

Understanding NIH: Drinking from the Fire-hose

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National Institute of Biomedical Imaging and Bioengineering (NIBIB)
National Institutes of Health (NIH)**



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Know Your Target

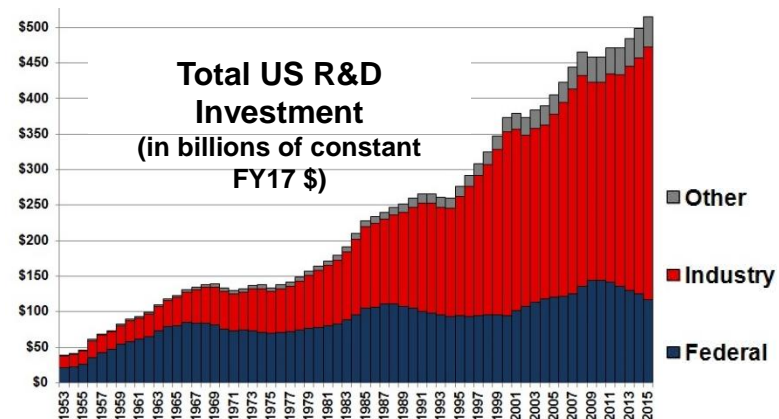
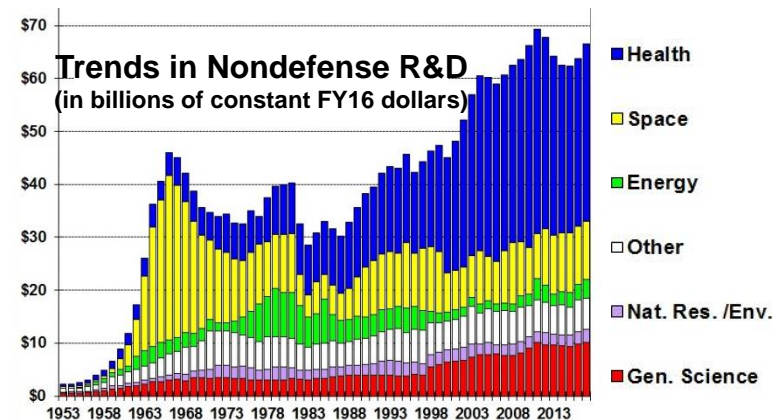
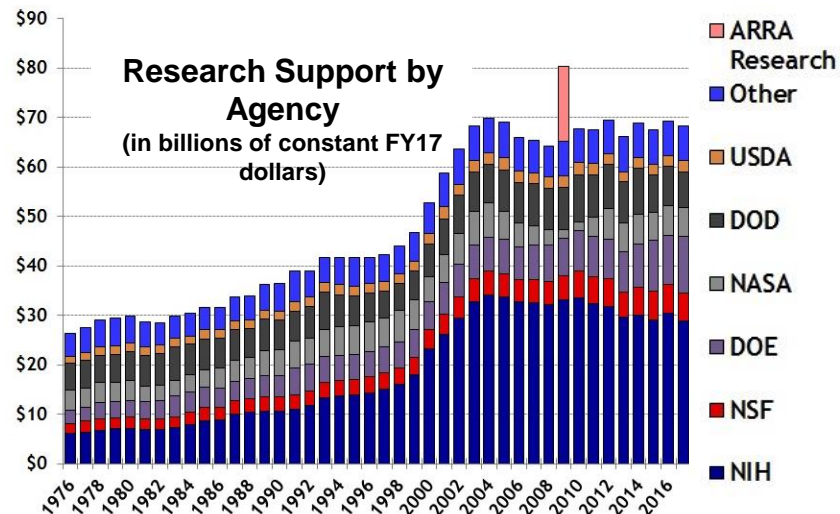
Federal Agencies in Science and Technology have **different**

