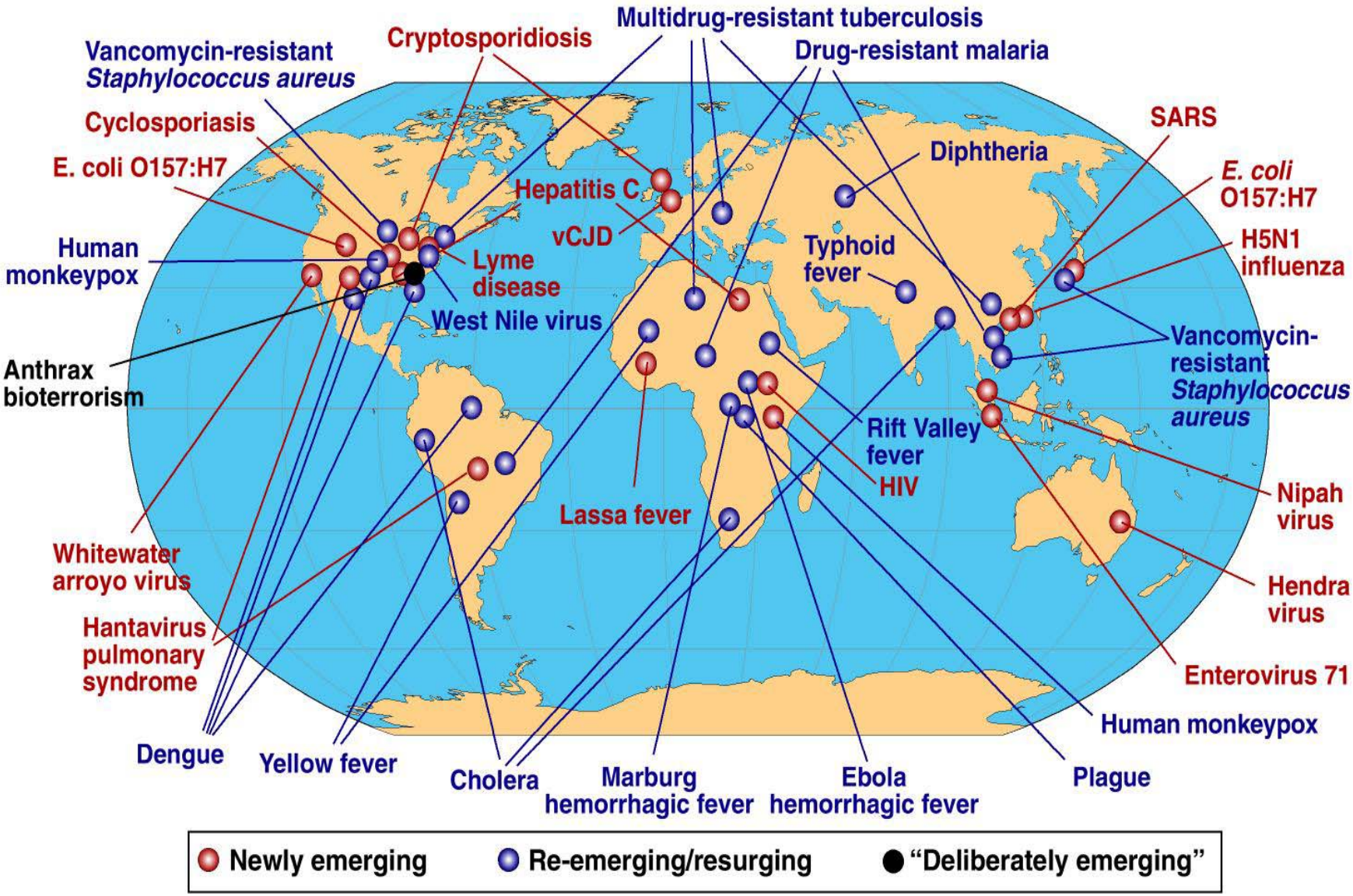
Global Examples of Emerging and Re-Emerging Infectious Diseases

