NIH Research Opportunities in Biocomputing and Bioinformatics

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Center for Scientific Review

National Institutes of Health

The National Institutes of Health

NCCAM	NHLBI	NICHD	NIGMS
NCMHD	NIA	NIDA	NIMH
NCI	NIAAA	NIDCD	NINDS
NCRR	NIAID	NIDCR	NINR
NEI	NIAMS	NIDDK	NLM
NHGRI	*NIBIB*	NIEHS	CSR

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NIH Budget FY 2001

All Other
6%

Research Mgmt.
& Support 3%

Intramural
Research 10%

R&D Contracts 7%

Research Training 3%

Research Grants
71%

Over 80% of NIH
funds support
extramural
research.
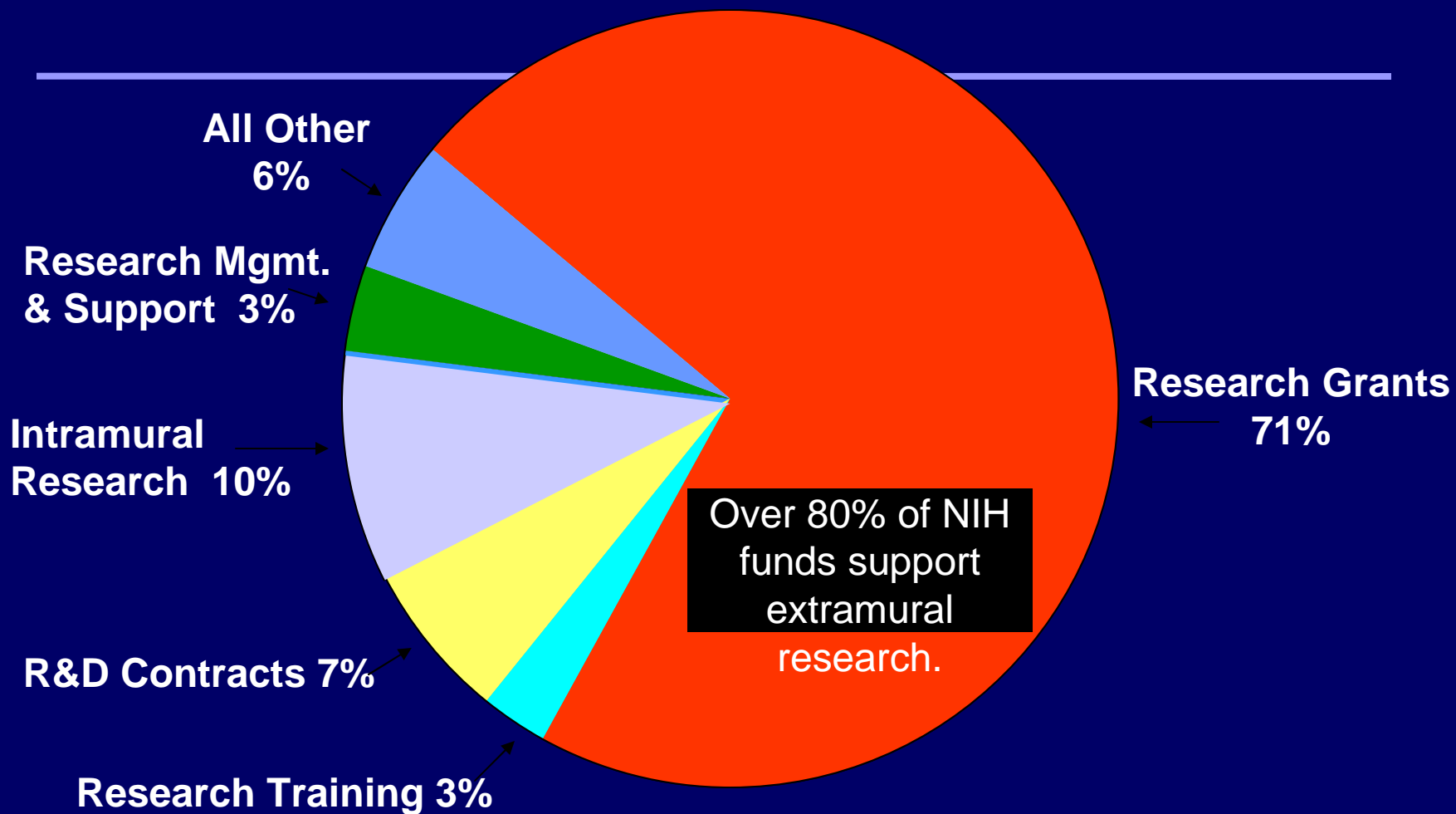
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Total – $20.3 Billion
(Estimate)

How to Get Funded?