- ✓ missions
- ✓ cultures
- ✓ rules
- ✓ levels of support
- ✓ expectations

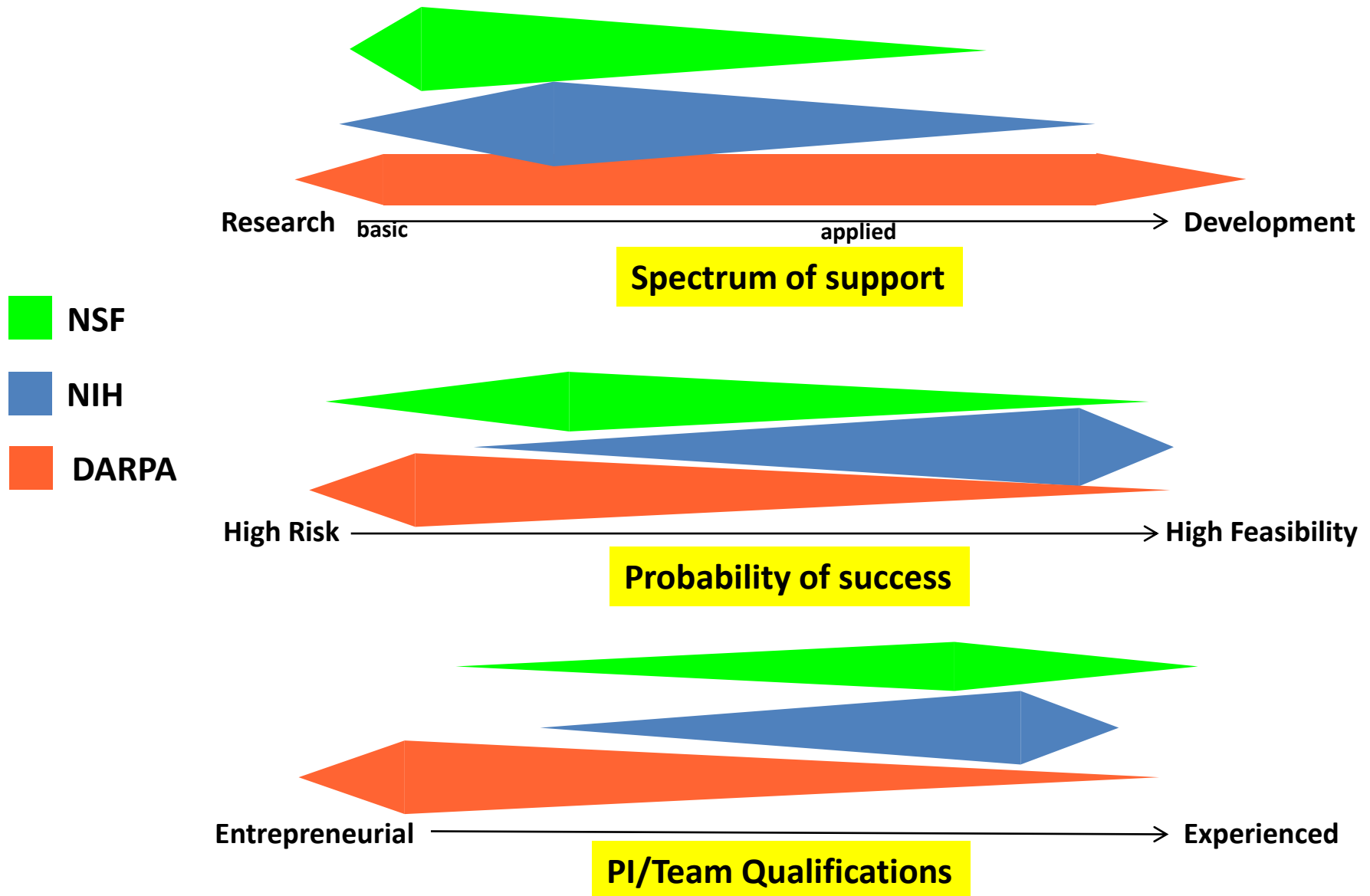


But the **same** overall goal

- ✓ protect the security, health, and well being of Americans
- ✓ maintain knowledge and application superiority
- ✓ fuel the engine of US economic growth



Different Agencies: Different Cultures



NIH is the steward of **medical and behavioral research** for the Nation.