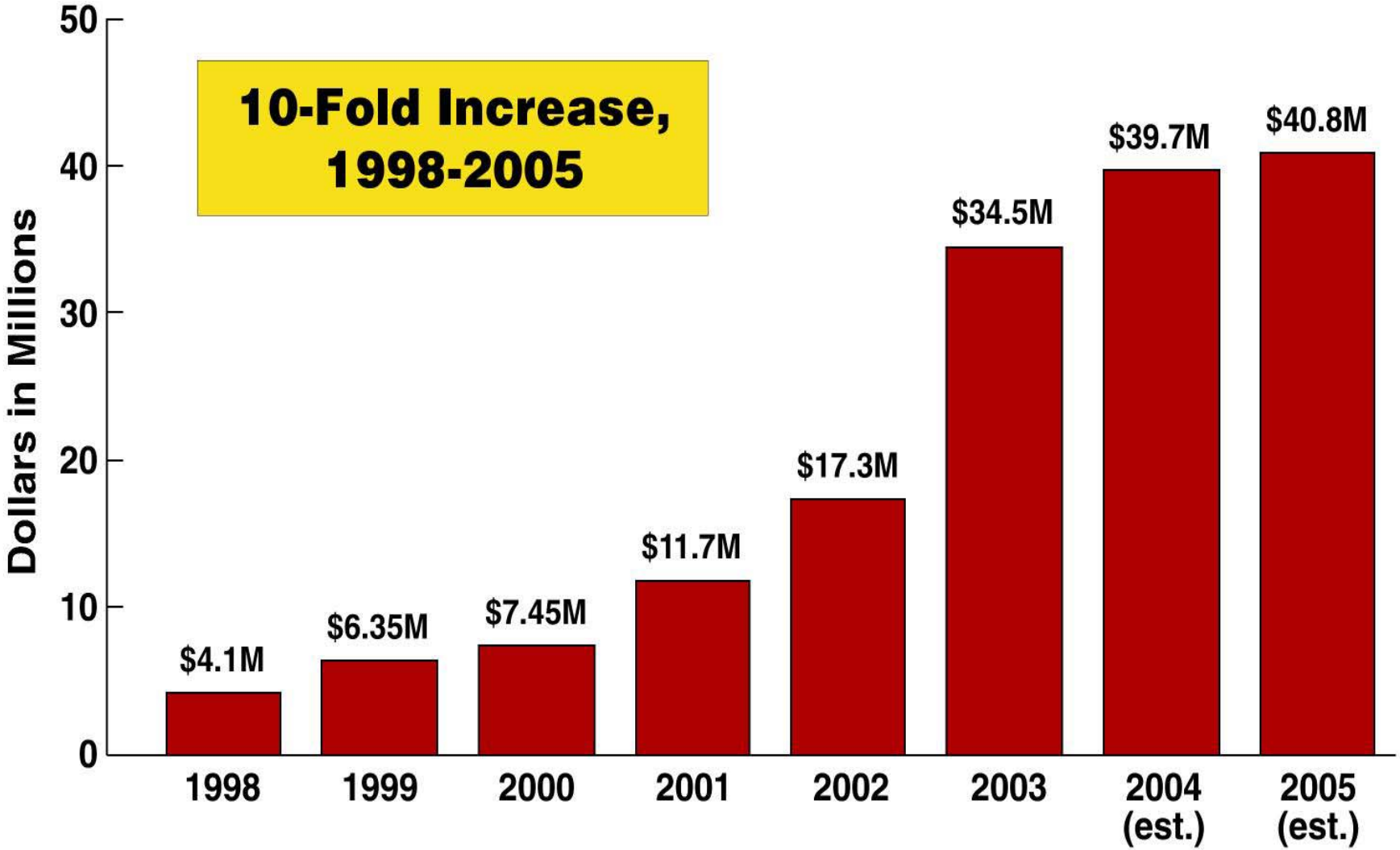


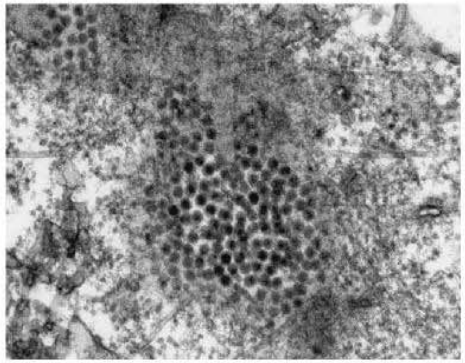
Examples of Important Mosquito-Borne Flaviviruses

Culex mosquito

- West Nile Virus
- Yellow Fever Virus
- Japanese Encephalitis Virus
- Dengue Virus
- Saint Louis Encephalitis Virus

