

# EDGE Program

Enabling Discovery through Genomic Tools

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# EDGE Webinar Outline

## 1. Program Overview

- a. purpose and goals
- b. examples of programmatic fit
- c. differences from other programs in BIO

## 2. Submission Requirements

- a. proposal sections
- b. no deadline

## 3. Review Criteria

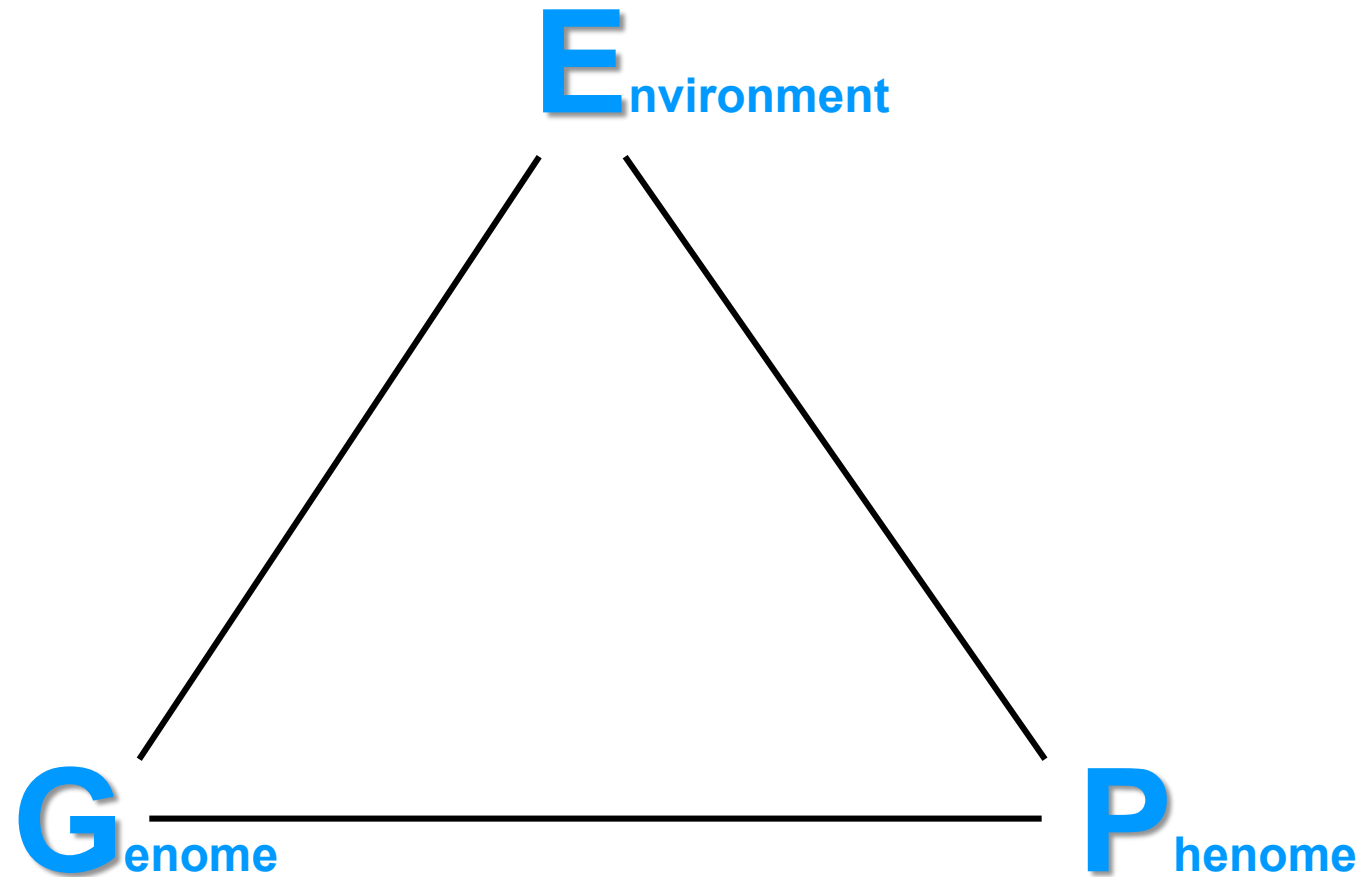
- a. NSF merit review criteria
- b. solicitation-specific criteria

## 3. Questions



# Program Overview

Fundamental question in biology:



