



**THE JENNER
INSTITUTE**
DEVELOPING INNOVATIVE VACCINES



MRC CiC Tropical Infectious Disease Consortium

Simon Draper

Jenner Institute

10th February 2016

Jenner Reborn

- **1995-2005**

- Edward Jenner Institute for Vaccine Research
- Glaxo – UK government partnership
- located at Compton, Berkshire
- focus on immunology underpinning vaccine design

- **November 2005**

- Merger with Oxford University and the UK Institute for Animal Health (now The Pirbright Institute) to found the Jenner Institute
- supported by a specific charity The Jenner Vaccine Foundation

The New Jenner Concept

- Provide critical mass in vaccine design and development
- Exploit synergies in human and veterinary vaccine development
- Share essential core facilities and know-how
- Focus on facilitating translation



- **Global Health & Tropical Medicine**
 - vaccines that make a difference
 - HIV, TB, malaria, FMDV
 - Food security
- **Emerging Outbreak Pathogens / Rapid Response**
 - Ebola, MERS, Rift Valley Fever
- **Translational Research**
 - rapid early-phase clinical testing
 - >35 vaccines made for clinical trials



- **One Health Agenda**
 - vaccines for humans and other animals
- Tuberculosis: human and bovine
- Respiratory Syncytial Virus: human and bovine
- Influenza: human, swine and avian
- Rift Valley Fever: human, caprine and ovine
- **Technology development**
 - Viral Vectors
 - Protein expression and VLP platforms
 - Vaccine adjuvants

Jenner Structure

- **Jenner Investigators**
 - 31 in total: their research groups comprise the Institute
- **Director of the Jenner Institute**
 - Adrian Hill
- **Board of Trustees of the Jenner Vaccine Foundation**
- **International Scientific Advisory Board**
 - Chaired by Jonathan Heeney

Institute Strategy: “Crossing the Valley of Death”



- **Prioritise**

- Preclinical PoC - innovative new vaccine platforms with comparative testing
- Rapid early-phase testing in humans – Phase I/II
- Preferably with early efficacy endpoints (controlled human infection models)
- Diseases where there are human-veterinary synergies

- **Platforms**

- Viral vectored delivery platforms
- Protein expression and VLP technologies
- Access to the broad science base in Oxford
- Core Facilities – viral vectors, adjuvant bank, transcriptomics, flow cytometry
- Cost-effective cGMP biomanufacture
- Rapid clinical trials in a favourable regulatory environment

- **Funding:** WT Strategic Awards and >10 MRC DCS/DPFS Awards

Old Road Campus Research Building



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DEVELOPING INNOVATIVE VACCINES

Clinical Biomanufacturing Facility



Centre for Clinical Vaccinology and Tropical Medicine



New Technologies in Development...

- RNA immuno-monitoring to search for improved correlates of safety, immunogenicity and efficacy
 - Potential to identify new encoded adjuvants for vectored vaccines
- Elution of HLA, BoLA, SLA pathogen epitopes from infected cells
 - Mass spectrometry to define T cell targets – malaria, HIV, TB, *Theileria*
- Microencapsulated delayed release boosters
 - To allow single dose regimes
- Thermostabilised sugar-membrane formulations
 - PoC for viral vectors, VLPs and adjuvants

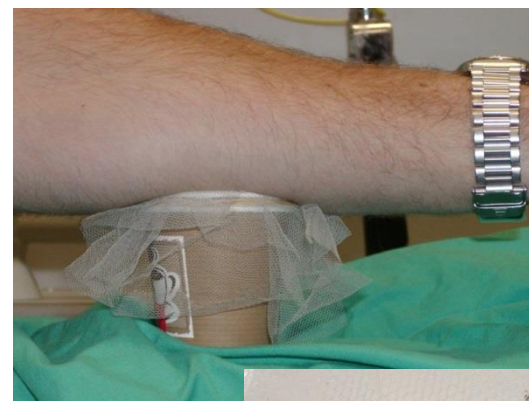
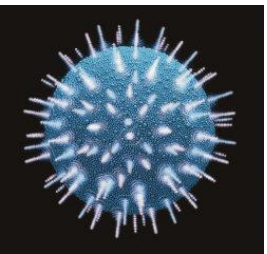
Rapid Clinical Trial Capacity

- Over 150 clinical trials undertaken in the last decade
 - over 100 of these with vaccines designed / manufactured in Oxford
 - over 2000 volunteers enrolled in UK trials per annum
 - Allows rapid down-selection of the most promising candidates in humans

