Workshop 8

How can recent technological advances in systems vaccinology accelerate next-generation vaccine development?
Goal 4. Develop and introduce new and improved vaccines and technologies

- **4.1.** licensure and launch of vaccine(s) against one or more major currently non-vaccine preventable disease by 2020

- **Milestones:** incremental progress on development to be reported and assessed by SAGE
  - no. of products in phase 1, 2 and 3 clinical trials
Advanced technologies for evaluation of vaccine responses

Single cell analysis
high dimensional & heterogeneous large complex datasets and analysis computational hurdles

Systems vaccinology
Advanced Technologies

• NIAID: Genomics and Advanced Technologies
  • http://www.niaid.nih.gov/topics/pathogengenomics/Pages/Default.aspx
    – genomics, proteomics, and bioinformatics, hold great promise for developing new diagnostics, therapeutics, and vaccines to treat and prevent infectious and immune-mediated diseases.

• EU-FP7: Advanced Immunization Technologies (ADITEC) http://www.aditecproject.eu/home.html
  – aims to accelerate the development of novel and powerful immunisation technologies for the next generation of human vaccines: From basic research, new technologies to clinical trials and public health

• EU-IMI: BioVacSafe - Biomarkers for enhanced vaccines immunosafety http://www.biovacsafe.eu/
  – develop cutting edge tools to speed up and improve the testing and monitoring of vaccine safety
Key questions

• How can technological advances, modelling and systems vaccinology accelerate vaccine development?
  – Biomarkers / predictors of vaccine efficacy and safety?

• How to allow for smaller, faster and earlier clinical trials?

Targetted outcomes:

  – Considerations for a scientific and regulatory framework for (proof of concept) clinical studies
Panel

Bali Pulendran, Emory University
  Systems vaccinology for the evaluation of vaccine response and identification of critical pathways

Willem Hanekom, SATVI, BMGF
  Application of technological advances to clinical trials

David Lewis, University of Surrey
Emmanuel Hanon, GSK
Pieter Neels, Vaccine Advice BVBA