

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

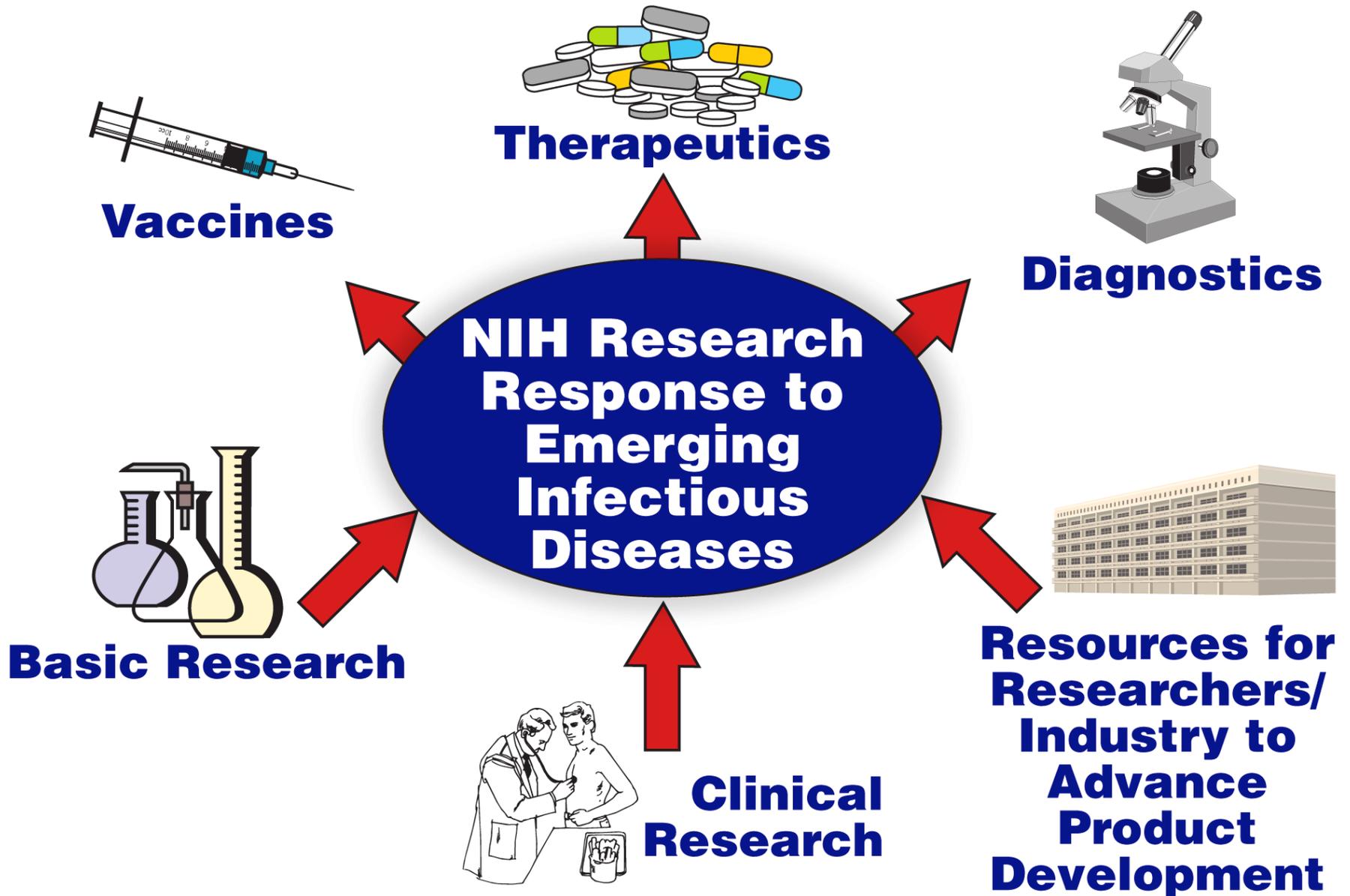
It's a mysterious illness
with devastating effects.