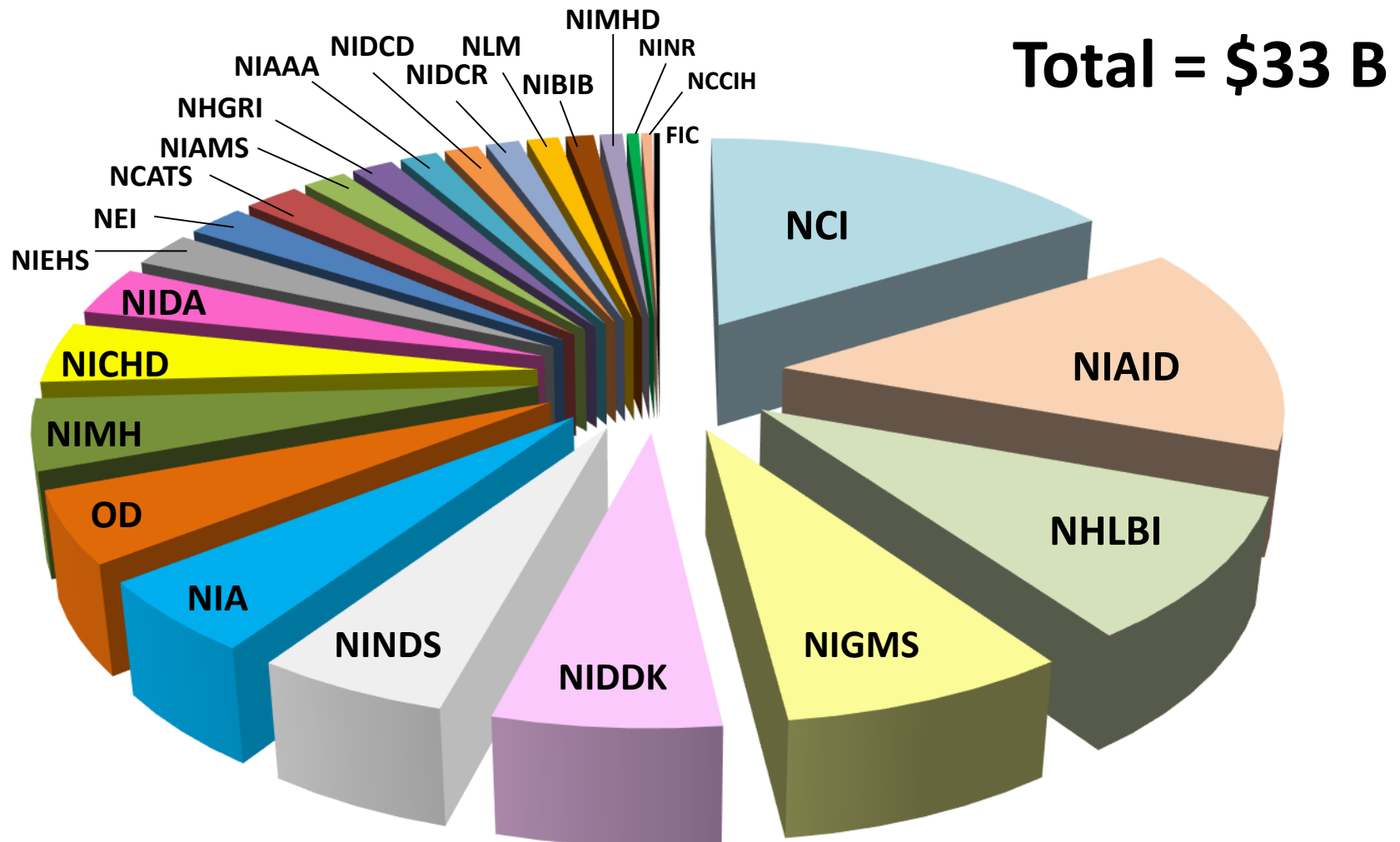
Its mission is to seek **fundamental knowledge** about the nature and behavior of living systems **and to apply that knowledge** to enhance human health, lengthen life, and reduce illness and disability.



National Institutes
of Health

NIH FY17 Budget

NIH Divides most of its investment according to the interests of the component parts (i.e. Institutes or Centers), with 5% allocated to trans-NIH initiatives.



About 85% distributed via Extramural grants, contracts, cooperative agreements

NIH “hot topics”

■ Essential Building Blocks of Research

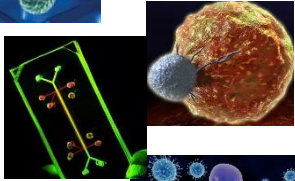
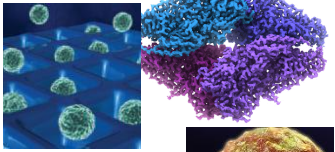
- **Mechanisms of biology and behavior, data science, new technologies**
 - Cryo-Electron Microscopy
 - Single cell analysis
- **Developing Effective Treatments and Cures**
 - Cancer Immunotherapy
 - Tissue Chips
- **Health Promotion and Disease Prevention**
 - Vaccines (e.g. influenza)

■ Implementing 21st Century Cures Act

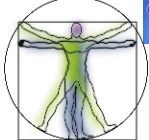
- **Precision Medicine Initiative (All of Us)**
 - Integrating clinical, environmental, lifestyle, genetic data over time
 - Individual variability effects on disease onset, progression, prevention, treatment
 - Health records of a million volunteers
- **BRAIN Initiative**
 - Fundamental science
 - Neuroimaging and mapping
- **Cancer Moonshot**
 - Prevention and early detection
 - Immunotherapy
 - Pediatric cancer
 - Data sharing
- **Regenerative Medicine**
 - Clinical research focus
 - Adult stem cells
 - Regulatory science (w/ FDA)

