

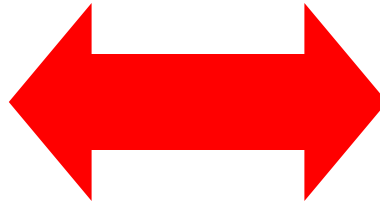
Research and Resources for the *Leptospirosis*, Microbiology and Infectious Diseases Research Community

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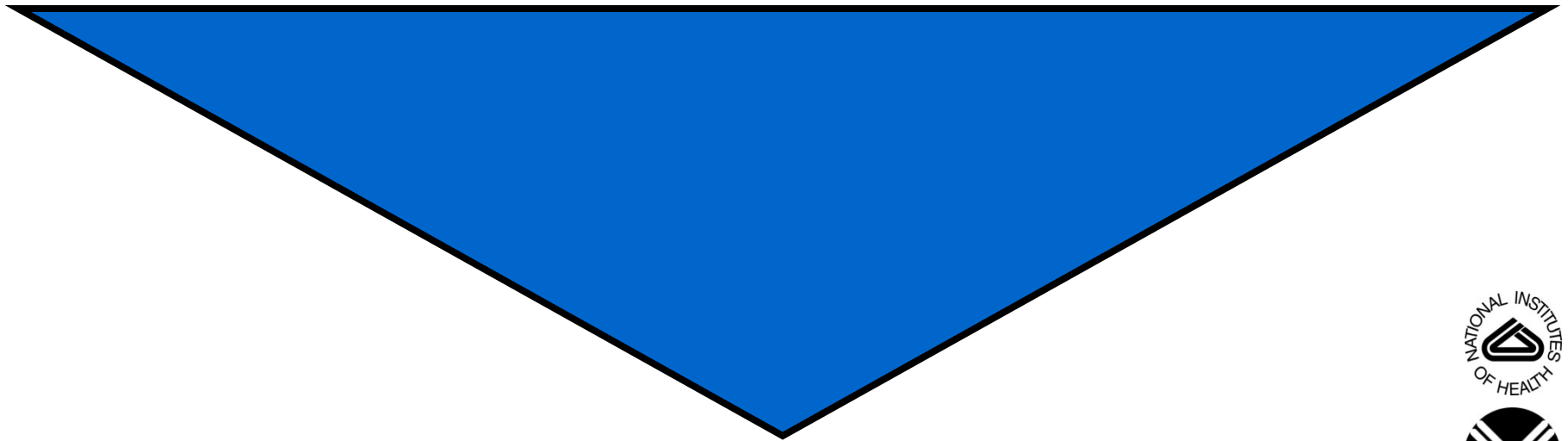