**Is the next public
health crisis in your
backyard?**

Plus

The controversial
plan to genetically
manipulate mosquitoes
out of existence

time.com



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

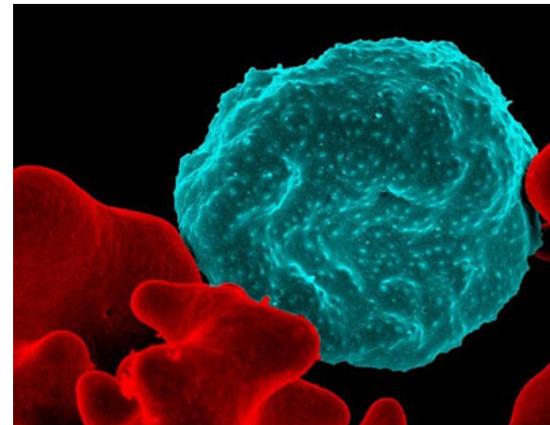
- Phase 1 Trial: 101 healthy adults who had never had malaria
- PfSPZ Vaccine is composed of live, but weakened *P. falciparum* sporozoites
- First to show durable, sterile protection in people with no prior infection
- Authors note importance of both long-term, reliable protection (travelers, military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



National Institute of Allergy and Infectious Diseases (NIAID)

Monday, May 9, 2016

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



Credit: NIAID



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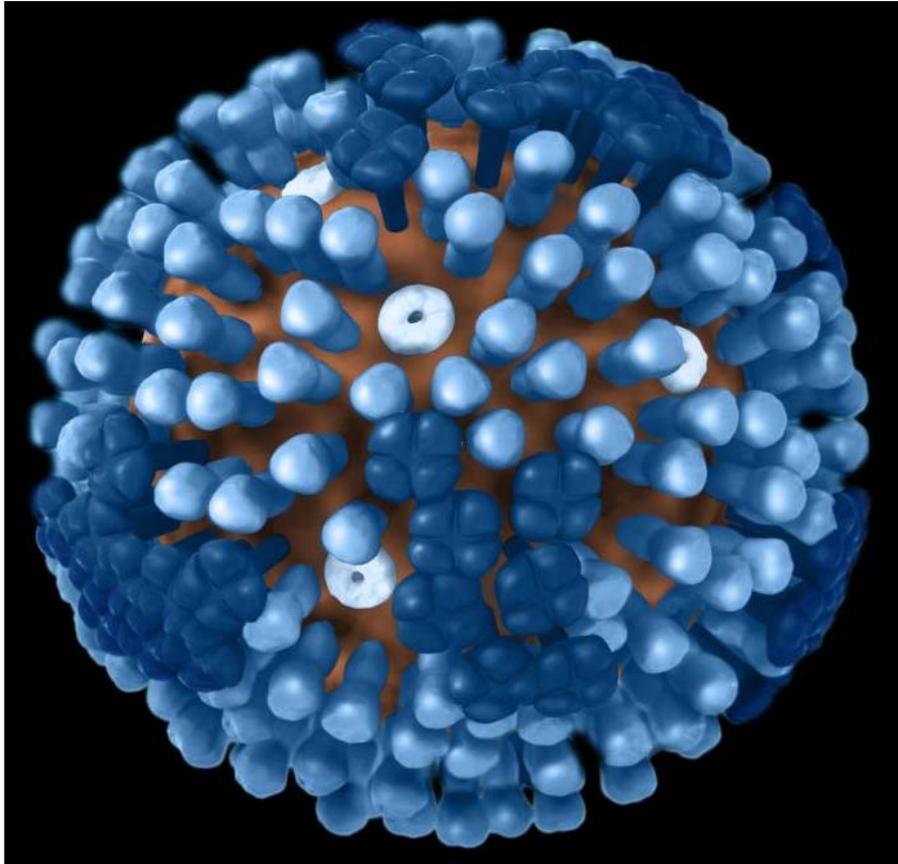
National Institute of Allergy and
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Monday, April 4, 2016

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)



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Wednesday, May 18, 2016

Large-Scale HIV Vaccine Trial to Launch in South Africa

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

For the first time in seven years, the scientific community is embarking on a large-scale clinical trial of an HIV vaccine, the product of years of study and experimentation.

— NIAID Director Anthony S. Fauci, M.D.



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