■ Battling Opioid Addiction

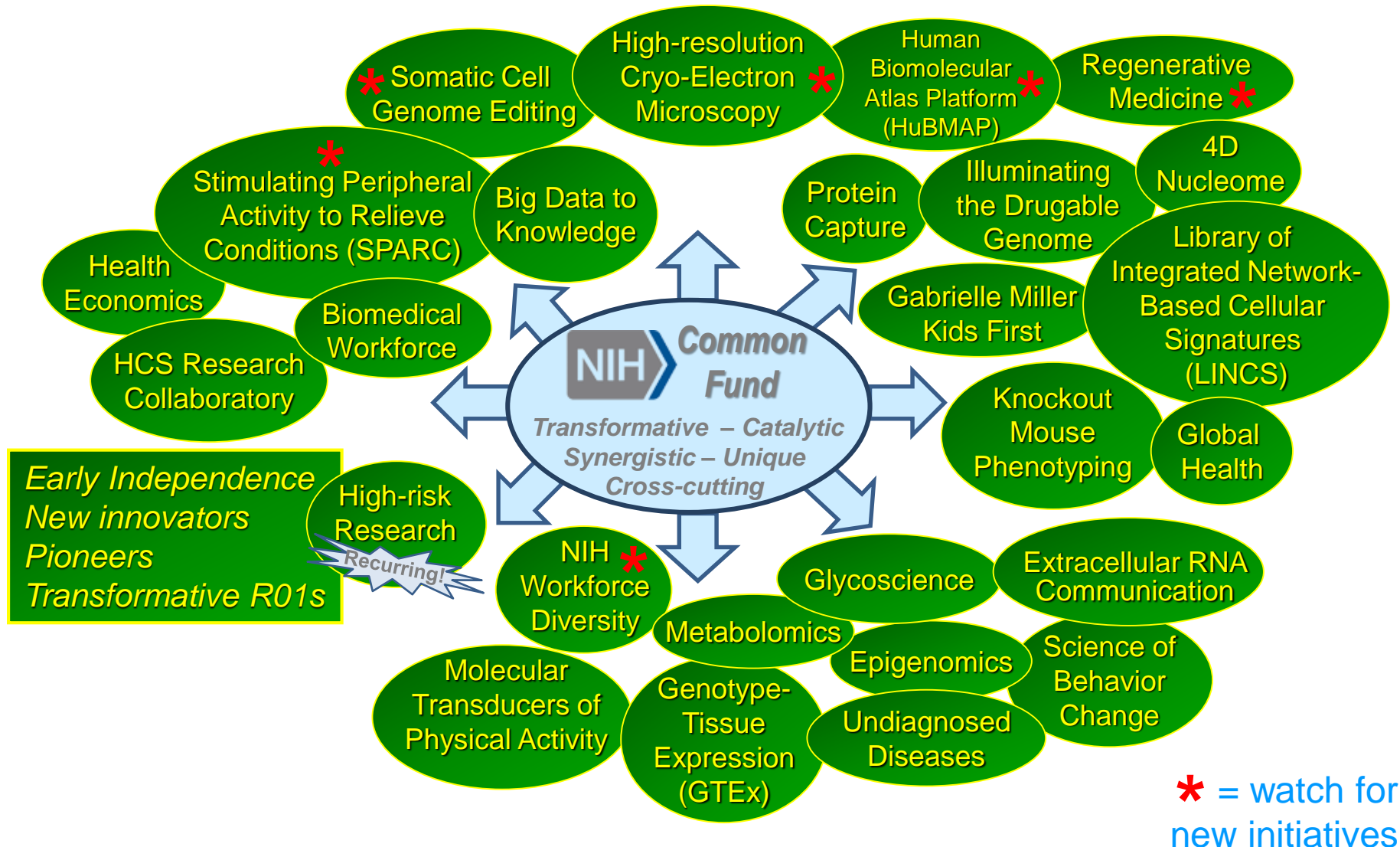
- New treatments for pain
- Understanding and managing drug misuse



Cancer
MoonShot
2020



Trans-NIH Programs



How Does NIH Solicit Applications?

- **Federal Opportunity Announcements (FOA) published through**

- the NIH Guide (<http://grants.nih.gov/grants/guide/>)
- grants.gov

- **Parent Announcements cover basic activity codes**

- investigator-initiated applications, spanning NIH mission

- **Special Opportunities to fill gaps**

- **Requests for Applications (RFA)**, a one-time call with set aside funds
- **Program Announcement (PA)** highlights areas of focus
- **Program Announcement with Special Review (PAR)** for special consideration and/or “protected” review
- **Program Announcement with Set Aside (PAS)** essentially, an RFA with multiple receipt dates





**New
Rules!**

Grant Submissions: Recent Changes

Rigor, Reproducibility, Transparency

- Scientific premise now a scorable criteria; must be justified by data
- Data processing must include statistical analysis (where applicable)
- Relevant biological variables (sex, age, etc.) must be considered in experimental design

IC Participation in R21(and R03) FOAs

- Read the Solicitation! Some ICs do not use these mechanisms
- Some ICs have their own basic versions, or use these mechanisms only for specific topics
- Amount, type of PRELIMINARY DATA a key consideration for R21

Human Subjects

- Inclusion Tables now required for all non-exempt human subjects research
- NIH defines a CLINICAL TRIAL very broadly (answer the four questions)
- FOAs recently subdivided into three types, based on clinical trials (not allowed, optional, required). Be sure to use the correct template!
- Clinical trials funded by NIH grants must be registered at ClinicalTrials.gov and report findings

NIH now using “Forms E” for application submission!

