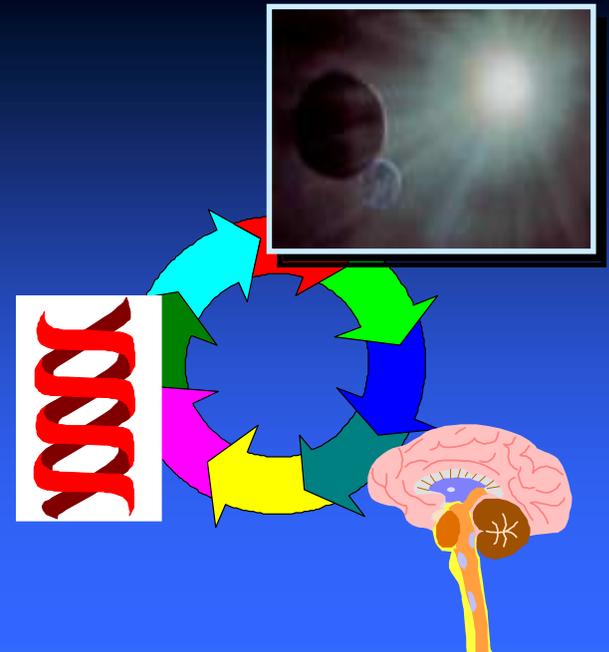




NASA BioScience & Engineering Institute (NBEI)

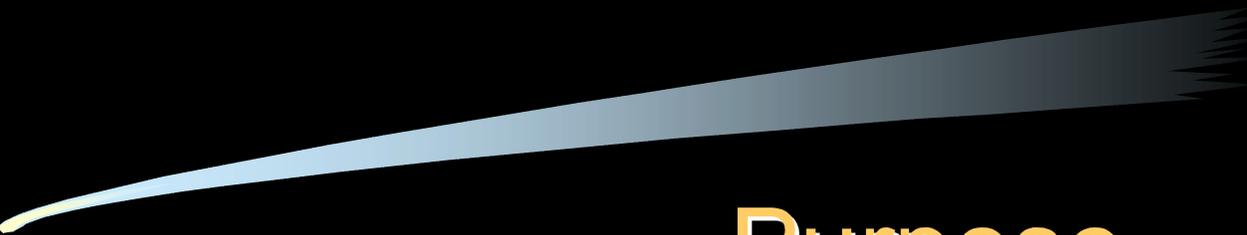
Physical Sciences Division
Office of Biological & Physical
Research

FY2001 Initiative



Definition

- BioScience and Engineering integrates physical, chemical, mathematical, and microgravity-based science and engineering fundamentals with biological concepts and methods for the study and understanding of medicine and health, and for the development of biology-inspired engineering systems.
- Allow Institute to Provide Further Definition



Purpose

- The primary purpose of the Institute is to enable world-class research, development, education and technology transfer in BioScience and Engineering related to NASA's overall missions with emphasis on missions in Biology and Physical Research, and Human Exploration and Development of Space.
 - This purpose provides linkage to many of NASA's important missions (Including producing cutting edge science)

Funding

- Annual Funding: \$3M
- UPN:101
- Total Estimated Cost of Institute: \$27M over 10 Years
 - Institute may compete for related Non-NASA funding
- Multi-year Cooperative Agreement
 - Term: 5 years + 5 year option
 - Annual Review of Research Years 1,2,3
 - Peer Review of Institute Year 4 prior to renewal
 - Sunset after 10 years w/ ramp-down years 8, 9, 10

BioScience & Engineering Institute Schedule

Date	Action
4/19/01	Issue Synopsis in CBD
5/1/01	Draft Solicitation Issued for Public Comment
6/1/01	Public Comment Due
7/9/01	Formal Solicitation Issued
9/10/01	Notice of Intent Due
10/10/01	Proposals Due
12/01	Site Visits (optional)
2/11/02	Selection of Successful Proposal
4/28/02	Cooperative Agreement Awarded

Key Points

- Institute Selection Done by Open Competitive Process using Cooperative Agreement Notice (CAN)
- Draft CAN for Public Comment
 - Resulted in 5 pages of Q&A/Clarification to be posted w/ final CAN
- Institute can be composed of One US Academic Institution, or more than one but with one clear lead US Academic Institution. Expandable.
- Institute Concept Permits Greater External Community Involvement in NASA's overall Biology-inspired Science & Engineering Program
- Institute Provides Intellectual Leadership by Playing Significant Role in Research Planning & Implementation of NASA's BioScience & Engineering Program
- Institute Will Conduct Intramural Research, Education, Outreach
- Institute Research/Education Proposals (after Institute formation) can include NASA Center, Commercial Participation, Foreign Participation

