Welcome to the MCB Virtual Office Hours, we will begin at 2pm EST!

Please submit questions by selecting the Q&A icon available to you on WebEx, and please set the ‘Ask’ option to ‘All Panelists’.
MCB Virtual Office Hour
Question and Answers Session:

Submit your questions via the Q&A icon on your screen and set the Ask option to “All Panelists”

- For specific questions about your project, please contact a Program Director
Molecular and Cellular Biosciences (MCB)

Supports quantitative, predictive and theory-driven research to understand complex living systems at the molecular, subcellular, and cellular levels

- Cellular Dynamics and Function
- Genetic Mechanisms
- Molecular Biophysics
- Systems and Synthetic Biology

https://www.nsf.gov/funding/programs.jsp?org=MCB
The cluster seeks theory-driven investigations of diverse cellular and subcellular systems. Research proposals are encouraged that use multidisciplinary physical, chemical, mathematical and computational approaches to provide novel techniques and integrative insight into fundamental cellular functions. Innovative proposals using plants, microbes, and nontraditional model species are encouraged. Proposals that rely heavily on descriptive approaches are given lower priority.

The cluster encourages proposals in the following areas:
- Predictive understanding of the behavior of living cells through integration of modeling and experimentation.
- Evolutionary approaches to understanding the rules governing cellular functions.
- Integration of function with emerging cellular properties across broad spatiotemporal scales, including ideas that consider cellular organization from the standpoint of soft condensed matter.

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<th>Email</th>
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The cluster supports inventive studies investigating fundamental mechanisms of evolution, organization, dynamics, and utilization of genetic information. Projects that employ theoretical, computational, and experimental approaches to integrate structural, biochemical, genetic, and "-omic" data are encouraged, particularly to discover rules explaining the maintenance and expression of genomes. Interdisciplinary research is encouraged, as is development and use of innovative in vivo and in vitro technical and computational approaches to address compelling questions.

Funding priority is given to proposals that employ quantitative frameworks, and promise significant advances and high impact in the following areas:

- Chromatin- and RNA-mediated regulatory mechanisms.
- Dynamics and spatiotemporal coordination of genome replication, DNA repair, chromatin modification, transcription, and translation.
- Origin and evolution of genetic polymers, including DNA, RNA and proteins.

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The cluster supports fundamental research into the interplay between structure, dynamics and function of biomolecules. Research projects with the goal of establishing the fundamental principles of biomolecular interactions, regulation of biological function at the molecular level, or using these principles to design new functions are of interest to the cluster. Theory-driven, predictive and verifiable investigations that utilize robust experimental and computational approaches in a synergistic fashion receive the highest priority. The cluster encourages studies under physiological conditions or those that mimic the native physiological environment, as well as research at the interface of biological sciences with the physical, chemical, mathematical and engineering sciences. Proposals involving mechanistic biochemistry or the study of systems from which broad biophysical principles cannot be derived are given lower priority.

Proposals in the following areas are particularly encouraged:
- Large scale computations that incorporate constraints obtained from a variety of experimental techniques.
- Methodological developments that inform biomolecular dynamics on multiple time- and length-scales in order to decipher their role in molecular recognition and function.
- Determination of the structure and interactions of very large bio-relevant assemblies in atomic or molecular detail.

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The cluster supports proposals that use the tools of systems and synthetic biology for a comprehensive understanding of complex interactions within biological systems across different scales. Proposals using experimental and computational approaches in a synergistic fashion are a high priority. The cluster seeks proposals using tractable established or emerging model systems that focus on: regulatory and metabolic network dynamics; fundamental rules governing complex behavior; and microbial communities and their interactions.

The cluster encourages proposals in the following areas:
• Mechanistic modeling of regulatory, signaling, and metabolic networks and the interactions among networks.
• The origins of life, the minimal cell and emerging behaviors of complex interactions.
• Novel experimental and computational tool development, including those that facilitate exploration and discovery of fundamental molecular scale mechanisms.
• Molecular to system-wide scale rules of assembly and function in natural or synthetic microbial communities and symbiotic partnerships.