Grant
Basics

Funding
Initiatives

Due Dates,
Templates

Grants: A to Z



Search this Site



Glossary & Acronyms

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Grants & Funding



About Grants

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- Peer Review Process
- Award Management
- Foreign Grants Information
- Funding Strategies
- Avoid Grant Scams

Electronic Grants

- Electronic Research Admin (eRA)



FUNDING

Search NIH Guide for Grants and Contracts



- Funding Opportunities & Notices
- Unsolicited Applications (Parent Announcements)
- Advanced Search



Rock Talk

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Get To Know OER

NIH Regional Seminar Heads West to San Diego in October 2015

What are the Chances of Getting Funded?

Latest News

Application Submission News - June 10, 2015

Application Submission News - April 15, 2015

Potential Award Delays in May 2015

Upcoming Events

<http://grants.nih.gov/grants/oer.htm>

Does NIH Already Support My Interest Area?



U.S. Department of Health & Human Services

Printer Friendly



Text Size A A A



Research Portfolio Online Reporting Tools
(RePORT)

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RePORTER

The Report Expenditures and Results tool allows users to search a repository of NIH-funded research projects and access publications and patents resulting from NIH funding.

[More Details](#)



NIH Data Book

The NIH Data Book (NDB) provides basic summary statistics on extramural grants and contract awards, grant applications, the organizations that NIH supports, the trainees and fellows supported through NIH programs, and the national biomedical workforce.

[More Details](#)



Report Catalog

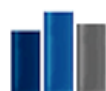
The Report Catalog is a menu driven interface geared for the NIH familiar user to provide customized reporting. A graphic depiction of some major funding mechanisms, and activity codes gives a hierarchical view of project organization.

[More Details](#)



Success Rates

Computed on a FY basis, success rates are defined by the percentage of



Funding Facts

Quick access to statistics from the NIH Data Book and annual reports produced



The Research, Condition, and Disease Categorization

<http://report.nih.gov/quicklinks.aspx>

NIH Searchable Databases Contain Abstracts of All Funded Projects



Research Portfolio Online Reporting Tools
(RePORT)

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[Home](#) > [RePORTER](#) > Query Form



NIH RePORTER

Version: 5.4.0

04/11/2013 Release Note: New enhancements now available.

[View Release Notes](#) for more information.

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DATA

QUERY

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CLEAR Q

NIH (non) ARRA Selection:



SELECT

Text Search (Logic):



☒ And ☐ Or ☐ Advanced

Search in

☒ Projects ☐ Publications ☐ Projects & Publications

Limit to

☐ Project Title ☐ Project Terms
☐ Project Abstracts

Limit Publication search to

Start Year End Year

2012

2013

Project Number:



Format: 5R01CA012345-04

Use '%' for wildcard, e.g. %R21%

[Enter multiple project numbers](#)

OR

NIH Sp

Agency

☒

Fun

Search by

- MESH terms
- Key words
- Organizations
- States
- Investigators
- Mechanisms
- Solicitations
- Institutes
- Investigators
- ...

Activity Code:



SELECT

Exclude Subprojects:



SELECT

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LINKS & DATA


System Health: GREEN

3 of Newly
ed Projects
























RePORter Delivers a Treasure Trove...

There were **10** results matching your search criteria.

Show/Hide Search Criteria 

Click on the column header to sort the results

T: Application Type; Act: Activity Code; Project: Admin IC, Serial No.; Year: Support Year/Supplement/Amendment

	T	Act	Project	Year	Sub #	Project Title	Contact PI/ Project Leader	Organization	FY	Admin IC	Funding IC	FY Total Cost by IC	Similar Projects
	1	R01	CA166111	01A1		TUMOR ANTIGEN-SPECIFIC T-CELLS AND HEPATOCELLULAR CARCINOMA	KAPLAN, DAVID E	UNIVERSITY OF PENNSYLVANIA	2013	NCI	NCI	\$249,000	
	5	R01	AR055993	03		TISSUE REGENERATION BY BIOPHYSICAL SIGNALING	KAPLAN, DAVID L et al.	TUFTS UNIVERSITY MEDFORD	2012	NIAMS	NIAMS	\$323,395	
	5	R01	AR061988	02		ELECTROTHERAPEUTIC STRATEGIES FOR CONNECTIVE TISSUE REPAIR	KAPLAN, DAVID L et al.	TUFTS UNIVERSITY MEDFORD	2012	NIAMS	NIAMS	\$645,728	
	3	P41	EB002520	09S1		TISSUE ENGINEERING RESOURCE CENTER	KAPLAN, DAVID L	TUFTS UNIVERSITY MEDFORD	2013	NIBIB	NIBIB	\$40,625	
	5	P41	EB002520	09		TISSUE ENGINEERING RESOURCE CENTER	KAPLAN, DAVID L	TUFTS UNIVERSITY MEDFORD	2012	NIBIB	NIBIB	\$1,152,600	
	5	R01	EB011620	03		BIOMATERIAL APPLICATIONS OF RECOMBINANT BACTERIAL COLLAGENS	KAPLAN, DAVID L et al.	TUFTS UNIVERSITY MEDFORD	2012	NIBIB	NIBIB	\$324,245	
	1	R01	EB014283	01A1		MULTIFUNCTIONAL TROPOELASTIN-SILK BIOMATERIAL SYSTEMS	KAPLAN, DAVID L	TUFTS UNIVERSITY MEDFORD	2012	NIBIB	NIBIB	\$305,288	
	1	U01	EB014976	01		MODELS TO PREDICT PROTEIN BIOMATERIAL PERFORMANCE	KAPLAN, DAVID L et al.	TUFTS UNIVERSITY MEDFORD	2012	NIBIB	NIBIB	\$646,995	
	1	R01	EB016041	01		IN VITRO BIOREACTOR SYS FOR PLATELET FORMATION	KAPLAN, DAVID L	TUFTS UNIVERSITY MEDFORD	2012	NIBIB	NIBIB	\$337,137	
	5	R01	EY020856	03		TISSUE ENGINEERING CORNEA REPLACEMENTS	KAPLAN, DAVID L	TUFTS UNIVERSITY MEDFORD	2012	NEI	NEI	\$369,557	

