Vaccine Activities Update

National Institute of Allergy and Infectious Diseases, National Institutes of Health

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National Institute of Allergy and Infectious Diseases

National Institute of Allergy and Infectious Diseases

May 16, 2016
TIME
The Zika Virus
It's a mysterious illness with devastating effects.
Is the next public health crisis in your backyard?
Plus
The controversial plan to genetically manipulate mosquitoes out of existence
time.com

Vaccines
Therapeutics
Diagnostics
NIH Research Response to Emerging Infectious Diseases
Basic Research
Clinical Research
Resources for Researchers/ Industry to Advance Product Development
AS Fauci/NIAID

NIAID Research Response

- Leveraging existing Program on Flaviviruses to rapidly start research on Zika

- Since January 2016, over 40 projects initiated to:
  - Understand basic biology/structure/evolution of virus and competence of the mosquito vectors
  - Develop vaccines, diagnostics, therapeutics and vector control strategies
  - Elucidate the mechanism of pathogenesis and congenital infection

Zika Vaccine Research

- DNA vaccine candidate
- Whole-particle inactivated virus vaccine
- Live-attenuated Zika chimera vaccine
- Vesicular Stomatitis Virus vectored vaccine
- mRNA vaccine candidate

Biomedical Research Response: Epidemiology and Natural History

- Epidemiology and natural history
  - Symptomatic vs. asymptomatic
  - Frequency of sequelae
  - Cohort studies to determine incidence of adverse pregnancy outcomes in Zika-infected pregnant women
- Pathogenesis of microcephaly

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National Institute of Allergy and Infectious Diseases (NIAID)

http://www.niaid.nih.gov

Wednesday, March 16, 2016

Experimental Dengue Vaccine Protects All Recipients in Virus Challenge Study

Credit: CDC

BD Kirkpatrick *et al*. The live attenuated dengue vaccine TV003 elicits complete protection against dengue in a human challenge model. *Science Translational Medicine* (2016)

Malaria Vaccine Research

- Phase 1 Trial: 101 healthy adults who had never had malaria
- PfSPZ Vaccine is composed of live, but weakened *P. falciparum* sporozoites
- First to show durable, sterile protection in people with no prior infection
- Authors note importance of both long-term, reliable protection (travelers, military personnel) and durable protection (malaria-endemic regions)

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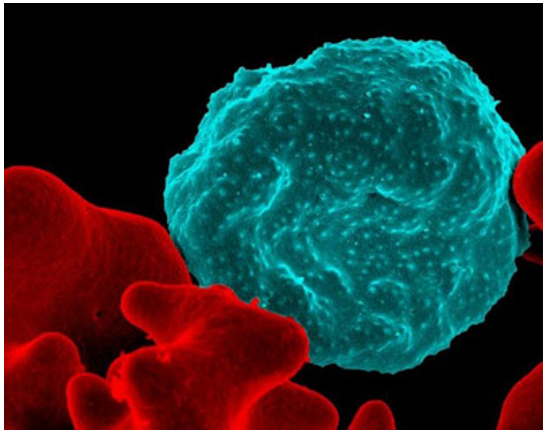
Monday, May 9, 2016

Investigational Malaria Vaccine Protects Healthy U.S. Adults for More than One Year



Credit: NIAID

AS Ishizuka *et al*. Protection against malaria at 1 year and immune correlates following PfSPZ vaccination. *Nature Medicine* (2016).

