



# Vaccines for Malaria - Updates on Progress

Discussion

Mahamadou A Thera, MD, MPH, PhD  
Scientific Director, BMP/MRTC  
University of Bamako

**The Global Vaccine and Immunization Research Forum (GVIRF)  
Johannesburg –South Africa, March 15-17, 2016**

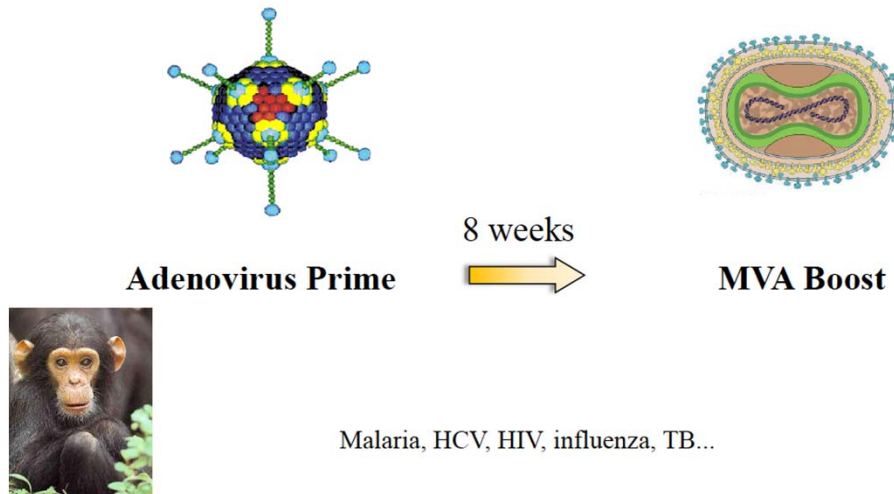
# Whole organism approach

- PfSPZ:
  - CPS:
    - 45 infectious mosquito bites under CQ prophylaxis: 100% of protective efficacy (n=10) (*Roestenberg et al., 2009*)
  - Irradiated SPZ:
    - by DVI 100% Protection in CHMI at 5 times  $1.35 \times 10^5$  (n=6) (*Seder et al., 2013*)
  - PfSPZ-CVAC
    - Use PfSPZ with the CPS chemoprophylaxis
  - PfGAP:
    - Genetically attenuated parasites

# Whole organism approach

- Challenge:
  - How to induce protective immune responses in people previously exposed to malaria?

# Viral vectored & prime boost approaches



*Ogwang C et al., Sci Transl Med. 2015*

- N= 121 adults male volunteers, Kilifi, Kenya
- ChAd63-ME-TRAP + MVA-ME TRAP,
- Protective efficacy against infection:
  - 67% [95% IC 33 - 83%;  $p = 0.002$ ], 8wks fu

Challenge: how this will look in high transmission areas??

# Vaccine that interrupts malaria transmission

- Could target each stage of parasite life cycle
  - PE, BS, ST
  - Sexual stages have been promoted
    - Pfs25: Pfs25 OMPC; Pfs25 EBA
- Challenge:
  - Field trials design

# CHMI African Network

- Established with support EDCTP
- Kenya, Tanzania, Mali, Gabon, Burkina Faso, Ghana
- Challenges
  - Harmonization/ Standard protocols
  - Regulatory pathway

# Ways forward

- Human resources in Africa
  - Develop and sustain CHMI sites in Africa
  - Fundamental sciences to better understand malaria host-parasite interactions
  - Next generation capacity of data analysis
- African government engagement