

# National Institute of Biomedical Imaging and Bioengineering

## NIBIB/NIH Programs: New Directions in Biomedical Imaging and Bioengineering

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# NIH Mission



- NIH is the steward of medical and behavioral research for the Nation.
- Its mission is science in pursuit of fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to extend healthy life and reduce the burdens of illness and disability.
- An agency of the Department of Health and Human Services, the NIH is the Federal focal point for health research.



# NIBIB Mission

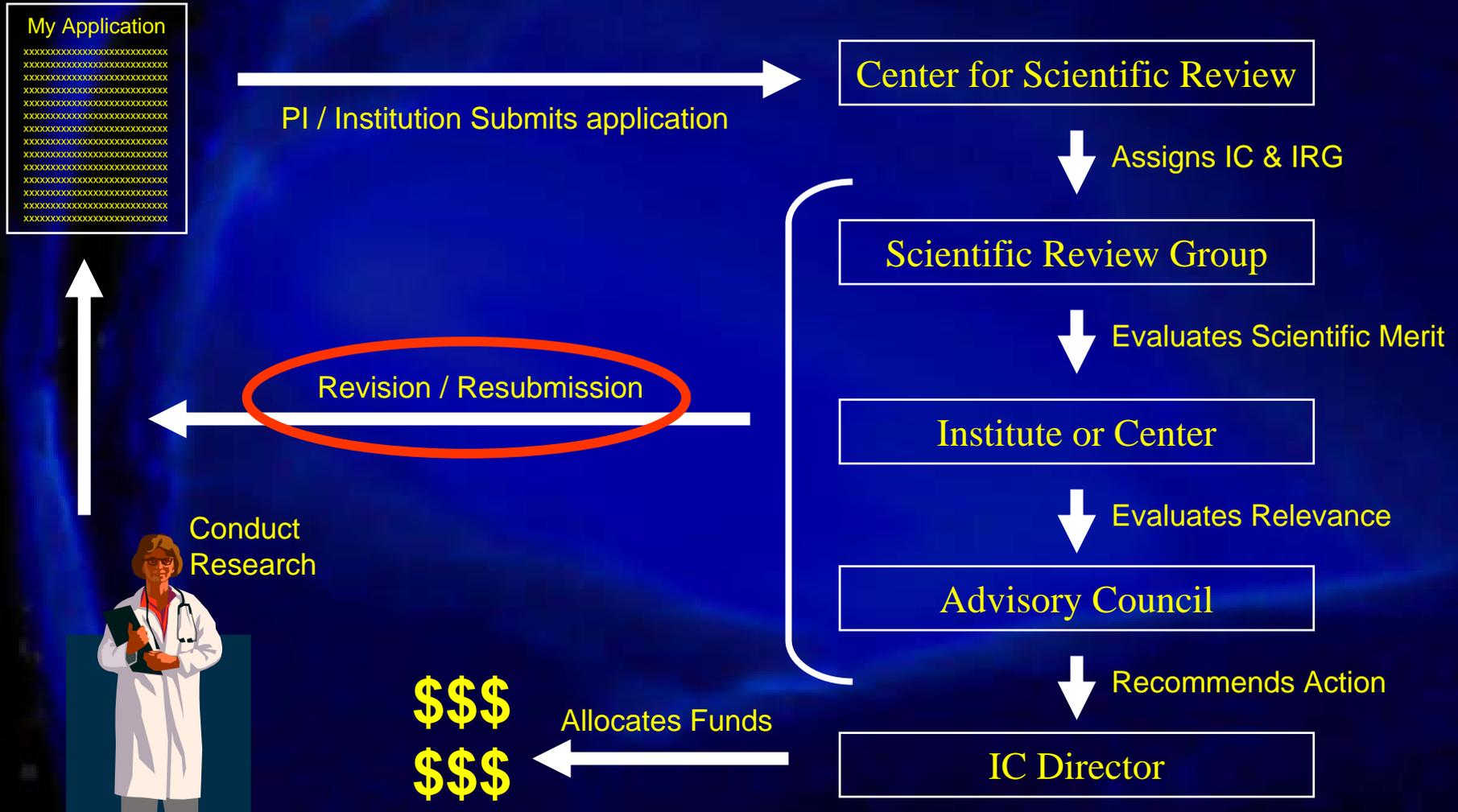
Improve human health by leading the development and accelerating the application of biomedical technologies.

The NIBIB is committed to integrating the physical and engineering sciences with the life sciences to advance basic research and medical care.

# NIBIB Vision

We will profoundly change health care. NIBIB will push the frontiers of technology to make the possible a reality.

