

“Ways to and Opportunities for Team Science at BU”

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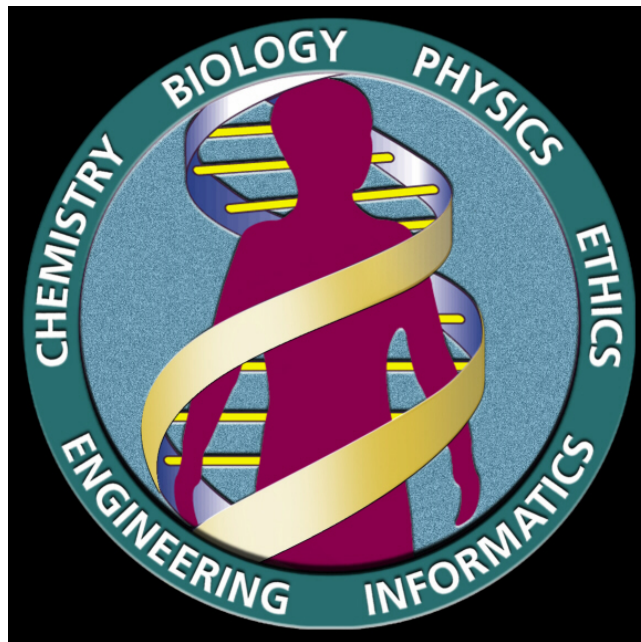
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What is Team Science?

- Investigators with different expertise, disciplines and background collaborate on a complex scientific problem working as a team
- Science of Team Science tries to empirically identify the best approaches to make collaborations successful and teams work effectively

Examples of Team Science

Human Genome Project

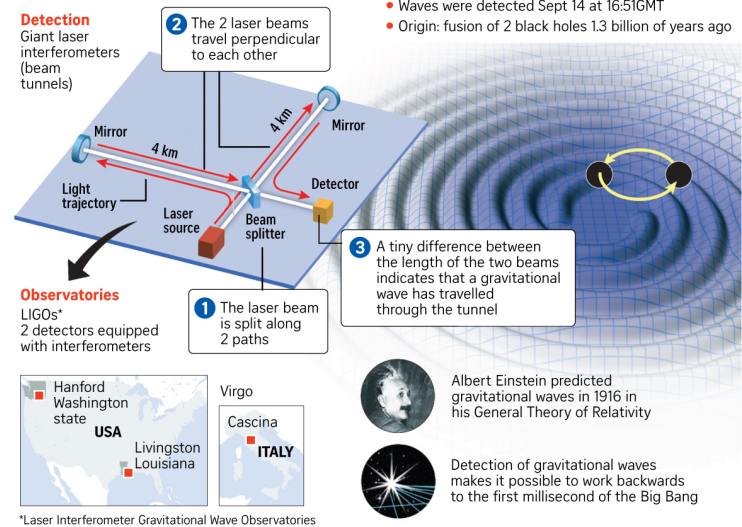


<http://humangenomeproject.yolasite.com/>

LSC: LIGO Scientific Collaboration

Gravitational waves observed directly for the first time

A major advancement that opens a window on the universe



<http://www.straitstimes.com>

Why do I care?

- Because it is very likely that, over the course of your career, you will be asked to participate in a collaboration or a science team
- Funding agencies are starting to require inter-disciplinary collaborations

Interdisciplinary Research to Understand the Vascular Contributions to Alzheimer's Disease (R01)

R01 Research Project Grant

New

None

RFA-AG-15-010

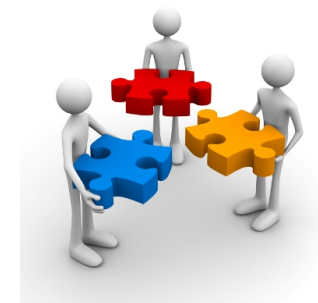
None

<http://grants.nih.gov/grants/guide/rfa-files/RFA-AG-15-010.html>

This FOA encourages collaborations among experts in physiology, systems biology, neuroimaging, metabolomics and other "omics", lipid metabolism, inflammation, epidemiology, genetics, and epigenetics, from the fields of Alzheimer's disease, cardiovascular disease, stroke, and diabetes.

Collaboration vs Research Teams

- Collaboration: each expert develops his/her contribution and the parts are later integrated



- Research teams: integrated collaborations, where decision-making, resources and credit are shared equally



Not always a team of experts is a successful team!

