# NVAC Brief – DoD Ebola MCMs

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DTRA

# BPSC1001 (rVSV ZEBOV-GP) Vaccine
# NewLink Genetics/BioProtection Systems, Ames, IA

- **Partners**: DTRA has partnered with BioProtection Systems to develop and conduct Phase 1 Trials of BPSC1001 in adults in the USA
- **History:** The vaccine was originally developed with NIAID funding at University of Texas Medical Branch, and later by Public Health Authority of Canada.
- **Description**: Vesicular Stomatitis Vaccine with native glycoprotein (GP) deleted and GP of Zaire ebolavirus inserted
- **Manufacture**: Manufactured by IDT Biologika in Germany
- **Pre-clinical safety & efficacy in NHPs:**
  - No safety signal
  - Pre-exposure efficacy: single dose confers 100% protection to1000 LD50
  - Post-exposure efficacy: single dose confers 50% efficacy against 1000 LD50 on day of exposure
- **GMP Status:**
  - GMP vials stored at Public Health Authority Canada (PHAC)
- **GMP Manufacture**:
  - Additional lots are being manufactured

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- **IND Status**:
  - IND filed 21 August 2014
  - GLP mouse and NHP studies initiated August 2014
- **Human Experience:**
  - A single dose given for an instance of post-exposure use in a potentially exposed laboratory worker proved safe and well-tolerated
- **Phase 1 Trials:**
  - The Sponsor, BPS, has formed a Clinical Trials Working Group to coordinate Phase 1 trials to establish a rigorous safety database
  - Current and anticipated members include: Walter Reed Army Institute of Research (WRAIR), National Institutes of Allergy and Infectious Diseases (NIAID), PHAC, Germany, Gabon and the WHO.
  - WRAIR will start a Phase 1, double-blind, single immunization, dose escalation trial in healthy adults in October 2014
  - NIAID will start expanded Phase 1 studies with broader demographics in October/November 2014
  - Future studies and use to be determined

# BACKUP SLIDES

# ZMapp™ Antibody Therapeutic

Lead candidate Ebola therapeutic – monoclonal antibody cocktail

- Developed through an international collaboration between Mapp Biopharmaceuticals, USAMRIID, Defyrus LLC and the Public Health Agency of Canada; DTRA-JSTO contract awarded in Feb 2013
- Demonstrated 100% survival in NHPs when treated as late as 3 days post-infection with no associated toxicity
- Mapp currently employs the Rapid Antibody Manufacturing Platform (RAMP) at Kentucky BioProcessing (KBP), which offers potential surge capability
- DTRA-JSTO in collaboration with BARDA and NIAID will support advancement of ZMapp™ through IND submission (Dec 2014) and entry into Phase I Clinical Trials (Jan 2014):
  - JSTO will support non-clinical NHP efficacy studies
  - BARDA will conduct all cGMP manufacturing to support Clinical Trial studies
  - NIAID will conduct IND-enabling pre-clinical work and the Phase I Clinical Trial
  - Potential for Phase II Clinical Trial studies to be conducted in Africa

# ZMapp™ Antibody Therapeutic

- Interagency collaborators are working to explore other options for surging manufacturing capabilities:
  - DTRA-JSTO is exploring options for optimizing antibody expression to increase yield
  - Potential for cell-based manufacturing to complement tobacco-based manufacturing
  - DTRA-JSTO is conducting NHP dose response studies (Oct 2014) which may demonstrate ZMapp™ activity following fewer doses thereby increasing the overall output of treatment course manufacture
- Rat GLP safety toxicology studies have completed dosing with no overt signs of toxicity