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MCB Virtual Office Hour

Today’s Topics

- Broader Impacts: Plans, Budgets and Assessments
- Open question and answer session (you, our audience)
NSF Merit Review Criteria

NSF has two Merit Review Criteria:

- **Intellectual Merit**: The potential to advance knowledge
- **Broader Impacts**: The potential to benefit society including:
NSF Merit Review Criteria

NSF has two Merit Review Criteria:

• **Intellectual Merit**: The potential to advance knowledge

• **Broader Impacts**: The potential to benefit society including:
  o Training / Education
  o Community outreach / Increasing public understanding of science
  o Increasing participation of underrepresented groups
  o Dissemination of research outcomes
  o Enhancement of resources / infrastructure for the scientific community (datasets, genetic stocks, phenotyping tools, new technology, etc.)

Broader Impact examples are posted on the MCB Blog: [https://mcbblog.nsfbio.com/tag/1902859/](https://mcbblog.nsfbio.com/tag/1902859/)
Writing the Broader Impacts Section of Your Proposal

- Identify your audience
- Frame a big picture
- Identify significant needs, gaps, and hypotheses
- Describe the plan to address the needs, gaps, and hypotheses
- Emphasize creative or innovative aspects
- Provide proof-of-concept
- Describe the expected outcomes
- Describe your assessment plan
FAQs on Broader Impacts

- Is there a formula?
- Should I pick a few activities from a smorgasbord?
- How much time should I devote to this endeavor?
- Can I use existing programs at my institution?
- How do I pay for broader impact activities?
- What if my institution won’t support my efforts?
- How do I assess broader impacts?
General Advice

• It’s not a formula
  - Take up activities that interest you, potentially synergize with your research, have measurable outcomes, and match the time you are willing to devote to them
  - Go above and beyond what you are already paid to do

• Ask for the money you need to accomplish your goals

• Use existing infrastructure, as appropriate
  - But…give, as well as take
  - Realize that institutions certify to support your efforts

• Assessment strategies vary with each activity - ask for help

• More help is at ARIS: www.researchinsociety.org
Advancing Research Impact in Society

- Providing resources for the Broader Impacts community
- Partnering for scholarship and professional development
- Connecting researchers, practitioners and communities to benefit society

www.researchinsociety.org  @ARISImpacts
Funding your Broader Impacts

- Put costs in your budget
- Category: Participant Support

![Budget Table]

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<td>TOTAL PARTICIPANT COSTS</td>
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<td>G. OTHER DIRECT COSTS</td>
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This budget category refers to **direct** costs for items such as stipends or subsistence allowances, travel allowances, and registration fees paid to or on behalf of participants or trainees (but not employees) in connection with NSF-sponsored conferences or training projects. Any additional categories of participant support costs other than those described in 2 CFR § 200.75 (such as incentives, gifts, souvenirs, t-shirts and memorabilia), must be justified in the budget justification, and such costs will be closely scrutinized by NSF...

**PAPPG, Chapter II.C.2g(v)**
Participant Personnel

- Participants
  - Undergraduates
  - Teachers
  - High school students

- Not your graduate students or postdocs; they are considered employees
Allowable Costs

• Stipends for the participants
• Travel, for out-of-town participants to come to your training site
• Subsistence
  • Housing, e.g., dormitory or hotel
  • Meals, as needed during the training period, e.g. “board” or per diem, not catering
• Other
  • Supplies (office or laboratory or field)
  • Registration or other fees
  • Not room rental or catering fees

When in doubt, ask your Program Director!
BROADER IMPACTS — IF IT WORKS, KEEP DOING IT

Broader impacts are activities which advance societal goals through either the research itself or through complimentary efforts that advance the larger enterprise of science. Broader Impact activities don’t have to be original, one-of-a-kind ideas. However, they should clearly address a need, be well-planned and documented, and include both a thoughtful budget and a thorough assessment plan. Principle investigator Allyson O’Donnell uses near-peer mentoring to pair high school students from under-represented minorities with undergraduates in the O’Donnell lab at the University of Pittsburgh, and assesses the outcomes to identify impact.

High school student Hanna Barsouk (Taylor Allderdice High School) and undergraduate student Ceara McAtee (University of Pittsburgh) work on a project in the O’Donnell Laboratory at the University of Pittsburgh.

https://mcbblog.nsfbio.com/2019/06/27/broader-impacts-if-it-works-keep-doing-it/
Get to know your Program Directors!
We are here to help!
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Select the “Q&A” icon on the bottom of your screen

Select “All Panelists” and enter questions in box

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