- Idea for research involving biomedicine
- Form collaboration?
- Contact Program Officer at Institute or Center
- Submit grant (use PHS 398)
- Referral and Initial Review at Center for Scientific Review (CSR): Study Sections.
- Final Review by Program and Councils
- Decision by Program Staff at Institute or Center

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Common Problems in Applications

- Lack of new or original ideas
- Absence of an acceptable scientific rationale
- Lack of experience in the essential methodology
- Questionable reasoning in experimental approach
- Uncritical approach
- Diffuse, superficial, or unfocused research plan
- Lack of sufficient experimental detail
- Lack of knowledge of published relevant work
- Unrealistically large amount of work
- Uncertainty concerning future directions

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Information on the World Wide Web Review: Selected Sites of Interest

- National Institutes of Health (http://www.nih.gov)

  – Office of Extramural Research (http://www.nih.gov/grants/oer.htm)

  – Grants Policy (http://www.nih.gov/grants/policy/policy.htm)

- Center for Scientific Review (http://www.csr.nih.gov)

  – Referral and Review (http://www.csr.nih.gov/refrev.htm)

  – Overview of Peer Review Process (http://www. csr.nih.gov/review/peerrev.htm)

  – CSR Study Section Rosters (http://www.csr.nih.gov/committees/rosterindex.asp)

  – NIH Peer Review Notes (http://www.csr.nih.gov/prnotes/prnotes.htm)

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Trans-NIH Bioinformatics Research Opportunities

- Coordinated by the BISTI Consortium (BISTIC)
- Consists of representatives of all NIH institutes, centers, and offices
- Established June 2000
- Administered by the NIGMS
- Web site- http://grants.nih.gov/grants/bistic/bistic/htm

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Bioinformatics Research Areas

- Data collection

- Archiving large data sets

- Modeling, simulation, and analysis

- Telemedicine

- Platform-independent translational tools for data exchange

- Data visualization

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Bioinformatics Research Areas

- Databases, querying approaches, and information retrieval

- Computing algorithms and new methods for social science research

- Interoperability

- Web-based tools for data sharing

- Robotics and remote control systems

BISTIC Activities - Research

- Planning Grants for National Programs of Excellence in Biomedical Computing (NPEBC) (P20)

- Innovations in Biomedical Informatics Science and Technology (R21/R33)

- SBIR/STTR Biomedical Computing Awards (PA-00-118) (R41, R42, R43, R44)

NPEBC Planning Grants (PAR-00-102)

- Support planning of programs (P20) – develop collaborations, plan internal programs, recruit expertise, develop courses, etc.
- Up to 3 years
- No annual budget limit
- Applications due November 27, March 27, and July 27 through 2002
- 12 Awards (Average = $230 k)

NPEBC Objectives

- Conduct bioinformatics research that advances biology and medicine
- Develop informatics tools for biomedical research
- Train a new generation of biomedical computer scientists
- Establish collaborations between the biomedical and computational communities

R21/R33 Research Awards (PAR-00-117)

- Phased Innovation Awards
- Can apply for R21/R33 package or only R33 award
- R21 – Developmental – 2 years - $100 k per year limit
- R33 – Research – 3 years – no limit
- Package – 4 years – no limit
- Application deadlines – November 27, March 27, and July 27 through 2002
- 16 Awards (Average = $ 240 k)

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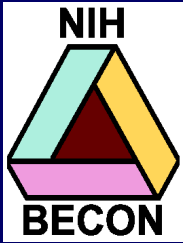
Trans-NIH Bioengineering Research Opportunities

- Bioengineering Consortium (BECON)
- Consists of representatives of all NIH institutes, centers, and offices and other Federal agencies
- Established February 1997
- Administered by the NIBIB
- Web site – http://www.nih.gov/grants/becon/becon.htm

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Bioengineering Research

- Multi-disciplinary

- Partnership and collaboration

- Technology- or needs-driven

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Trans-NIH BME Research Opportunities

- Bioengineering Research Grants (BRG's)

- Bioengineering Research Partnerships (BRP's)

- SBIR/STTR Bioengineering Awards

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Bioengineering Research Grants

- R01 awards – Apply basic bioengineering design-directed or hypothesis-driven research to an important biomedical area.