# Program Overview

## Purpose

Enable advancement of understanding the relation between genomes and phenomes – part of Rules of Life

## Goals

To support:

- (1) development of **tools**, approaches, and infrastructure for testing cause and effect hypotheses between gene function and phenotypes in **organisms for which such methods are presently unavailable**
- (2) hypothesis-driven **research** that tests cause-and-effect relations between genotype(s) and phenotypes **in diverse non-model organisms within the context (environmental, developmental, social, and/or genomic) in which they function**



# Program Overview

## Functional Genomics Tools Track (FGT)

For example:

- Development of mutant libraries and/or high-quality reference genomes
- Generalizable high-throughput phenotyping methods
- Innovative approaches for manipulating individual genes or multiple genes simultaneously
- Innovative approaches to test gene function in targeted, single cells in organisms
- Innovative approaches for establishing function of single or networks of genes

## Complex Multigenic Traits Track (CMT)

For example:

- Systems-level analysis of the gene regulatory networks underlying complex traits
- Innovative analytical approaches to linking genes and complex traits
- Elucidation of the causal connections across levels of biological organization that underlie complex multigenic traits
- Elucidation of multi-genome/epigenome interactions with the environment, with the goal of predicting complex organismal phenotypes across contexts

**Functional Genomics in Diverse Organisms**



# Program Overview

## Functional genomics EDGE does not support:

- Model organisms  
Complex Multigenic Trait Track permits use of model organism but must include extension to non-model organism to demonstrate generalizability
- Sequencing, bioinformatics, or in-silico biology exclusively

## Tool development or research supported by other programs:

Examples:

Core Programs Track in DBI, DEB, IOS, and MCB  
Rules of Life Track in DBI, DEB, IOS, and MCB  
Plant Genome Research Program (PGRP)  
Infrastructure Innovation for Biological Research (IIBR)  
Infrastructure Capacity for Biology (ICB)  
Mid-scale Research Infrastructure 1 and 2 (MSRI-1, MSRI-2)



# Submission Requirements

## Proposals Accepted Anytime

**no submission deadline**

## Title

Functional Genomics Tools Track: “FGT:.....”

Complex Multigenic Traits Track: “CMT:.....”

## Titled sub-sections of the Project Description

FGT and CMT proposals:

- Intellectual Merit
- Experimental Approach
- Broader Impacts

additional sub-section for FGT proposals:

- Research Community Impact



# Submission Requirements

## Supplementary Documents

FGT or CMT proposals that involve multiple organizations:

- Project Management Plan

additional Supplementary Document for FGT proposals:

- Dissemination and Education Plan

## Data Management Plan

required per the Proposal and Awards Policies and Procedures Guide NSF 19-1

## Collaborative Proposal

**Single proposal:** one organization as the lead; all other organizations as subawardees

## Budget and Duration

up to \$2 million

up to 4 years





# Review Criteria

## Intellectual Merit

Potential to advance knowledge

- Compelling case that project will enable (FGT) or achieve (CMT) direct tests of hypotheses about gene function in non-model organism(s)
- Compelling case that project will accelerate advances in cellular, organismal, or evolutionary biology
- Plan for carrying out the proposed activities that is well-reasoned, well-organized, and based on sound rationale
- Individuals or team are well qualified to carry out the proposed activities

## Broader Impacts

Potential to benefit society and contribute to the achievement of specific societal outcomes

- Plan for broadening participation, public education, training the next generation, and/or advance other desired societal outcomes
- Plan for carrying out the proposed activities that is well-reasoned, well-organized, and based on sound rationale
- Individuals or team are well qualified to carry out the proposed activities



# Review Criteria

## Solicitation-specific review criteria

For both FGT and CMT proposals:

- Potential catalytic impact on advancing research and on associated research communities toward understanding genome-to-phenome relationships across levels of analysis and across biotic and abiotic contexts
- Feasibility of the proposed methods and approaches to achieve the stated goals and the likelihood of success

For FGT or CMT proposals that involve multiple organizations:

- Quality of the Project Management Plan and likelihood of successful project coordination

Additional review criterium for FGT proposals:

- quality and potential for rapid and high impact of the Dissemination and Education Plan



# EDGE Webinar

## Questions?

Use **WebEx Q&A** to submit questions to “**All Panelists**”

EDGE Program page:

[https://nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=505480](https://nsf.gov/funding/pgm_summ.jsp?pims_id=505480)

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