NIAID Infectious Disease Research: A Dual Mandate

**Maintain and “grow”
a robust basic and
applied research
portfolio in
microbiology,
immunology, and
clinical research**



**Respond rapidly
to new infectious
disease threats**

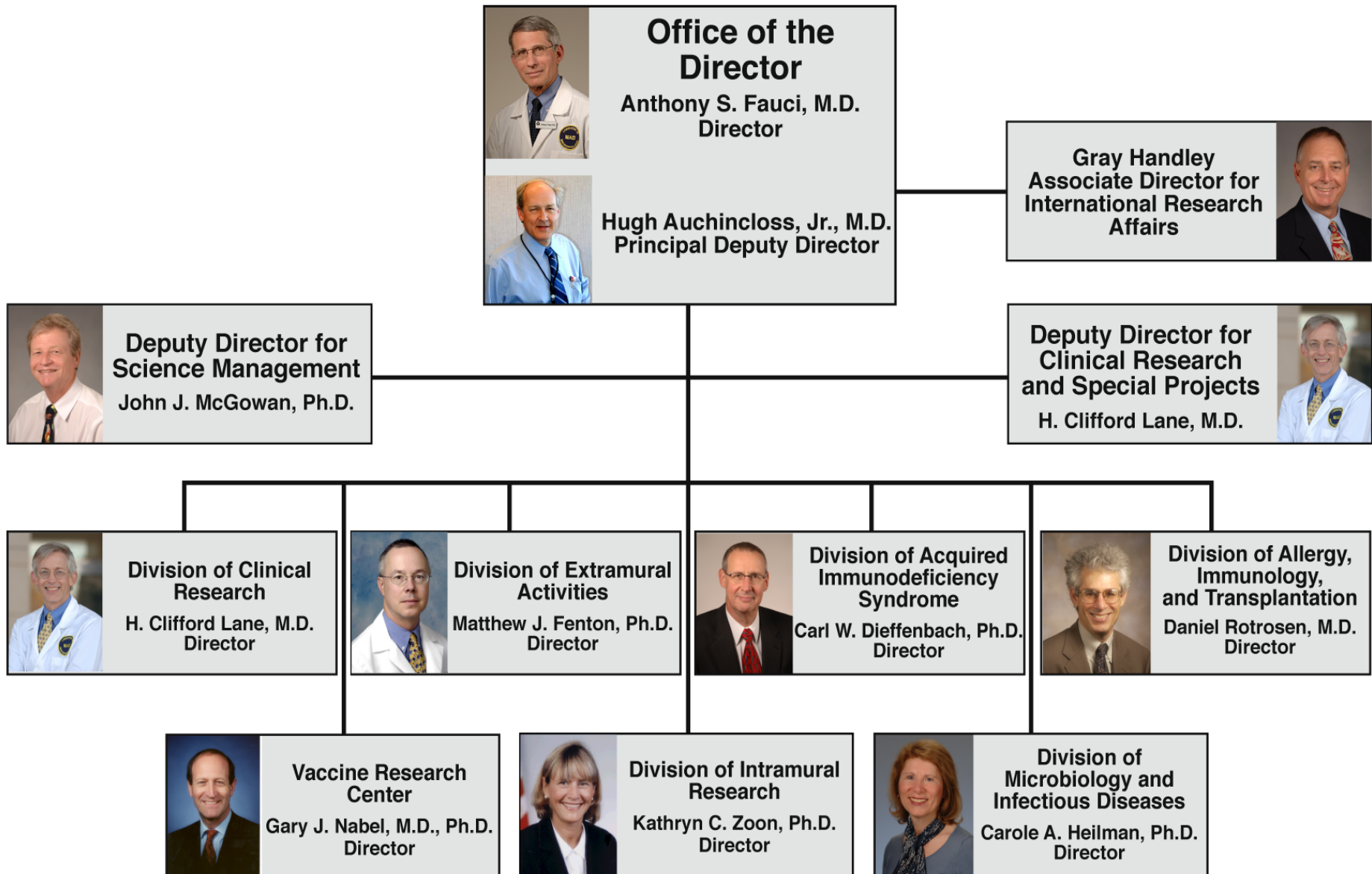


The National Institute of Allergy and Infectious Diseases (NIAID)

Conducts and supports basic and applied research to better understand, treat, and ultimately prevent infectious, immunologic, and allergic diseases



NIAID Organizational Structure



The Division of Microbiology and Infectious Diseases (DMID)

Supports extramural basic through applied research to control and prevent diseases caused by virtually all human infectious agents except HIV