# NIH Peer Review Process



## An example of an application sent to the NIH

- Investigator-initiated or response to program announcement
- Reviewed at Center for Scientific Review (CSR) or at NIBIB
- If score is in fundable range, paid by NIBIB or other Institute

# NIH Grant Application

- test a stated hypothesis
- create a novel design
- solve a specific problem
- develop new technology

# General NIH Review Criteria

Significance  
Approach  
Innovation  
Investigator  
Environment

Described in Detail in PHS398 Instructions

# What reviewers REALLY want to know

- WHAT are you proposing to do?
- WHY is this important?
- Can YOU do it?



Many applications to the NIH are UNSOLICITED, investigator initiated.

# What funding mechanisms are available?

## Funding mechanisms

- Research Program Grants, - e.g R21, R01...
- Training - K-Awards
- Centers and Program Projects - P41, P01
- Small Business Awards (SBIR/STTR)
- Many others

# The R21 Exploratory/Developmental Grant

The R21 Grant is intended to support innovative, high impact research projects that would :

- 1) generate pilot data to assess the feasibility of a novel avenue of investigation;
- 2) involve high risk experiments that could lead to a breakthrough
- 3) demonstrate the feasibility of new technologies that could have a major impact in a specific area.

# Future Directions in Image-Guided Interventions

“Fully engineered” components of IGI systems that can be seamlessly integrated for a wide range of clinical applications.

- Public-Private Partnerships: Collaborations between academia and industry.
- Exploitation of grid computing and informatics infrastructure.
- Surgical robots and biopsy devices that locate targets of interest seamlessly across different resolution scales.
- Intra-operative, real-time, 3D image-guided navigation (4D-IGI) for moving or deformable tissues/organs.

# National Institute of Biomedical Imaging and Bioengineering

- **Contact Program Staff!!!**

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- Other Institutes (e.g. FIC, NCI, NINDS, NIMH, NIGMS, NHLBI, NIDA, etc.)