Main issue that can impact the success of a team

- Diversity of team members, although crucial for successful collaborations, can create a conflict
- Culture, priorities, expectations, methods, mindsets between team members may differ substantially

Examples:

MD vs PhD

Academia vs Industry

USA vs other countries

“Recipe” for a successful team

- **Leaders**: engaged; goals greater than “own”
- **Topic**: selection of high impact research areas, with potential to advance the academic growth of team members
- **Interdisciplinary**: inclusion of members from different departments/schools (boosting intellectual stimulation)
- **Reaching out/Technology sharing**: organization of technology-based workshops, seminars, symposia to bring the research community together
- **Plasticity/Creativity**: ability to branch out to new/extended topics
- **Support**: institution commitment and grant support to initiate new themes/ideas

The Five “C”s of Teamwork (drivers)

- Capability: novel ideas, unmet medical need
- Cooperation: right attitudes and willingness to work in a team (share tools, resources and data openly)
- Communication: communicate effectively with each other and outside
- Coaching: prepare group leaders and team members
- Conditions: supportive institutions (culture, resources)

What can institutions do to implement collaborations?

- Provide formal training on teamwork and leadership skills (how to form a team, how to conduct a meeting, how to facilitate discussion, project management)
- Establish programs and courses to train interdisciplinary scientists
- Support technologies to facilitate remote meetings and provide research networking systems

What can institutions do to implement collaborations? (cont'ed)

- Provide mentoring to early stage investigators from senior investigators, who have established successful collaborations
- Implement promotion and tenure review process to reward investigators involved in team science (USC, CWSM, ASU already implemented such guidelines)
- Implement hiring process to include investigators with expertise in different disciplines (usually experts in one specific discipline are preferred-culture change)
- Design space to favor interactions (Centers, Institutes)

Resources available to you at BU

Faculty Development and Diversity seminar series:

Leadership program

Managing difficult people

Conflict resolution

Communication skills

Constructive feedback

<http://www.bumc.bu.edu/fpf/professional-development/seminar-series/>

Affinity Research Collaboratives (ARCs)

- **Bottom-up approach**: research topic is chosen by self-assembled groups of faculty, under the advise of Evans Center's and now also university-wide IBRO Director (Dr. Ravid)
- **Interdisciplinary**: at least 5-8 faculty members from different departments/schools and from at least 2 different discipline
- **Open access philosophy**: members freely share resources, technologies, animal models, ideas, databases
- **Grant support**: members submit applications in November, peer-reviewed by faculty members
- **BU-wide with CRC as IBRO (Interdisciplinary Biomedical Research Office)**



www.bu.edu/research/ibro
www.bumc.bu.edu/evanscenteribr/the-arcs/
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Arterial Stiffness ARC

- **Mission**: to elucidate the molecular and genetic mechanisms of arterial stiffness, with the goal of developing therapies
- **Monthly meetings**: open discussions among members which included basic scientists, clinicians, bioengineers from both campuses
- **Seminars and a mini-symposium**: reach out to the scientific community by inviting experts in the field
- **New technology development**: developed state-of the-art methods to measure arterial stiffness in experimental animals
- **Educational**: 2 graduate students, 1 post-doc and 1 assistant professor
- **> 50 publications and grants submissions**

Finding collaborators

- **BU Profiles:** <http://profiles.bu.edu/search/>
- **BU-CTSI (Clinical & Translational Science Institute):**
<http://www.bu.edu/ctsi/>
- **IBRO survey:** <http://www.bu.edu/research/information-for/researchers/interdisciplinary-biomedical-research-office/ibro-interest-survey/survey/questionnaire> [bu.edu/research/ibro](http://www.bu.edu/research/ibro)
- **New Clinical-Basic Ground Rounds seminar series:** Fridays at 12-1pm, Keefer Auditorium, lunch provided (b.corkey@bu.edu)

BU-CTSI

- **Pilot grants**: offered yearly or twice a year
- **Resources**: cores, statistical consultations, translational bioinformatics and many more!

www.bu.edu/ctsi/resources

Tools to facilitate interactions

- **Adobe Connect**: remote meetings

<http://www.bu.edu/tech/services/comm/conf/web/>

- **Microsoft Sharepoint**: cloud-based platform to share and manage document files

<http://www.bu.edu/tech/services/comm/collaboration/sharepoint/>