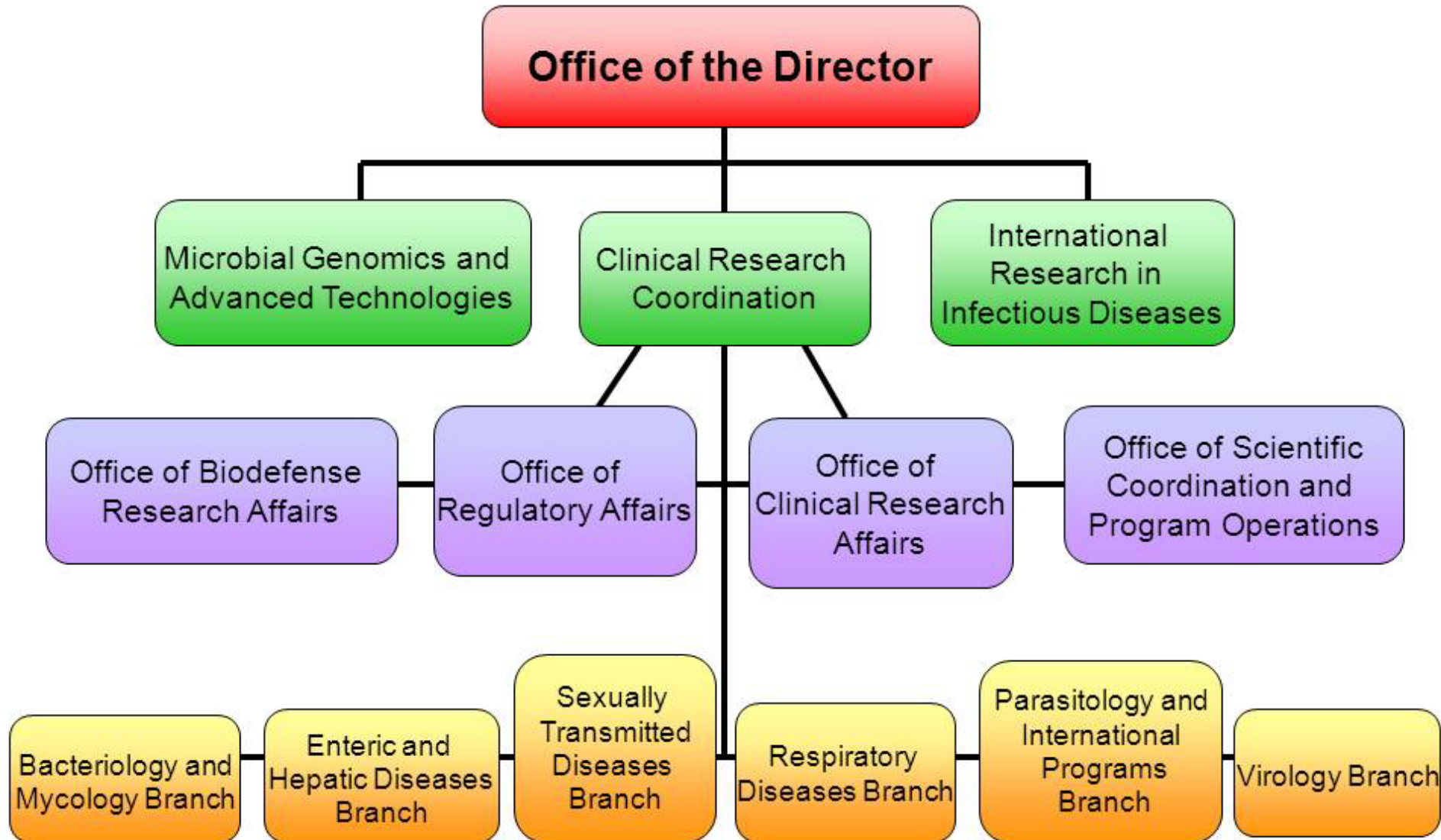


Division of Microbiology and Infectious Diseases

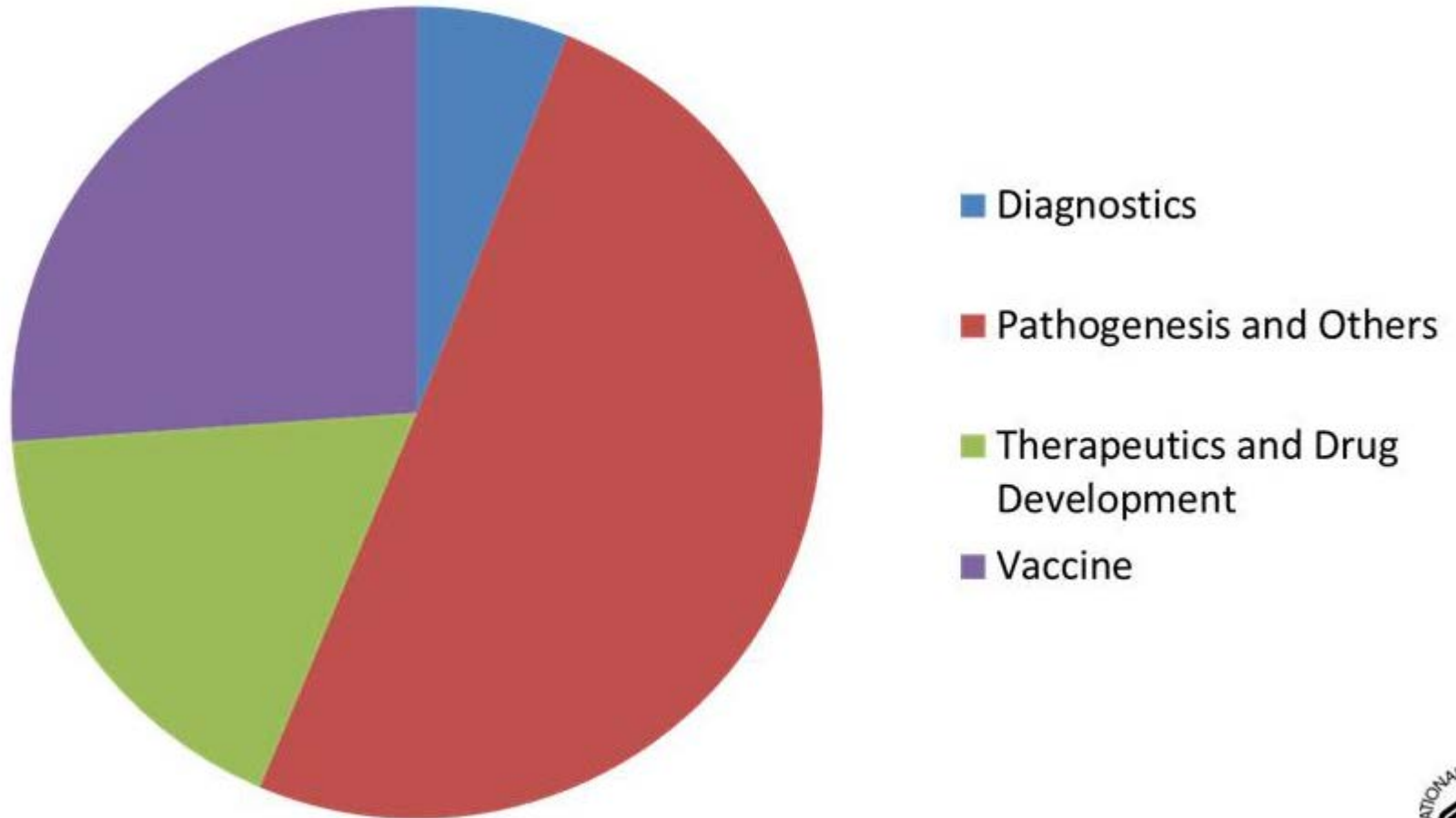
- Fundamental biomedical research
 - Basic Research (major)
 - Product development