- **Join the listserv at NIBIB**

- <http://www.nibib.nih.gov>



# NIH-Supported Biomedical Imaging Resources

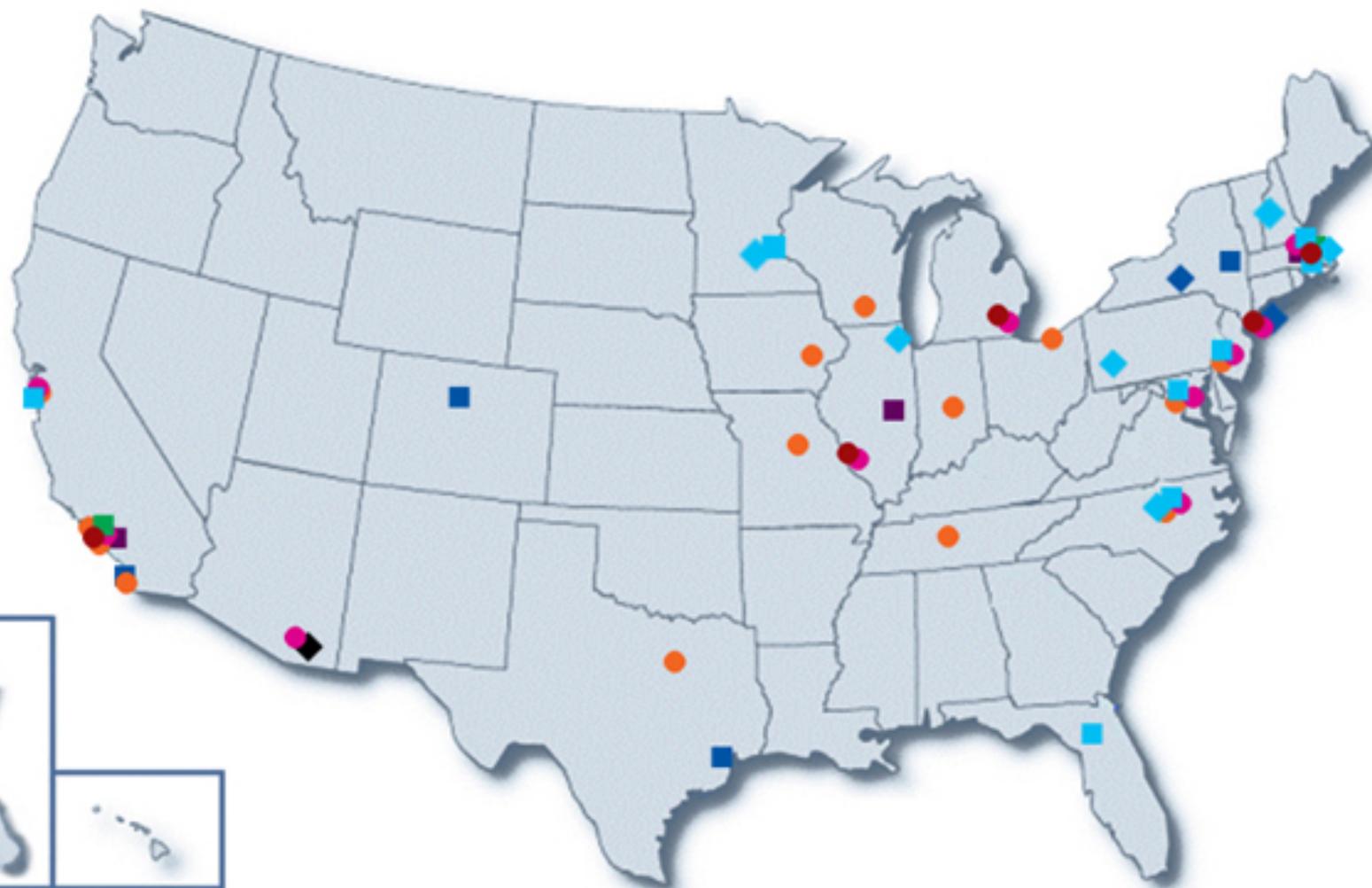


## Funding IC

- NCI
- NCRR
- ◆ NIBIB

## Categories

- ICMICs
- Pre-ICMICs
- SAIRPs
- Integrated Technologies
- Laser Applications
- Microscopy
- MRI
- Nuclear Medicine Imaging



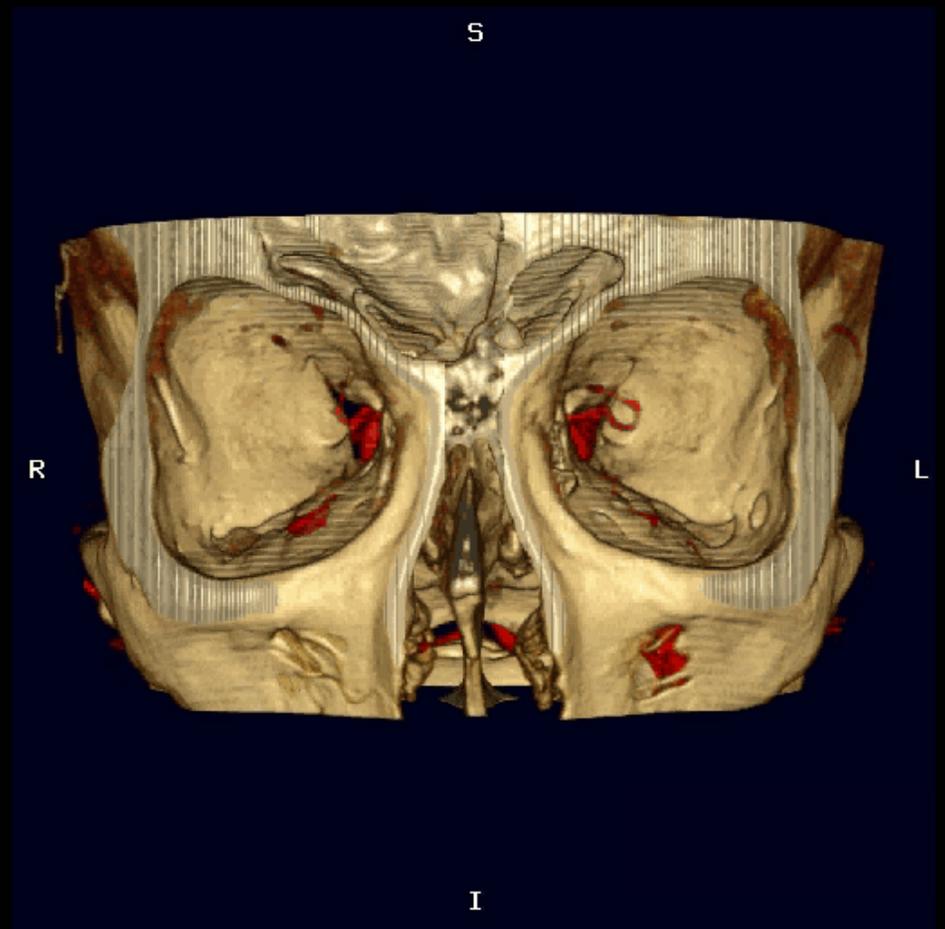
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CANCER  
INSTITUTE

NIBIB

National Institute of Biomedical  
Imaging and Bioengineering



National Center for Research Resources  
NATIONAL INSTITUTES OF HEALTH



Multislice CT images  
with contrast