BactiVac Network

DCVMN Webinar
28 February 2019, 9:00am (GMT+01:00)
Prof Cal MacLennan

Directors: Profs Cal MacLennan & Adam Cunningham
BactiVac: the need
Causes of world-wide deaths

- No vaccines for many globally significant bacterial infections
- Part of solution to antimicrobial resistance (AMR)
- No existing vaccine network focused on bacterial infections

Selectively the young & the elderly

- e.g. Autoimmunity
- e.g. Arthritis
- e.g. Asthma

Cause & control of cancer

Infectious diseases (25%)†

13.3 million

Cardiovascular diseases (31%)

Cancers (13%)

Injuries (11%)

Respiratory (6%)

Maternal and perinatal (5%)

Digestive (3%)

Other (6%)

†Includes multi-drug resistant pathogenic bacteria.
BactiVac: the vision
Accelerating development of vaccines against bacterial infections relevant to LMICs

- Create a sustainable network for vaccine development
- Catalyst project and training funding
- Attract investment/leverage funding for LMICs/UK
- Advocacy for the development of bacterial vaccines
What will BactiVac achieve?
BactiVac: our approach
Support new collaborations through catalyst funds (project and training)

- **Projects**
  - Typically **£50k** for up to 6 months’ duration
  - Exceptionally **£100k** for up to 12 months’ duration
  - Pre-clinical to clinical transition

- **Training**
  - Up to **£6k available**, 
  - Training visit for up to 3 months’ duration

Partnerships (new) to generate preliminary data to go to funding bodies (proof of concept / collaboration)
Bacterial vaccine development pipeline and focus of funding opportunities

LMIC involvement

- Explor.
- Pre-clinical
- Clinical Development and Trials
- Reg.
- PMC

Preclinical POC → Clinical POC → File → Launch

BactiVac catalyst pump - prime focus

BactiVac training
BactiVac: our successes
Rapid and continuing growth (18/02/19)
Global reach and engagement

- **671** members in **63** different countries
- **39%** members based in **LMICs** and **11%** in **industry**
BactiVac Members’ Directory

- Contains members’ profiles - Identify potential collaborators
- Network members can access full details (via login)
- Can search by:
  - Name
  - Institution
  - Country
  - Research expertise
BactiVac Inaugural Network meeting

- February 2018, Birmingham
- Speakers from academia, industry and agencies (WHO, Gates, NIBSC)
- **108 delegates** attended – oversubscribed with a waiting list
- **13 LMIC Travel Bursaries** awarded
- All other networks represented

Annual Network Meeting 2019:
20 & 21 March, Birmingham
Catalyst funding: training awards

- Training awards: 5/12 applications funded (totalling £23,052)
- 4/5 successful applicants based in LMICs
- 4 training awards completed
Round 1 training awards

Dr Ritu Amatya
Head of Microbiology Department
Nepal Medical College and Teaching Hospital, Nepal
Attendance at ADVAC Course

Dr Birendra Prasad Gupta
Assistant Professor
Tropical Disease Research Unit, Tribhuvan University, Nepal
Training visit to International Vaccine Institute, Seoul, South Korea
To expand knowledge of work on bacterial vaccine clinical trial protocol design to build on existing expertise.

Dr Achut Barakoti
Clinical Microbiologist
Nepal Medical College and Teaching Hospital, Nepal
Attendance at Vaccinology for Public Health & Clinical Practice in 21st Century

Dr Kan Kaneko
Post-doc Researcher
Liverpool John Moores University, UK
Training visit to Instituto Butantan, Brazil
To work on antigen production and preparation with a view to further collaborative research on novel vaccine formulations.

Dr Shizhong Geng
Associate Professor
Yangzhou University, China
Training visit to University of Birmingham, UK
Training in Molecular biology on bacterial vaccines.
Catalyst funding: pump-priming projects

Round 1:

- **12/21** applications funded (£601,414)
  - 9 with **LMIC involvement** (4 LMIC led)
  - 5 with **industry involvement** (3 industry led)
  - 1 led by **WHO**

- Different types of funding leveraged/in-kind contributions:
  - **Uncosted PI supervision time** (not an allowable cost)
  - **£42k** fEC 20% contribution by UK HEIs
  - **£190k** in-kind contributions
  - **Access to** data, reagents, lab infrastructure, sample storage, expertise, mentorship, etc.
Round 1 pump-priming projects

Dr Joseph Campo, Director of Operations, Antigen Discovery, Inc (ADD) (USA)
Protein antibody markers of pneumococcal carriage in support of protein and whole cell vaccine trial design using pneumococcal antibody screening.