U.S. Department of Health and Human Services

NIH News

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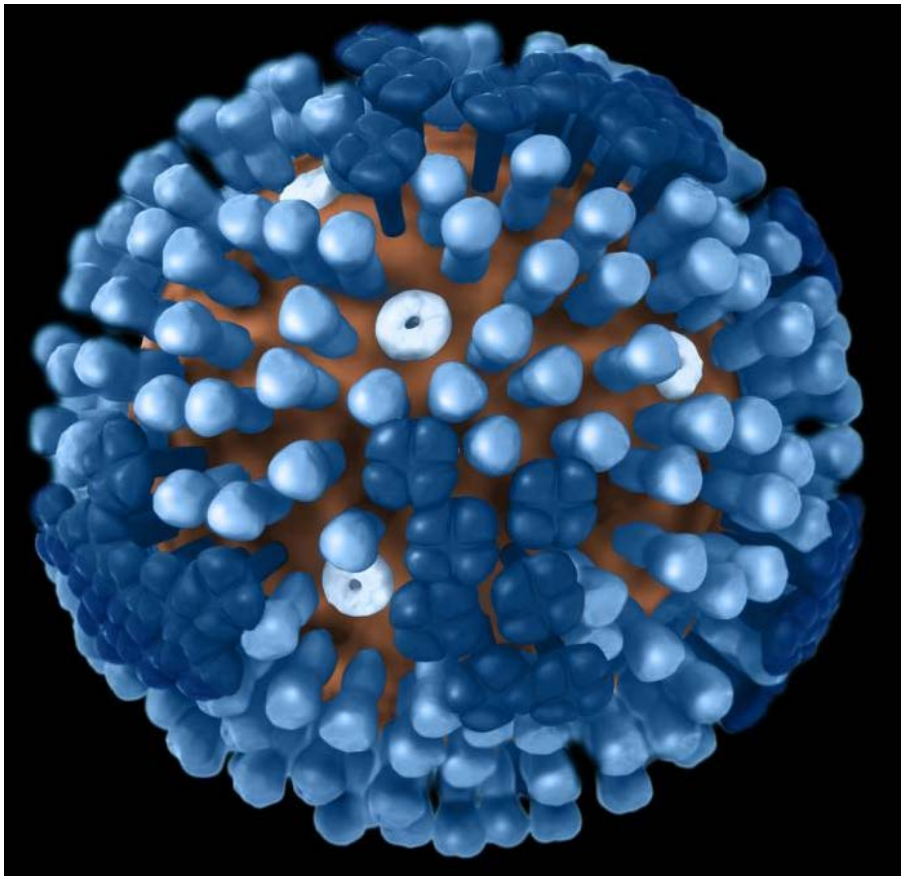
http://www.niaid.nih.gov

Monday, April 4, 2016

NIH Awards Six Grants to Explore How Combination Adjuvants Improve Vaccines

Influenza Vaccine Research



Credit: Dan Higgins

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National Institute of Allergy and Infectious Diseases (NIAID)

http://www.niaid.nih.gov
Tuesday, April 19, 2016

NIH Study Finds Factors that May Influence Influenza Vaccine Effectiveness

MJ Memoli *et al*. Evaluation of Antihemagglutinin and Antineuraminidase Antibodies as Correlates of Protection in an Influenza A/H1N1 Virus Healthy Human Challenge Model. *mBio* (2016)

NIH National Institute of Allergy and Infectious Diseases

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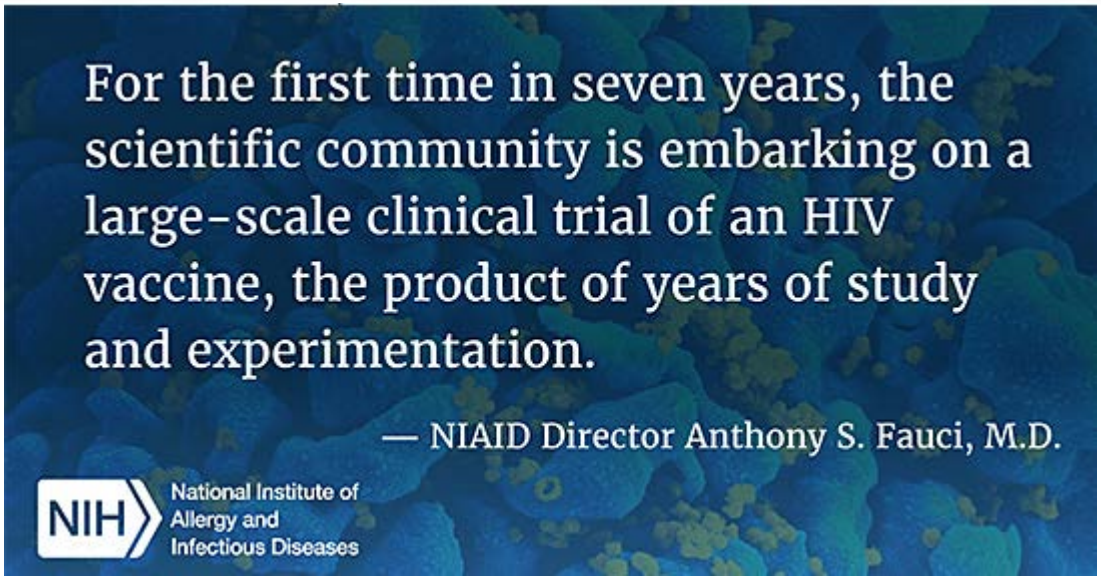
http://www.niaid.nih.gov

Wednesday, May 18, 2016

Large-Scale HIV Vaccine Trial to Launch in South Africa

NIH-Funded Study Will Test Safety, Efficacy of Vaccine Regimen