 - Clinical trials
 - Global health
 - Microbial genomics
 - Emerging and reemerging diseases
- >293 different pathogens



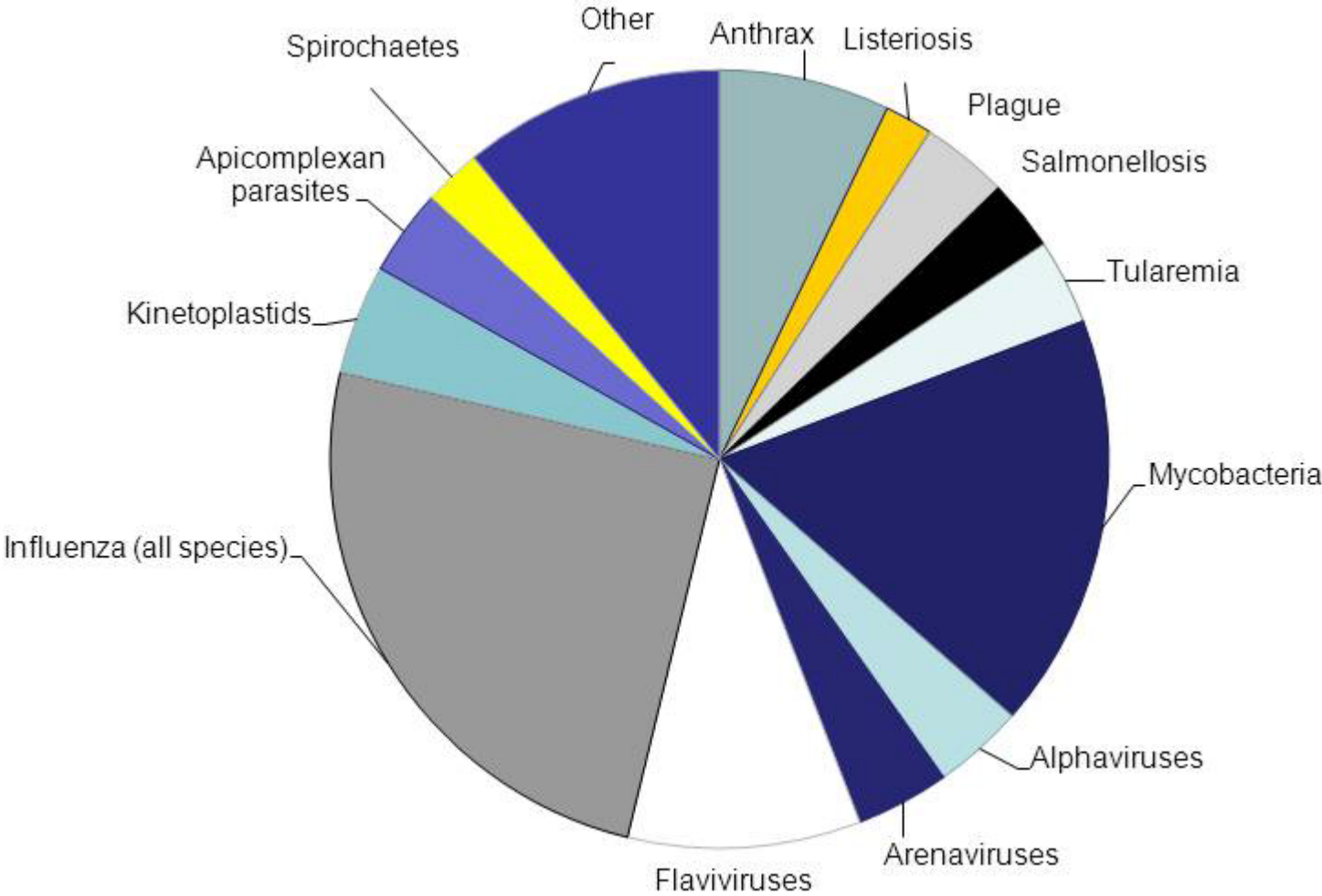
Division of Microbiology and Infectious Diseases