Dr Roma Chilenji, Chief Scientific Officer, Centre for Infectious Disease Research in Zambia (Zambia)
Measurement of Shigella-specific antibodies in the first two years of life in Zambian children to refine correlates of protection and determine the optimal window for vaccination.

Dr Michael Jarvis, Associate Professor, The Vaccine Group (TVG) Ltd (UK)
Attenuated herpesvirus-based vaccines for low-cost antibiotic-independent control of bacterial disease in livestock - a proof of concept study.

Professor Constantino Lopez-Macias, Principle Investigator, Mexican Social Security Institute (Mexico)
Improving the production of a multivalent experimental vaccine against diseases induced by Salmonella enterica.

Dr Sean Elias, Post-Doctoral Scientist, University of Oxford (UK)
Measuring non-typhoidal Salmonella specific antibodies in oral fluid as a non-invasive alternative to serum.

Professor Daniela Ferraira, Reader in Respiratory Infection Immunity and Vaccines, Liverpool School of Tropical Medicine (UK)
Identification of correlates of protection against pneumococcal colonization.

Dr Pietro Mastroeni, Reader Infection and Immunity, University of Cambridge (UK)
Using General Modules for Membrane Antigens (GMMAs) as multivalent Salmonella vaccines for Low-Middle Income Countries (LMIC) and travellers.

Dr Esther Muthumbi, PhD Student, Research Medical Officer, KEMRI-Wellcome (Kenya)
Using seroepidemiology of non-typhoidal Salmonella (NTS) in Kenya to understand changes in risks of invasion and transmission and direct the clinical development programme for vaccines against NTS.

Boyle Gavrilov, Director, Biologics Development Facility, Havepharma EOOD (Bulgaria)
Supporting the development of a DIVA compatible glycoconjugate vaccine for brucellosis.

Dr Sami Gottlieb, Medical Officer, World Health Organization (Switzerland)

Dr Christine Rollfert, Research Scientist, University of Oxford (UK)
A novel bivalent vaccine to prevent both Salmonella Typhi and Paratyphi infections; proof-of-concept.

Dr Michele Simuyendi, Research Fellow, Centre for Infectious Disease Research in Zambia (Zambia)
Field evaluation and validation of a novel and rapid ETEC diagnostic assay in a resource limited setting.
Catalyst funding: pump-priming projects

Round 2:
- 8/11 applications funded (£477,572)
  - 7 with LMIC involvement (1 LMIC led)
  - 3 with industry involvement
- 1/8 contracts signed so far
- All projects due to start by 1 March 2019

Round 3:
- NOW OPEN
- Submission deadline 5 May 2019
- Funding available from 1 October 2019
Additional funding awarded to BactiVac

- **£600k** Industry Strategy Challenge Fund (ISCF) Feb 2018
- **£1M** Department of Health & Social Care (DHSC) Feb 2019

**Total BactiVac funding: £3.8M**
Network advocacy

- Hosted a visit from **UK International Development Minister**, Alistair Burt 22/02/18
- BactiVac representation at **WHO Group A Streptococcus Expert Consultation Meeting**
- **POST Note** on vaccines and AMR
- BactiVac ‘message’ disseminated to >1,500 **individuals** at key stakeholder meetings (WHO, Bill & Melinda Gates Foundation, Wellcome Trust, NIBSC)
- **986 followers** on Twitter
BactiVac: future
Opportunities

- BactiVac is a conduit to disseminate funding – **Flexibility**
- We are responsive and creative e.g. ISCF, DHSC
- We promote networking – our network networks!!
- Collaboration with other MRC/BBSRC/GCRF networks
- Developing partnerships with key stakeholders and policy agencies
- Advocacy brings additional benefits and opportunities
- Need to consider growing long-term future now
How will we continue…

- Grow our membership - targeted recruitment:
  - Pathogen gap analysis – via PubMed etc
  - Industry – via Department for International Trade (DIT), DCVMN
  - Under-represented LMICs – via UK Sciences and Innovation Network

- Annual Network Meetings

- Award catalyst project funding:
  - Round 1: monitoring progress, reporting
  - Round 2: contracts awarded, details posted on BactiVac website
  - Round 3: OPEN, closing 5 May, funding available 1 October 2019

- Network advocacy, stakeholder engagement

- Our ambition: to continue building critical mass & influence
Opportunities available through BactiVac

- **Join the Network – free membership!**
- **Annual Network Meetings:**
  - **2019:** 20 & 21 March, Birmingham, UK
  - **2020:** TBC, LMIC setting
  - Travel Bursaries
  - Grant Writing Workshops
- **Catalyst project funding:**
  - **Round 3:** OPEN, closes 5 May, 1 October 2019 start
  - **Round 4:** TBC, Autumn 2019
- **Catalyst training awards:** open call from March 2019
Work with us.....

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