Click for
Abstract

... of Useful Information.

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System Health: ■ GREEN

Project Information?

5R01EB014283-02

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[Print Version](#)

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DESCRIPTION

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RESULTS

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SUBPROJECTS

SIMILAR PROJECTS

NEARBY PROJECTS BETA

[LINKS](#)

[NEWS AND MORE](#)

Project Number: 5R01EB014283-02

Title: MULTIFUNCTIONAL TROPOELASTIN-SILK BIOMATERIAL SYSTEMS

Contact PI / Project Leader: [KAPLAN, DAVID L](#)

Awardee Organization: TUFTS UNIVERSITY MEDFORD

Contact PI / Project Leader Information:

Program Official Information:

Other PI Information:

Profile Exists No Profile

Name: [KAPLAN, DAVID L](#)

Email: [Click to view Contact PI / Project Leader email address](#)

Title:

Name: HUNZIKER, ROSEMARIE

Email: [Click to view PO email address](#)

Not Applicable

Organization:

Department/ Organization Type:

Congressional District:

Name: TUFTS UNIVERSITY MEDFORD

City: MEDFORD Country: UNITED STATES (US)

ENGINEERING (ALL TYPES)

BIOMED ENGR/COL ENGR/ENGR STA

State Code: MA

District: 07

Other Information:

FOA: [FA-11-260](#)

Study Section: Gene and Drug Delivery Systems Study Section (GDD)

Fiscal Year: 2013 Award Notice Date: 25 JUL-2013

DUNS Number: 073134835

Project Start Date: 1-AUG-2012

Budget Start Date: 1-AUG-2013

CFDA Code: 286

Project End Date: 31-JUL-2016

Budget End Date: 31-JUL-2014

Local intranet | Protected Mode: Off

Even broader functionality from Federal RePORTER



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Federal RePORTER FAQ ?

System Health: GREEN



Federal RePORTER

Version: 2.6.0

07/15/2015 Release Note: New enhancements now available.

View [Release Notes](#) for more information.

Federal ExPORTER

Please try the new STAR METRICS ALPHA Federal RePORTER query form. Your feedback is greatly appreciated.

SEND FEEDBACK

SUBMIT QUERY

CLEAR QUERY

Fiscal Year (FY): ? 2014

SELECT

Agency: ?

SELECT

RESEARCHER AND ORGANIZATION

Principal Investigator (PI) /
Project Leader:

(Last Name, First Name)

Use '%' for wildcard

[Enter several PI/Project Leader names](#)

City: ?

Use '%' for wildcard

State: ?

SELECT

Organization: ?

LOOK UP

Country: ?

SELECT

<http://federalreporter.nih.gov/>

Need Help with Your Proposal...

Who Ya' Gonna' Call?

✓ **about the scientific and technical aspects of your application...**

- Find them on the solicitation
- See also the IC's programmatic descriptions (<http://www.nih.gov/icd/index.html>).

✓ **for questions during the review...**

- Listed on the eRA Commons link to your submitted proposal
- See also the review group rosters at the CSR web site

✓ **for help with the business aspects of a proposal...**

- Listed on the eRA Commons link to your submitted proposal
- See also the IC's programmatic descriptions (<http://www.nih.gov/icd/index.html>).