Distribution of NIAID FY '11 Funded Projects for Zoonotic Diseases



Distribution of NIAID FY '11 Funded Projects for Zoonotic Diseases



Overview of Research on *Leptospirosis* at NIAID



Selected Topics in Basic Research

NIAID-funded PI's are studying *Leptospira* including those that causes human fatality. Studies are focused on understanding:

- The basic mechanisms of *leptospira* pathogenesis (highest number of funded PI's).
- The role of pathogen-expressed immunogenic determinants in establishing an infection.
- The role of host-immunology.
- Pulmonary hemorrhaging.



Basic Research (Cont.)

- The determinants of clinical outcome.
- How to develop better diagnostics.
- How to improve interventional and prevention procedures (including future vaccines).



***Leptospira*: Genome Sequencing (by NIAID Genome Sequencing Centers)**

Over 250 globally diverse serovars of *Leptospira* including those that caused human fatality, are being sequenced to understand global, regional and clinical diversity (JCVI-Rockville). The goals are to:

- Delineate taxonomic and phylogenetic relationships among *Leptospira* species.
- Understand the mechanisms of leptospirosis pathogenesis and determinants of clinical outcome
- Provide comparative genomics to examine genetic variation in populations of pathogens



Leptospira: Clinical Proteomics

- Development and validation of a universal protein microarray fabrication and probing platform that can be used to profile the humoral immune response to infection of any organism on a genome-wide scale.
- Enable human specimens to be quickly screened for evidence of exposure to species causing febrile illness including other *Leptospire* species.
- Reference protein-array containing over 3,667 important proteins encoded by the organism has been made and currently being tested.
- Outcomes will help develop diagnostic markers and vaccine candidates



Leptospira: Natural History Research

Conduct study in the endemic regions with high mortality rate (urban slums South America and rural settings in Asia) with goals are to understand:

