
The NIH Roadmap for Medical Research

www.nihroadmap.nih.gov



Why was there a need for a Roadmap?

- Position NIH to address evolving public health challenges
 - Accelerate the pace of discoveries
 - Develop more rapid translation from laboratories to patients and back
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Evolving Public Health Challenges



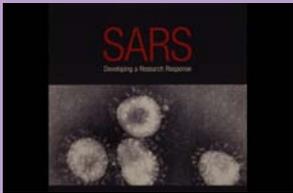
Acute to Chronic Conditions



Aging Population



Health Disparities



Emerging Diseases



Biodefense

NIH opportunities and challenges...

- **Revolutionary and rapid changes in science**
 - **Increasing breadth of mission and growth**
 - **Complex organization with many units (27 institutes and centers, multiple program offices, e.g., OWHR, OAR, ORD, ...)**
 - **Structured by Disease, Organ, Life stage, Disciplines**
 - **Rapid convergence of science**
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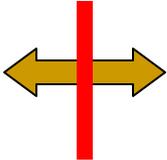
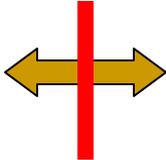
How was the Roadmap developed?

- Extensive consultations with stakeholders, scientists, health care providers
 - Discussions addressed:
 - **What are today's scientific challenges?**
 - **What are the roadblocks to progress?**
 - **What do we need to do to overcome roadblocks?**
 - **What can't be accomplished by any single Institute – but is the responsibility of NIH as a whole?**
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What is the NIH Roadmap?

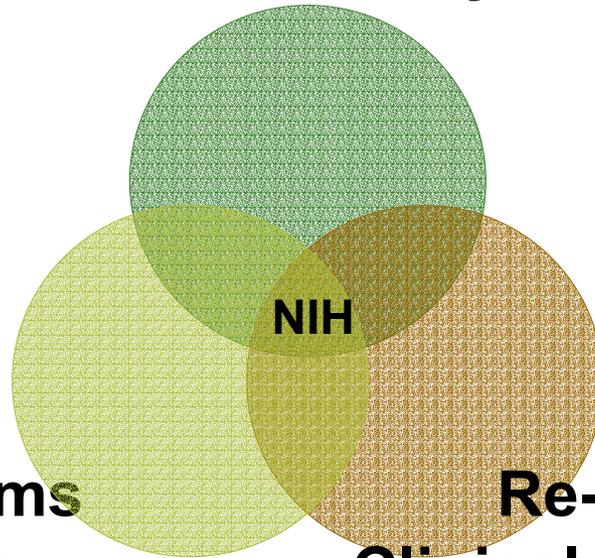
- A framework of priorities the NIH as a whole must address in order to optimize its entire research portfolio.
 - A set of initiatives that are central to extending the quality of healthy life for people in this country and around the world.
 - A vision for a more efficient and productive system of biomedical and behavioral research.
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Roadblocks

Bench  **Bedside**  **Public**

Three themes emerged....

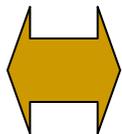
**New Pathways
to Discovery**



**Research Teams
of the Future**

**Re-engineering the
Clinical Research Enterprise**

New Pathways to Discovery

Bench  **Bedside**  **Public**



Building Blocks and
Pathways
Molecular Libraries
Bioinformatics and
Computational
Biology
Structural Biology
Nanomedicine

New Pathways to Discovery

Initiatives within this theme address technologies and approaches necessary to meet contemporary research challenges.

Including:

- Grasping the emerging complexity of biology
 - Understanding biological systems
 - Accessing biological data, technologies, and other scientific resources
 - Promoting Multi-and Interdisciplinary research
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Potential Outcomes of Molecular Libraries & Imaging Probes Activities

- Development of research tools (molecular probes and novel assays) to facilitate studies of biology and pathophysiology
 - Advances in biological research leading to the identification and validation of novel biological targets for therapeutics development
 - Discovery of biological markers to monitor disease progression and to predict treatment response
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National Centers for Biomedical Computing

- Partnerships of:
 - Computer scientists
 - Biomedical computational scientists
 - Experimental and clinical biomedical and behavioral researchers
 - Focused on software rather than hardware
 - Each National Center to have Driving Biological Projects
 - Programs in preparation for partnerships between individual investigators and National Centers
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Research Teams of the Future

Initiatives within this theme provides mechanisms for interdisciplinary research, high-risk strategies and public-private partnerships.

Including:

- Encouraging Multi- and Interdisciplinary teams
 - Supporting larger, coordinated, resource sharing teams
 - Preserving investigator-initiated strategy
 - Promoting investigators to take creative, unexplored avenues of research
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Multi- and Interdisciplinary Research will be Required to Solve the “Puzzle” of Complex Diseases and Conditions

Genes

Behavior

Diet/Nutrition

Infectious agents

Environment

Society

???



