Fiona Tomley	Jeffrey Almond	Chris Whitty
Gordon Dougan	John Fazakerley	Jeremy Salt	David Churchward
Ivan Morrison	Jon Cuccui	Jonathan Rushton	David Griffiths-Johnson
Joann Prior	Jonathan Pearce	Mahesh Kumar	Ian Rees
John Edmunds	Mahesh Kumar	Mark Carver	Jeffrey Almond (Chair)
Jonathan Pearce	Mary Collins	Matthew Downham	Jon Mowles
Josie Golding	Mike Turner	Michael Francis	Michael Watson
Margaret Hosie	Neil Ferguson	Mike Udell	Mike Murray
Mark Stevens	Nigel Silman	Miles Carroll	Miles Carroll
Massimo Pamlarini	Rob Field	Nigel Silman	Neil Baker
Michael Francis		Nilay Shah	Nigel Titchener-Hooker
Miles Carroll (Chair)		Niranjan Kanesa Thasan	Nilay Shah
Neil Ferguson		Niranjan Kanesa-Thasan	Niranjan Kanesa Thasan
Nigel Silman		Rachel Smith	Peter Large
Rob Noad		Rino Rappuoli	Peter McCormack
Roger Hewson		Sarah Gilbert	Phil Sizer
Sandra Adams		Simon Foster	Richard Alldread
Sarah Gilbert		Stephen Inglis	Richard Hebdon
Sarah Plowman		Steve Carleysmith	Sarah Gilbert
Tony Fooks		Steve Chatfield	Stephen Inglis
Xiao-Ning Xu		Tarit Mukhopadhyay (Chair)	Steve Chatfield
Adrian Hill		Xiao-Ning Xu	Subhash Chaudhary
Andrew Simpson		Tarit Mukhopadhyay	
Beata Kampmann		Tony Hitchcock	
Bryan Charleston		Virginia Acha	

Publications

[UK Vaccine Network project: annual review 2018 to 2019](#)

[Vaccines Project annual review: 2018](#)

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