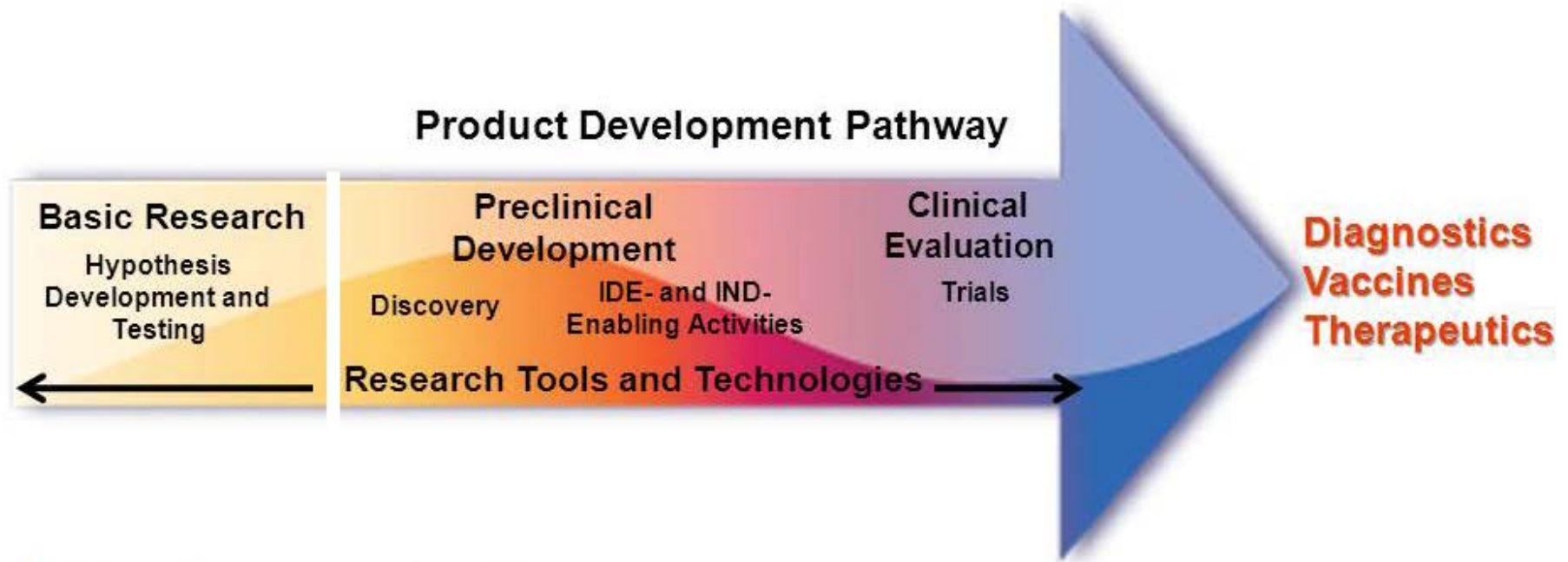
- The human risk factors.
- The dynamics of host-reservoir.
- The determinants of clinical outcome.
- Develop better measures for prevention and treatment.



Resources for Researchers Overview



Resources for Researchers



- ▶ Funding opportunities
 - ▶ Research tools and technologies
 - ▶ Preclinical and clinical services
- to facilitate product development