NIH Director's Pioneer Award

- New program to support individuals with untested, potentially groundbreaking ideas!
 - Encourages innovation, risk-taking
 - Totally new application and peer review process
 - Expected to be highly competitive
 - Expanded eligibility – (not only traditional biomedical investigators)
 - Provides \$500,000/year for 5 years
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Reengineering the Clinical Research Enterprise

Initiatives within this theme address the need for developing new strategies to enhance the infrastructure and capacity for clinical research and reenergize the clinical research workforce.

Including:

- Promoting better integration of existing clinical research networks, including NECTAR
 - Supporting translational research
 - Encouraging the development of technologies to improve the assessment of clinical outcomes
 - Harmonizing regulatory processes
 - Enhancing training for clinical researchers
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Roadmap Funding

(dollars in millions)

	FY04	FY05	FY06	FY07	FY08	FY09	Total
Pathways to Discovery	65	137	169	182	209	188	948
Research Teams	27	39	44	92	96	93	390
Clinical Research	38	61	120	174	214	227	833
Total	130	237	332	448	520	507	2,172

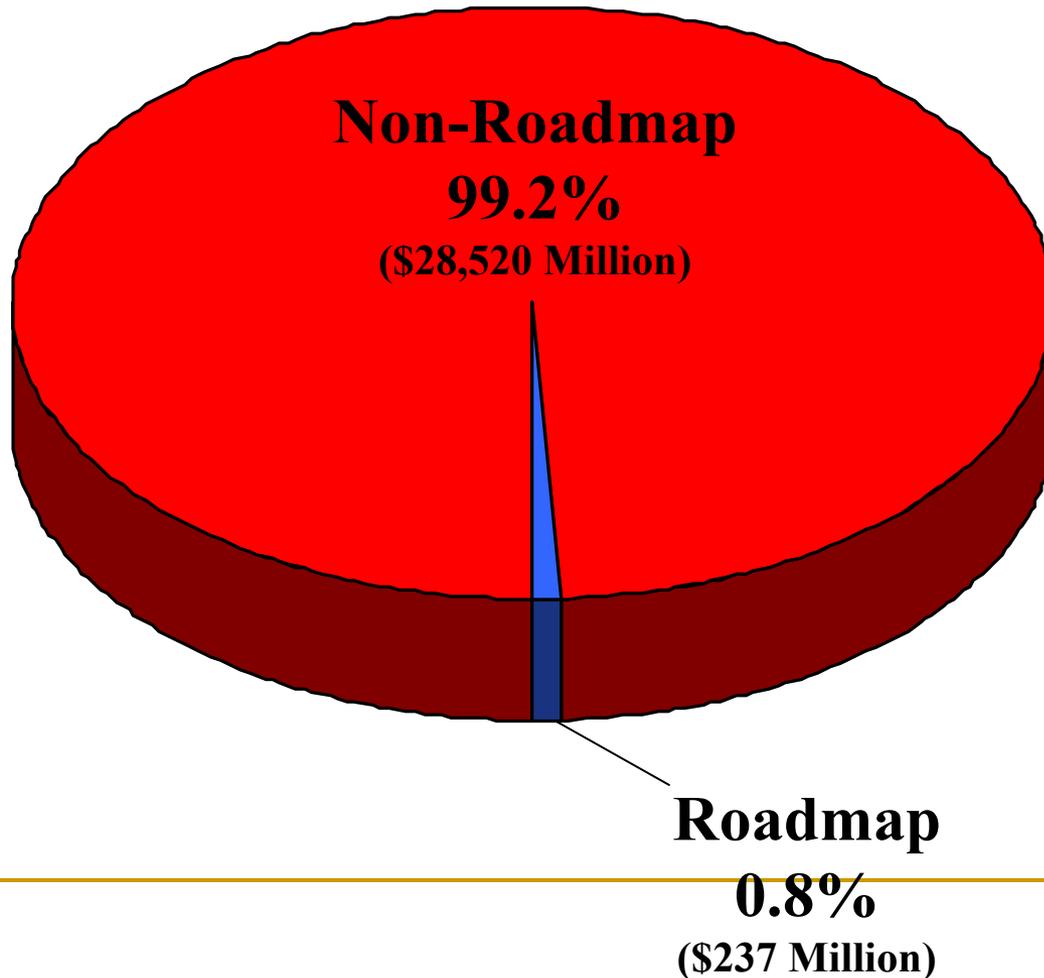
Directors Fund 35 60 ??

Roadmap initiative is about .9% of NIH budget

Totals on table may not add due to rounding

Roadmap Percent to Total NIH Budget

FY 2005 Request = \$28,757 Million



“How does the NIH Roadmap benefit research funded by NIH ICs?”