NIAID Funding for West Nile Virus Research





Basic Research

Animal Models

Vector Biology/Control

NIAID West Nile Virus Research Agenda

Vaccines

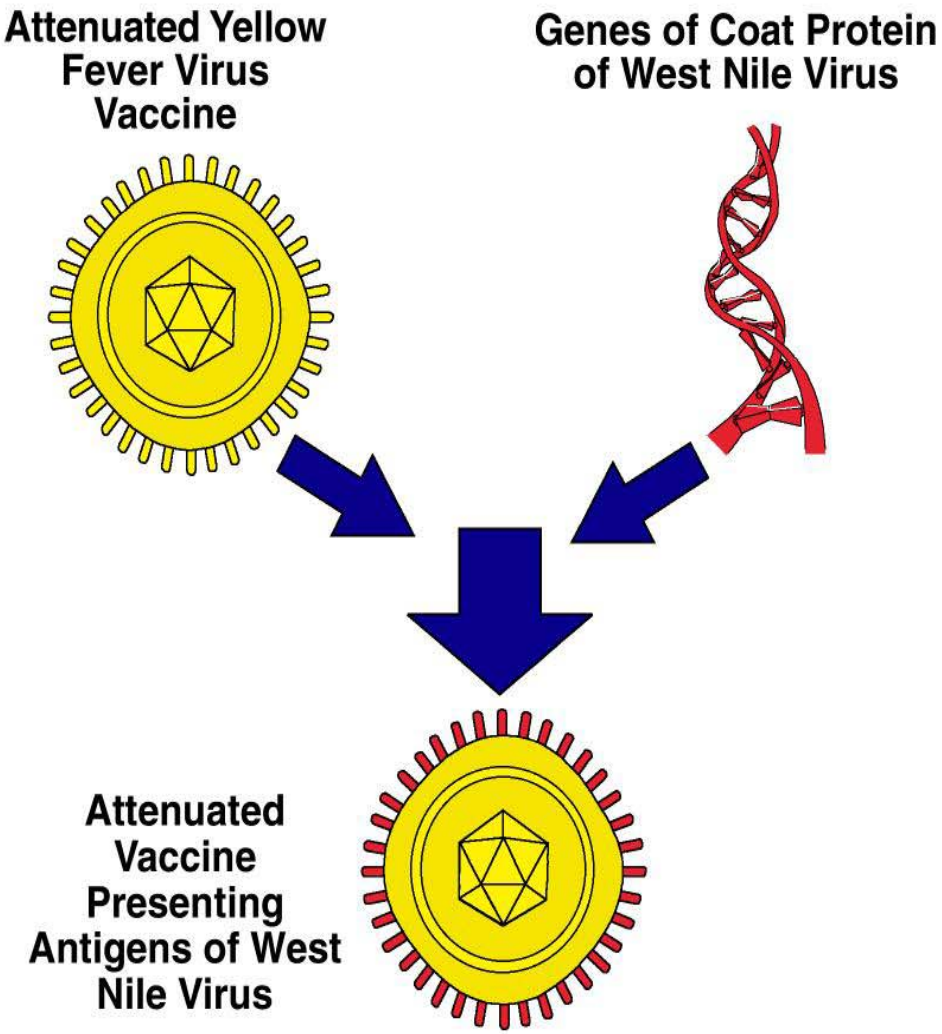
Therapies

Diagnostics

FY 2005 Funding: $40.8M (est.)

Development of a "Chimeric" West Nile Virus Vaccine

Chimera of Arezzo, 6th century BC
(lion/goat/serpent)



NIH Research on Potential West Nile Virus Therapies

- Basic research and rational drug design, incl. novel antivirals and tailor-made antibodies
- Screening of existing antiviral compounds
  - >1,000 compounds screened, 2-3% have antiviral activity against WNV
  - Promising compounds undergoing further testing in animal models
- Nationwide phase I/II clinical trial to assess immunoglobulin product derived from Israeli blood donors with high anti-WNV antibody titers

West Nile Vector Control

- NIAID Funded Projects: 13, $3M (2004 est.)
- Goals:
  - Develop novel approaches/strategies for controlling the principal vector species.
  - Understand the role of vectors in introducing and maintaining WNV in nature and transmitting it to humans.

FINAL

THE SUN

August 30, 2004

West Nile Both Flares and Fizzles

Just five years after its arrival, the West Nile virus has completed its east-to-west invasion of the United States and Canada. At the same time, the mosquito-borne virus may be having a diminished impact on Maryland and other states where it has resided for several years.