Phase IIa “Challenge Trials”

Controlled Human Infection Models (CHIM)

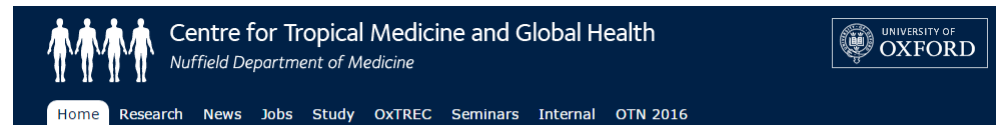
- Malaria
 - *P. falciparum* (*P. vivax*)
 - Sporozoite – mosquito bite / needle & syringe
 - Blood-Stage Inoculation
- Influenza
- BCG for TB
- Typhoid & Paratyphoid



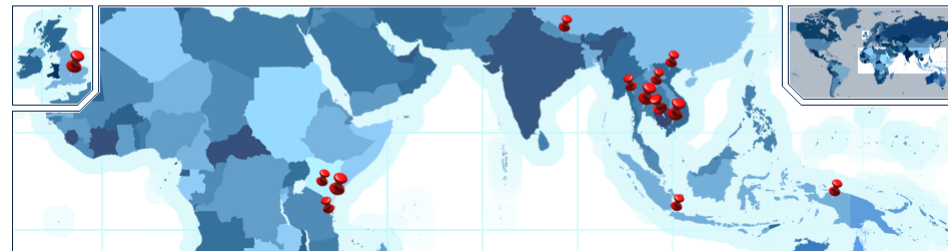
Overseas Trials



- KEMRI-Wellcome Programme, Kilifi, Kenya
- Kenyan AIDS Vaccine Initiative Nairobi, Kenya
- South African TB Vaccine Initiative, Western Cape
- Cheikh Anta Diop University, Dakar, Senegal
- CNRFP, Ouagadougou, Burkina Faso
- Uganda Virus Research Institute & MRC Laboratories, Entebbe, Uganda
- Patan Hospital, Kathmandu, Nepal
- MRC Laboratories, The Gambia



[Kenya \(KWTRP\)](#) [Thailand \(MORU\)](#) [Vietnam \(OUCRU\)](#) [UK Centre](#) [MSc International Health and Tropical Medicine](#) [Graduate Studies](#)



A new Ebola vaccine based on a chimpanzee adenovirus vector is being assessed in Oxford and in West Africa to determine whether it is safe and immunogenic, as part of a global rapid response programme.



Ebola Programme

Research Programmes

- [Malaria](#) 
- [Ebola](#) 
- [Human TB](#) 
- [Bovine TB](#) 
- [Human Flu](#) 
- [Avian & Swine Flu](#) 
- [HIV](#) 
- [Hepatitis C](#) 
- [Human Papilloma Virus](#) 
- [Meningitis](#) 
- [Parkinson's](#) 
- [Staphylococcus aureus](#) 
- [Prostate Cancer](#) 
- [Foot-and-Mouth Disease](#) 
- [Other Livestock Diseases](#) 
- [Genetic Susceptibility to Infection](#) 
- [Oxford Martin](#) 
- [Vector Engineering](#) 
- [Vaccine Delivery Technology](#) 

Public Engagement

Tweets Follow 

 **Jenner Institute** @JennerInstitute 7h

Adrian Hill on vaccines for #Ebola - don't miss this! twitter.com/OxfordMedSci/s...

Expand   

 **NIHR Oxford BRC** @OxfordBRC 8 Feb

Free play on ethical issues in medical research at JR, Oxford Wednesday and Friday, tickets:

News

[Blueprint: Oxford's Ebola experience](#)
Posted 08/02/2016


Outbreak: Lessons from Ebola. On 6 December 2013 a two-year-old boy called Emile Ouamouno died of a serious illness in a small village in Guinea. A month later Emile's three-year-old sister, his mother and grandmother were all dead. This was the start of an Ebola epidemic that swept through West Africa in 2014, killing over 11,000 people and infecting nearly 30,000.

[Synthetic biologists use bacterial superglue for](#)

Seminars

Various Speakers: MRC CIC Tropical Infectious Disease Consortium Meeting, **10/Feb/2016 09:00**

Dr Graham Taylor: Epstein-Barr virus vaccines: a fight on two fronts, **12/Feb/2016 11:00**

[All Seminars](#) 

Clinical Trials

Clinical trials are an essential part of vaccine development, and our volunteers play a critical