Key Points

- NASA HQ and Center(s) are Cooperative Agreement Partners w/ Institute
- Cooperative Agreement Award & Financial Management are NASA Center Responsibilities
- Non-advocate Peer Review for Institute-Submitted-Intramural Research is NASA HQ Responsibility
- Annual Review of Institute is NASA HQ Responsibility
- NASA HQ Contact Point: Dr. Don Roth, ph: 202-358-1764, email: droth@hq.nasa.gov
- Alternate Contact Point: Dr. Eugene Trinh, Director, Code UG, ph: 202-358-1490, email: etrinh@mail.hq.nasa.gov

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NASA HQ	Institute	NASA Center(s)
<ul style="list-style-type: none"> ▪ Review/approval of the NBEI ▪ Program/Project management of the NBEI (responsible for Annual Institute Reviews) ▪ Provide strategic planning, policy development, advocacy, and oversight ▪ Provide budget planning, formulation and resource allocation ▪ Manage Peer Review process and grant selection for NBEI intramural-submitted research 	<ul style="list-style-type: none"> ▪ Inform NASA of vital current research themes in BioScience and Engineering ▪ Assume Leadership role in identification and prioritization of BioScience and Engineering research ▪ Execute ground-based and flight research identified by the Institute and selected through NASA Peer Review, and disseminate research results ▪ Facilitate access to unique facilities, data & expertise ▪ Conduct education and outreach programs ▪ Support U.S. technology transfer programs ▪ Provide long-term institutional commitment and resources (see section 5.5) 	<ul style="list-style-type: none"> ▪ Award a Cooperative Agreement with successful proposing institution ▪ Financial management responsibility for the NBEI ▪ Manage Peer Review funded research efforts ▪ Optionally partner in research efforts with Institute researchers ▪ Provide ground- and/or flight-based facility operations (e.g., operational laboratories, drop towers, KC-135, WETF, simulators, STS, ISS) ▪ Provide NASA-unique engineering services ▪ Provide Payload and Mission Management (payload definition, payload development, mission manifesting, integration, test, operations)

BioScience & Engineering Institute Tasks

- Propose high-quality, state-of-the-art research in BioScience & Engineering
- Disseminate advances in knowledge to science & research community
- Facilitate scientific interchange among Institute-sponsored research groups
- Cross-train undergraduate & graduate students to create a new generation of interdisciplinary scientists
- Organize & coordinate seminars & workshops
- Offer courses in BioScience & Engineering
- Establish need & priorities for national facilities in BioScience & Engineering research
- Coordinate programs in K-12 education & public outreach
- Establish information repository & distribution center for Institute research

BioScience & Engineering Institute

Sample Research Topics

- Biological/Molecular-based Nanotechnology
- Engineering Aspects of BioReactors & BioSystems
- Biological Imaging
- Bioinformatics (Biological Data Organization Approaches)
- Biologics (Biological Products I.e.serums & vaccines)
- BioPhysics
- Biomimetics (Study of structure & function of biological materials for the purpose of analogous synthetic design & manufacturing)
- Tissue Engineering & Artificial Organs
- Novel Bioengineering Instrumentation & Devices
- Biological Computing
- Biological/Physiological Processes Modeling
- Computational Biology

Institute Proposal Evaluation

- NASA HQ evaluation & selection
 - Independent Peer Review
 - Selection by Chief Scientist and OBPR Acting AA
- Institute Proposal Evaluation Criteria:
 - Scientific and Technical Merit
 - Quality of Core Management Approach
 - Quality of Key Personnel & Staffing
 - Diversity of participation and overall outreach to science and education community
- Site visits may be required prior to selection
 - Selected sites determined by peer review
 - Similar to Competitive Range Determination
 - Single ad hoc Committee would conduct all site visits
 - Findings presented to Selecting Official



Future Vision

- Increased Funding Levels
- Potential for Multi-Agency Collaboration in BioScience & Engineering Efforts
 - egs. NSF, NIH

Summary

- FY2001 Initiative: Physical Sciences Division of OBPR Solicits for NASA BioScience & Engineering Institute
- Institute Concept Permits Greater External Community Involvement in NASA's overall Biology-inspired Science & Engineering Program
- NASA HQ Responsible for Non-Advocate Peer Review of Institute Research and Institute Annual Reviews
- Funding = \$3M/yr.
- Duration = 5 yrs. + 5 yr. option
- 1/11/02 Selection