- Speeding removal of major and fundamental roadblocks common to all diseases
 - Institutes working together to solve issues
 - This is a common trans-NIH pool of transforming investments open to all disease areas and all investigators for competition
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Current Activity (as of June, 2004)

NEW PATHWAYS TO DISCOVERY

Building Blocks, Biological Pathways and Networks

- **Metabolomics Technology Development:**
<http://grants.nih.gov/grants/guide/rfa-files/RFA-RM-04-002.html>
- **National Technology Centers for Networks and Pathways:**
<http://grants.nih.gov/grants/guide/rfa-files/RFA-RM-04-005.html>

Bioinformatics and Computational Biology

- **National Centers for Biomedical Computing:**
<http://grants.nih.gov/grants/guide/rfa-files/RFA-RM-04-003.html>

Structural Biology

- **Centers for Innovation in Membrane Protein Production:**
<http://grants.nih.gov/grants/guide/rfa-files/RFA-RM-04-009.html>

Nanomedicine

- **Nanomedicine Center Concept Development Awards**
<http://grants.nih.gov/grants/guide/rfa-files/RFA-RM-04-018.htm>
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Current Activity (as of June, 2004)

Molecular Libraries

- **Molecular Libraries Small Molecule Repository:**
<http://grants1.nih.gov/grants/guide/notice-files/NOT-RM-04-003.html>
 - **Molecular Libraries High Throughput Screening Centers:**
<http://grants1.nih.gov/grants/guide/notice-files/NOT-RM-04-001.html>
 - **Development of High Resolution Probes for Cellular Imaging:**
<http://grants.nih.gov/grants/guide/rfa-files/RFA-RM-04-001.html>
 - **High Throughput Molecular Screening Assay Development:**
<http://grants1.nih.gov/grants/guide/rfa-files/RFA-RM-04-012.html>
 - **Molecular Libraries Screening Centers Network (MLSCN):**
<http://grants1.nih.gov/grants/guide/rfa-files/RFA-RM-04-017.html>
 - **Addendum to RFA-RM-04-017, "Molecular Libraries Screening Centers**
 - **Network (MLSCN) Funds Available"**
<http://grants.nih.gov/grants/guide/notice-files/NOT-RM-04-012.html>
 - **Molecular Libraries Screening Instrumentation:**
<http://grants.nih.gov/grants/guide/rfa-files/RFA-RM-04-020.html>
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Current Activity (as of June, 2004)

RESEARCH TEAMS OF THE FUTURE

Interdisciplinary Research

- Meetings and Networks for Methodological Development in Interdisciplinary Research: <http://grants1.nih.gov/grants/guide/rfa-files/RFA-RM-04-014.html>
- Training for a New Interdisciplinary Research Workforce: <http://grants1.nih.gov/grants/guide/rfa-files/RFA-RM-04-015.html>
- Supplements for Methodological Innovations in the Behavioral and Social Sciences: <http://grants.nih.gov/grants/guide/rfa-files/RFA-RM-04-013.html>
- Interdisciplinary Health Research Training: Behavior, Environment and Biology: <http://grants.nih.gov/grants/guide/rfa-files/RFA-RM-04-010.html>
- Short Programs for Interdisciplinary Research Training: <http://grants.nih.gov/grants/guide/rfa-files/RFA-RM-04-008.html>
- Curriculum Development Award in Interdisciplinary Research: <http://grants.nih.gov/grants/guide/rfa-files/RFA-RM-04-007.html>
- Exploratory Centers (P20) for Interdisciplinary Research: <http://grants.nih.gov/grants/guide/rfa-files/RFA-RM-04-004.html>

High Risk Research

- NIH Director's Pioneer Award: <http://grants1.nih.gov/grants/guide/notice-files/NOT-RM-04-007.html>
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Current Activity (as of June, 2004)

RE-ENGINEERING CLINICAL RESEARCH

- RFTOP-RM-169, Inventory and Evaluation of Clinical Research Networks:
<http://nihroadmap.nih.gov/grants/NIHRoadmap-INVENTORY-RFTOP169.pdf>
 - Re-Engineering the Clinical Research Enterprise: Feasibility of Integrating and Expanding Clinical Research Networks:
<http://nihroadmap.nih.gov/grants/rm-04-23.htm>
 - Dynamic Assessment of Patient-Reported Chronic Disease Outcomes:
<http://grants.nih.gov/grants/guide/rfa-files/RFA-RM-04-011.html>
 - Multidisciplinary Clinical Research Career Development Programs:
<http://grants.nih.gov/grants/guide/rfa-files/RFA-RM-04-006.html>
 - Development of a Conceptual Model and Feasibility Assessment of a National Clinical Research Associates Program:
<http://nihroadmap.nih.gov/grants/NIHRoadmap-RFQ-NCRA-031804.pdf>
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Consultation

Participation, consultation, and collaboration are needed from patients, health care providers, foundations, industry, academia, Federal partners
...all stakeholders

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The NIH Roadmap: *A Work in Progress*