**Program
Director**

**Scientific
Review
Officer**

**Grants
Specialist**

NIH Program Officials: your primary contact

Pre-Application

- Assess the “fit” to the IC, Program(s)
- Start the conversation early: develop your ideas together
- Choose the right activity/mechanism
- Brief on Review Issues: Dos/Don'ts

Post Review

- Analyze the Summary Statement: deeper insights from the Review
- Understand the rating and assess the likelihood of funding
- BEWARE! Nothing is certain until you have it in writing



During the Award

- Discuss problems in execution (rebudgeting, re-scoping, extensions...)
- Find an administrator to address unusual issues
- Brag about important discoveries

Anytime

- Arrange introductions so you can serve on advisory boards, workshop panels, etc.
- Discover what's New and Coming Soon in Funding Opportunities

Application

Review

Award

NIH Institute/Center Web Sites

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Grants & Funding

News & Events

Research & Training

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About NIH

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INSTITUTES, CENTERS & OFFICES

NIH is made up of **27 Institutes and Centers**, each with a specific research agenda, often focusing on particular diseases or body systems. [NIH leadership](#) plays an active role in shaping the agency's activities and outlook. [Learn more about NIH](#) ▶

NIH OFFICES

NIH Office of the Director (OD)

The Office of the Director is the central office at NIH for its 27 Institutes and Centers. The OD is responsible for setting policy for NIH and for planning, managing, and coordinating the programs and activities of all the NIH components. OD's program offices include the Office of AIDS Research and the Office of Research on Women's Health, among others.

Quick Links

NCI	NIAMS	NIEHS	CIT
NEI	NIBIB	NIGMS	CSR
NHLBI	NICHD	NIMH	FIC
NHGRI	NIDCD	NIMHD	NCCAM
NIA	NIDCR	NINDS	NCATS
NIAAA	NIDDK	NINR	CC
NIAID	NIDA	NLM	OD

www.nih.gov/icd/

Each NIH Institute/Center has a HOME PAGE

NIBIB

National Institute of Biomedical Imaging and Bioengineering
National Institutes of Health

ENGINEERING & IMAGING FOR THE FUTURE

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CTC Microchip: A One-in-a-Billion Technology

With enough sensitivity to detect and trap a single at-large cancer cell from among a billion blood cells, the impressive new Circulating Tumor Cell (CTC) microchip is showing much promise as it points the way to a new era in the fight against cancer.



Learn More ►

Technology Focus

Health Information

Multimedia Gallery

Science Education

Research News



(Bdelloid) rotifer
Philodina roseola,



Model: <http://www.xxxxx.nih.gov>

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



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Research



+ Labs At NIBIB (Intramural)

Scientific Program Areas
(Extramural)

Biotechnology Resource Centers

Quantum Grants

Resources for Researchers

Home > Research > Scientific Program Areas (Extramural) > Biomaterials Program Area

Biomaterials Program Area

Staff Contact

Rosemarie Hunziker, Ph.D.



Description

This program supports the research and development of new or novel biomaterials that can be used for a broad spectrum of biomedical applications such as implantable devices; tissue engineering; imaging agents; and biosensors and actuators.

Research that is supported includes the design, synthesis, characterization, processing and manufacturing of these materials as well as the design and development of devices constructed of these materials and their clinical performance.

Relevant Study Sections

Biomaterials and Biointerfaces (BMBI)



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NIH Supports Non Hypothesis-Driven Research

There are two kinds of scientific revolutions, those driven by new tools and those driven by new concepts... The effect of a concept-driven revolution is to explain old things in new ways. The effect of a tool-driven revolution is to discover new things that have to be explained.

-Freeman Dyson, 1997

-Freeman Dyson, 1997





the NIBIB distinction...

- Technology development
- Enabling tools/approaches

Featured Mechanisms

- Bioengineering grants (EBRG, BRG, BRP)
- Biomedical Technology Resource Centers (P41)
- Quantum grants
- Trailblazers: NI R21s

Featured Programs

- Multiscale Modeling Consortium
- Pediatric Research using Integrated Sensor Monitoring Systems (PRISMS)
- Point-of-Care Technologies Research Network

It's not enough to be UNIQUE...
you must also be USEFUL.

Targeting IC Priorities: an example

NIBIB mission

accelerating the **application of biomedical technologies...**
[via] integrating the physical and engineering sciences with the life sciences to advance basic research and medical care.

NINDS mission

seek **fundamental knowledge about the brain and nervous system** and to use that knowledge to reduce the burden of neurological disease.

Novel polymer scaffold for tissue regeneration

Neural progenitor cells in biomimetic matrix in rat brain

Pivotal large animal studies for stroke therapy

Planning Meeting Output: Blueprint for Successful Research

Project Title: *really a quick summary*

Principal Investigator(s) and Key Personnel: *defines role, commitment*

Overall goal: *resolve an important issue in a timely manner*

Specific goal: *best stated as a hypothesis (a boastful claim, substantiated by data)*

