



Some thoughts on....

Novel tools and technologies to accelerate vaccines research

Workshop 5th February 2015, BIS Conference Centre, 1 Victoria Street, London, SW1H 0ET

Dr Georgina Drury, Infection & Immunity Board, MRC

Why am I here?

- Update you on MRC's developing vaccines research strategy
 - What do we want to do to support the MRC research community in this space?
 - What do we want to do to support the vaccinology community more holistically?
- Update you on cross-council activities and discussions
- And why are we doing all of this?

**.... to enable greater synergies
between the veterinary, and human
vaccinology research communities**



MRC vaccines strategy - background

Vaccines research – strategically important area, MRC 'regularly' reviews

- 2007 review led to a call in 'Translational vaccines research'
- January 2014 – review group
- **Aim:** To formulate strategic advice to the MRC on future investments in vaccines research
 - What are the strengths, weaknesses in vaccines research?
 - What are the barriers to progress and opportunities for vaccines research?
 - Who should MRC be working with to deliver the next generation of vaccines?



2014 Review - Emerging themes

Basic science

- Correlates of immune protection
- Life-course, immune aging
- Adjuvants, universal antigens

Novel tools and technologies

- Broadly applicable Vs disease-related
- Reverse vaccinology, systems, structural
- Synthetic biology
- Bioprocessing, chemical engineering

Infrastructure

- Costs of translation
- Access to biomanufacturing facilities

In vitro and in vivo models

- Capacity for in vivo in UK
- Most informative model for the disease
- Relate to real human challenge

Partnerships

- Cross-disciplinary
- Industry – SMEs in UK
- Current funding – should anything change for the future?
- Virtual institute?

Public health needs

- Infections in the elderly
- Disease of significance for the UK – cancer, dementia
- Easy targets have been done!

Recommendations

- Increase competitive applications in novel areas and underpinning platform technologies
- Support cross-disciplinary partnerships

How will we do this?

1. Hold a **cross-Council workshop** to facilitate networking and determine scope of a potential highlight
2. Research Councils to work in partnership to support cross-disciplinary **grant applications**
 - Joint Highlight notice in novel tools and technologies for vaccines to build on disease-led approaches



Cross-Council Workshop - format

- 5th February 2015 – Department for Business Innovation and Skills
- Full day workshop
- **Attendees:**
 - MRC vaccinology community; BBSRC vaccinology community; Veterinary Vaccines network; EPSRC vaccine bioprocess engineers – e.g. UCL CIMEMT; Industrialists – large, SME, UK and European
- **The Meeting:**
 - Talks
 - 'Speed dating' networking session
 - Breakout discussions on novel tools and how to use them

Cross-Council Workshop – outcomes?

- Bring together academics and industrialists across broad remit - **form new networks and partnerships**
- Provide Councils with information on how to support the community moving forward
 - **Explore co-funding opportunities**
- Stimulate response-mode applications to all councils in this strategically important area
 - **to MRC, BBSRC and EPSRC**



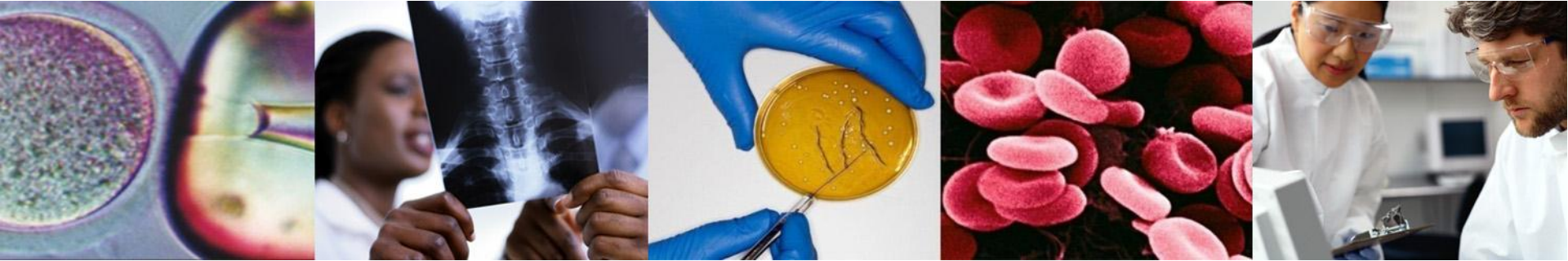
Scope?

- Consider all areas of science relating to vaccines R&D pipeline
 - **Alternative Model Systems, including human and animal challenge models**
 - **Platform Technologies**
 - Novel vaccinology approaches e.g. reverse, structural, synthetic
 - Delivery mechanisms
 - Protein expression systems
 - Antigen identification approaches
 - Scale-up/scale-down manufacture methods
 - **Novel Tools**
 - Adjuvants, immune modulators

Future outlook

Next steps for the councils / research community?

- Councils to continue send the message
 - Vaccines research is strategically important and we want to fund it!
 - High quality, competitive applications
 - Novel tools and technologies – multidisciplinary partnerships
 - Not the only area!! Novel immunology, host-response – correlates of protection.....
- Talk to each other – collaborate
- Human, veterinary, engineering and vaccine production – where relevant!
- Develop proposals
- Talk to industry



Thank you.