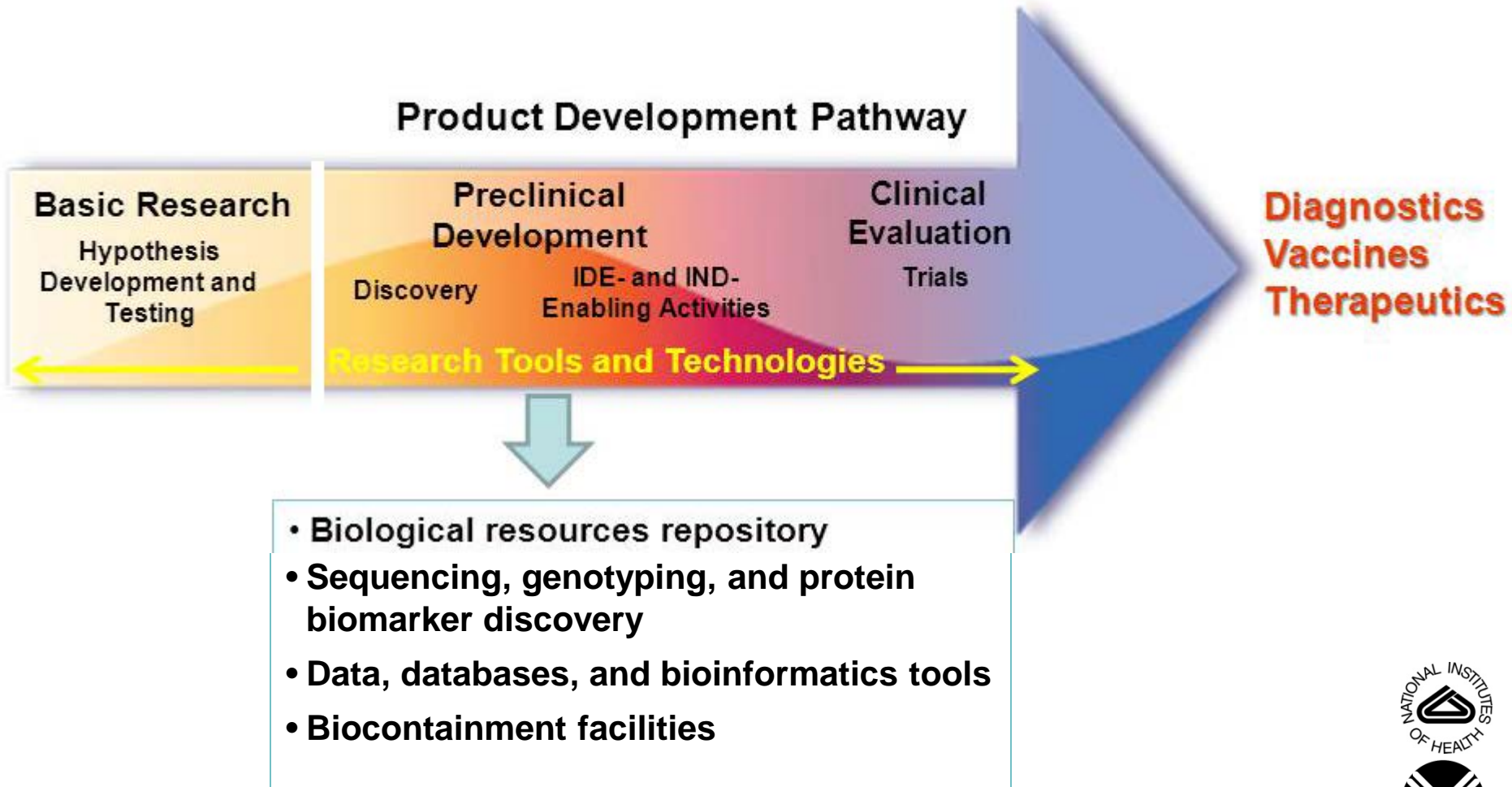


Funding Opportunities

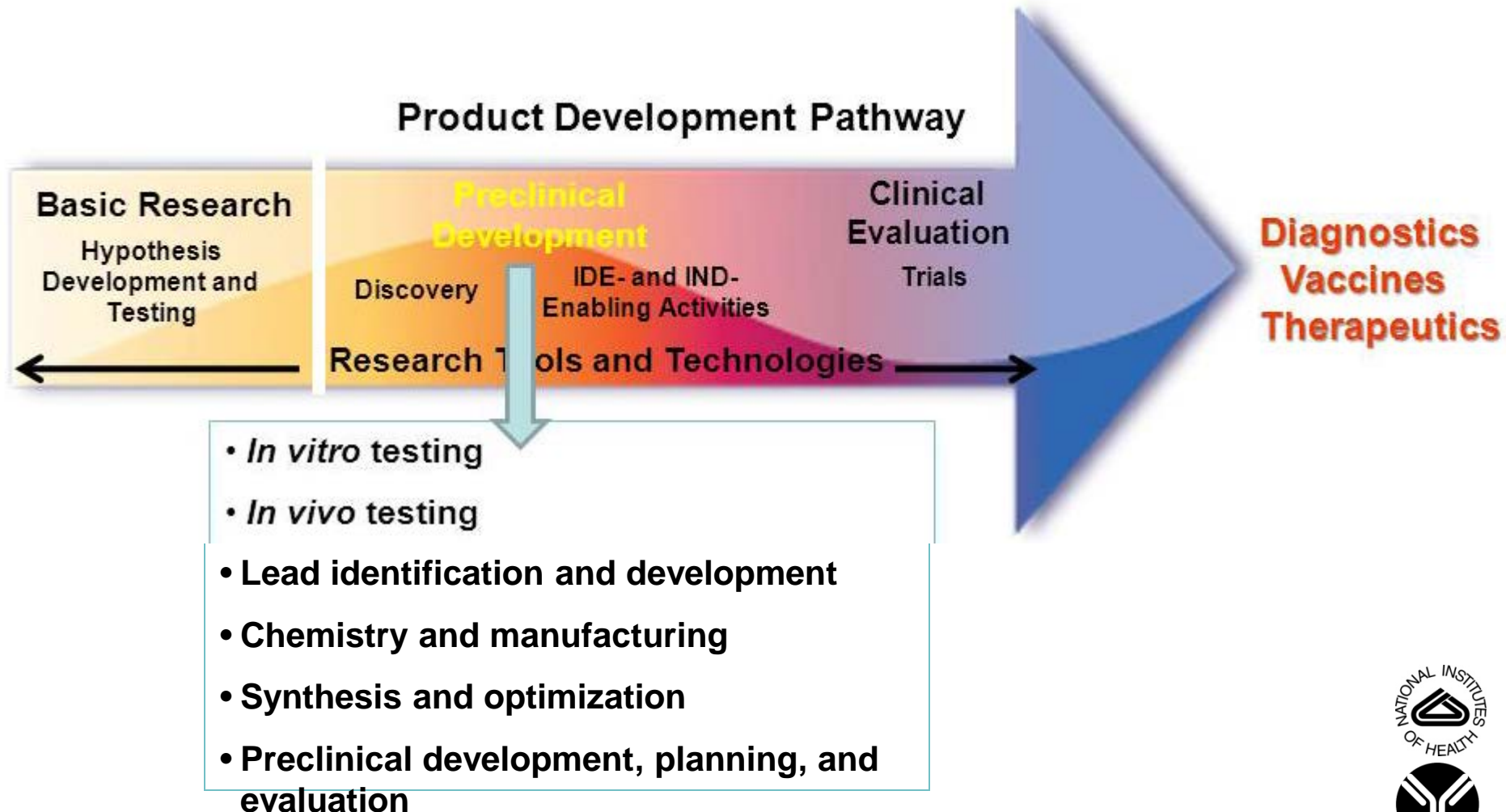
- *Apply for grants or contracts*
 - NIH-Wide Funding Opportunity Announcements
 - NIAID Funding Opportunity Announcements and Requests for Proposals



Research Tools and Technologies



Preclinical Services to Support Product Development



Clinical Services to Support Product Development



DMID Resources for Researchers

Resources for Researchers

DMID Resources for Researchers

[Animal Models of Infectious Disease](#)

[BEI Resources Repository](#)

[Bioinformatics Resource Centers](#)

[Biosafety Laboratories](#)

[Clinical Agents and Specimen Repository](#)

[Clinical Laboratory Diagnostics for Invasive Aspergillosis](#)

[Clinical Proteomics Centers](#)

[Clinical Research Operations and Management Support](#)

[Filariasis Research Reagent Resource Center](#)

[Genome Sequencing Centers](#)

[International Clinical Sciences Support Center](#)

[In Vitro Assessment](#)

[Malaria Vaccine Production Services](#)

[Network on Antimicrobial Resistance in Staphylococcus aureus \(NARSA\)](#)

[Pathogen Functional Genomics Resource Center](#)

[Phase I Clinical Trial Units for Therapeutics](#)

[Regulatory Affairs Support](#)

[Schistosomiasis Resource Center](#)

[Statistics and Data Coordinating Center](#)

Resources for Researchers

Microbiology and Infectious Diseases Resources

The Division of Microbiology and Infectious Diseases (DMID) supports extramural research to control and prevent diseases caused by virtually all human infectious agents except HIV.

Funding Opportunities

Apply for grants and contracts to conduct basic research, preclinical development, or clinical evaluation.

- [NIH-Wide Funding Opportunity Announcements](#)
- [NIAID Funding Opportunity Announcements and Requests for Proposals](#)

Product Development Services and Research Tools and Technologies

Request development by DMID-funded contractors of critical information needed to move a product through the product development pathway. Note: Services are contingent upon availability of required preliminary data.

Click on labels below to view services for [diagnostics](#), [vaccines](#), and [therapeutics](#); and for [basic research](#), [preclinical development](#), and [clinical evaluation](#).



Click on [research tools and technologies](#) above for:

- [Biological research resources](#) (organisms and reagents)
- [Microbial sequencing, genotyping, and protein biomarker discovery](#)
- [Data, databases, and bioinformatics tools](#)
- [Biocontainment facilities](#)

Website Tools

- ✉ [Email this page](#)
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Thank You