- Aimed at <u>single</u> or <u>small groups</u> of researchers

- Applications due on R01 receipt dates – February 1, June 1, October 1

- 90 Awards (Average = $280 k)

Bioengineering Research Partnerships

- R01 awards – special review

- Requires a multi-disciplinary research <u>team</u> applying an integrative, systems approach to address a biomedical problem

- Deadlines: January 24 and August 12, 2002

- 54 Awards (Average = $980 k)

NIBIB Mission

"… to improve health by promoting fundamental discoveries, design and development, and translation and assessment of technological capabilities.

… The Institute coordinates with … other agencies and NIH institutes to support… research and facilitate the transfer of such technologies to medical applications."

To support its mission, the NIBIB will -

- Support imaging and bioengineering research and training

- Partner with NIH institutes and centers to translate fundamental discoveries into biomedical research applications

- Coordinate with other government agencies to translate cross-cutting technological developments into biomedical applications

What's different?

- Focus on "multi-disciplinary" and "partnerships"
- Design- and needs-driven research vs. hypothesis-driven
- Translation of enabling technologies to biomedical applications
- Multi-disciplinary review
- Inter-agency and inter-institute

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Contact a NIH IC rep before preparing your application

- Tell the rep about your project
- Ask if the IC would encourage submittal
- If so, is there a better mechanism?
- If not, other IC interest?
- Suggestions for project
- Include contact in cover letter
- Greater than $500 k direct cost approval

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Who are NIH BME and BI IC Representatives?

- BECON and BISTIC members

- Senior technical and program staff

- Available on the Internet at: http://grants.nih.gov/grants/becon/becon_contacts.html   or http://grants.nih.gov/grants/bistic/bistic_contacts.cfm

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Resources

CRISP (Computer Retrieval of Information on Scientific Projects) http://crisp.cit.nih.gov/ is a searchable biomedical database of federally-supported proposed research conducted at universities, hospitals, and other research institutions.

NIH Grants Guide http://grants1.nih.gov/grants/guide/

NSF https://www.fastlane.nsf.gov/a6/A6SrchAwdf.htm

COS (Community of Science) http://workbench.cos.com/

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Resources

Training Opportunities in Bioengineering and Bioinformatics at the National Institutes of Health (NIH) & the National Science Foundation (NSF) (NIH: F, Fellowship programs; e.g., F 37 Medical Informatics Fellowship (NLM) K, e.g., K 25 Mentored Quantitative Research Career Development Award Research Career Programs; T, Training Programs, e.g., T 22 Institutional Research Fellowships) http://www.nibib1.nih.gov/training/trainingopps.html

NIH Award Data
http://grants1.nih.gov/grants/award/award.htm

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Resources

National Institute for Biomedical Imaging and Bioengineering (NIBIB): Dick Swaja, Joan Harmon.

e.g., Home for BECON.

National Institute of General Medical Sciences (NIGMS): Jim Cassatt, Jim Anderson.

e.g., Home for BISTI, Center for Bioinformatics and Computational Biology (CBCB), Program for Centers of Excellence in Complex Biomedical Systems Research, NSF-DMS/NIGMS Joint Initiative to Support Research in the Area of Mathematical Biology.

National Human Genome Research Institute (NHGRI): Peter Good, Lisa Brooks.

e.g., Genome bioinformatics program, Centers of Excellence in

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Resources

National Library of Medicine (NLM): Milt Corn, Carol Bean.

e.g,, Integrated Advanced Information Management Systems (IAIMS).

National Center for Research Resources (NCRR): Mike Marron.

e.g., Biomedical Informatics Research Network (BIRN), BISTI.

Neuroscience: NIMH, NINDS, NIDA, NIA, NIAAA: Steve Koslow, Yuan Liu, Mike Huerta, Karen Skinner.

e.g., Human Brain Project, Neuroimaging Informatics Technology Initiative (NIfTI).

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Resources

National Cancer Institute (NCI): Larry Clarke, Houston Baker, Peter Covitz.

e.g., NCI Center for Bioinformatics (NCICB); the caBIO object modeling effort.

National Institute of Allergy and Infectious Diseases (NIAID): Richard Morris

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Peter Lyster, PhD, CRA Snowbird July 15, 2002.
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_____INFORMATION SOURCES_____

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