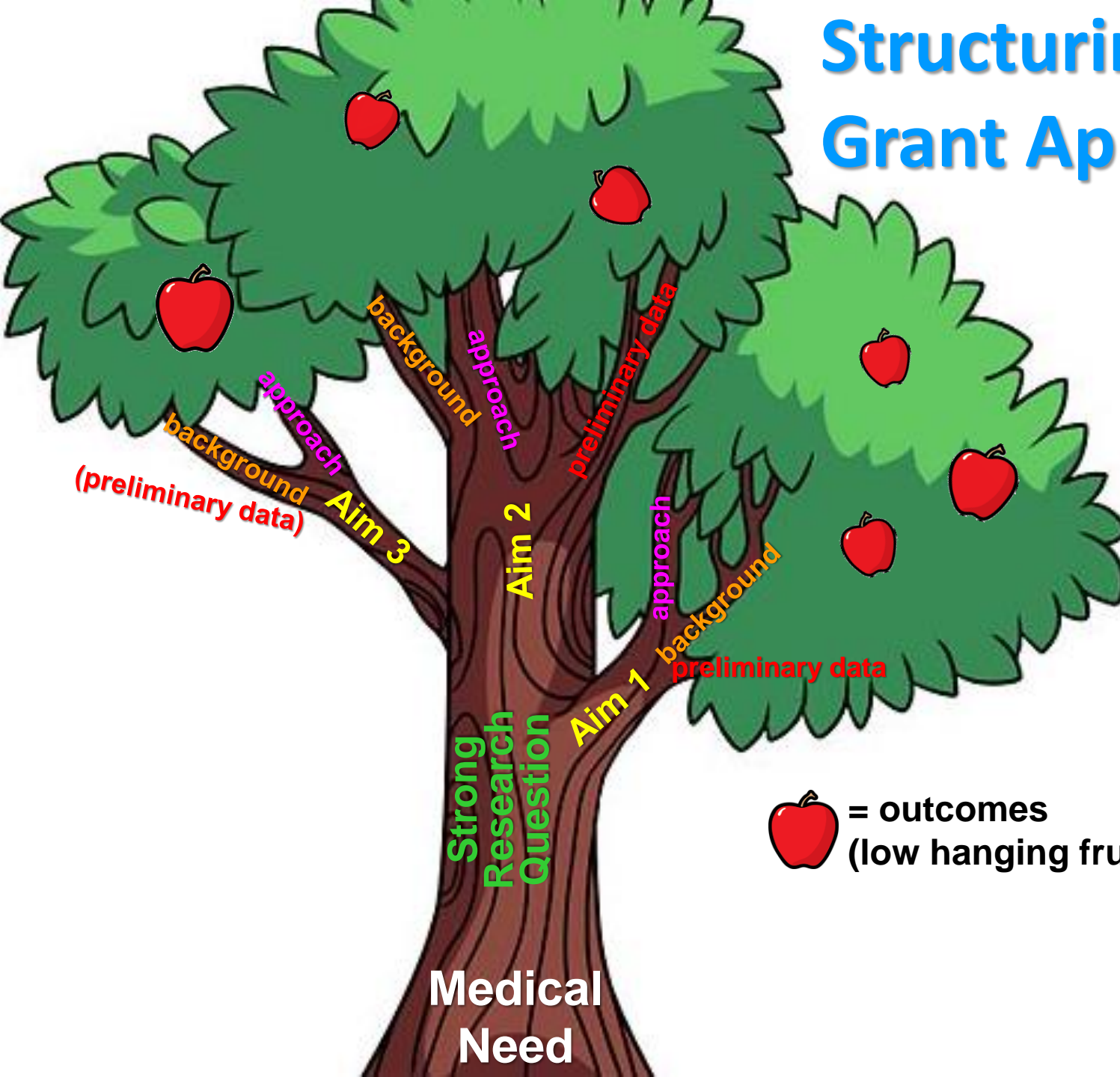
Impact: *2-3 sentences, define success, distill innovation and significance*


RESEARCH Responsibilities, Costs, Milestones and Timeline


	Overseer	Cost	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
1. Validate the ... <i>(THIS AIM MUST WORK—i.e. no/low risk here!)</i>										
1a. Compare... confirm...										
1b. Optimize the dose/time course...										
2. Elucidate the mechanism... <i>(May omit for high risk (e.g. R21) grants.)</i>										
2a.										
2b.										
2c.										
3. Assess the biocompatibility of ... in a ... <i>(Transition to next grant.)</i>										

* *High-risk element. Propose and discuss alternatives. Decision point.*

Structuring Your Grant Application



 = outcomes
(low hanging fruit)

A person in a red shirt and dark shorts is rappelling down a steep, layered rock face. The rock is illuminated by warm, golden light, suggesting sunset or sunrise. The person is positioned on the left side of the frame, with their body angled towards the right. The background shows a clear blue sky and a distant horizon line over the ocean. The overall mood is one of adventure and challenge.

**Start where you are.
Use what you have.
Do what you can.**

- Arthur Ashe

Hope for the best.

- Rosemarie Hunziker



Rosemarie Hunziker, PhD

Program Director,
Tissue Engineering/Regenerative Medicine

National Institute of Biomedical Imaging and
Bioengineering (NIBIB)
National Institutes of Health (NIH)

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www.nibib.nih.gov

Are you ready to run
with the big dogs?