Circuit Dynamics Request for Applications

SFARI mission
The Simons Foundation Autism Research Initiative (SFARI) seeks to improve the diagnosis and treatment of autism spectrum disorders by funding innovative research of the highest quality and relevance.

Objective of the circuit dynamics awards
This Request for Applications (RFA) is intended to advance our understanding of the circuit basis for behavioral and cognitive alterations relevant to autism spectrum disorders (ASD). The goal is to determine the downstream consequences of autism-associated genetic perturbations on neural circuitry, with an emphasis on how collections of neurons operate in concert during autism-relevant behaviors.

To this end, we seek applications for investigations of neural circuits in awake, behaving rodent models of autism. It is anticipated that SFARI will work closely with awarded investigative teams on all major aspects of the project, including selection of rodent models, data coordination and dissemination.

Characterization of circuit dynamics
Converging evidence from numerous studies has implicated synaptic genes and dysfunction in the etiology of autism\(^1,2\). The functional consequences of such synaptic abnormalities are hypothesized to impact neural dynamics\(^3\) at the microcircuit (connectivity within a brain region) and macrocircuit (connectivity between brain regions) levels. However, research to address this hypothesis and the possible relationship to autism-relevant behaviors is still in its nascent stages.

To address this gap, we request proposals that strive to understand the links between circuit dynamics and behaviors. Therefore, priority should be given to those behaviors for which the underlying circuits are reasonably well established. Exploratory analysis in other circuits is acceptable if the behavior is highly relevant to autism. Experiments should include electrical or optical multi-neuronal recordings within microcircuits or macrocircuits. Studies should center on brain activity in awake, behaving animals. The use of anesthetized or reduced preparations may be proposed, but only in support of the experiments in awake animals.

In order to find commonalities and distinctions between models, recordings should be carried out in two or more rodent models of autism, with a view to future inclusion of additional models.

As with all complex projects, some technical optimization is expected; however, the majority of the project period should not be devoted to development of technical capabilities. As such, we expect that competitive applications will be from labs proposing to apply their established technical capabilities to the study of autism rodent models.

Which models?
SFARI prioritizes animal models with strong construct validity based on human genetic studies of autism. To this end, SFARI is currently funding systematic behavioral testing
on select mouse models and increasing their availability to the broader scientific community through The Jackson Laboratory. Investigators are strongly encouraged to consider using this resource when developing their experimental plans.

Given the breadth of knowledge about the genetics of autism, SFARI expects and encourages most applicants to focus on genetic mouse models, but other mouse or rat models may be proposed if the application contains a compelling rationale based on strong evidence from human studies.

Eligibility and collaboration
All applicants and key collaborators must hold a Ph.D., M.D. or equivalent degree and have a faculty position or the equivalent at a college, university, medical school or other research facility. Applications may be submitted by domestic and foreign nonprofit organizations; public and private institutions, such as colleges, universities, hospitals, laboratories, units of state and local government; and eligible agencies of the federal government. There are no citizenship or country requirements.

If the proposal includes investigators at more than one site, all investigators should have demonstrated prior success in such collaborations.

Funding period and budget
The grant period is for two (2) years, although continued funding is possible, contingent on satisfactory study progress. During this initial two-year period, SFARI has committed a total of $1 million annually for this RFA.

Application requirements
The deadline for application submission is 21 June 2013, 5 p.m. EDT. No extensions will be given. If you have any difficulties, please contact grants@simonsfoundation.org.

Applications should include the following:

1. Narrative, not exceeding six (6) pages (excluding references and figures). Proposals should include specific aims, background relevant to the application, significance of the proposed studies, preliminary results, experimental design, pitfalls and alternative strategies, relevance to autism, and a timeline with milestones.

2. Biosketches for Principal Investigator(s) and Key Collaborators. The investigative team should include members with strong expertise in the physiological recordings and behaviors they propose in their application.

3. Current and pending support for Principal Investigator(s) and Key Collaborators.

4. Budget. While there are no budget caps on the individual applications, budgets will strongly factor into the competitiveness of an application. Therefore, proposals should include a realistic budget sufficiently detailed for evaluation of needed resources. SFARI will work closely with investigative teams with competitive applications to arrive at a suitable budget. Indirect costs are limited to 20 percent of the modified total direct costs (see SFARI policies).
Applications with multiple PIs from different institutions that would like to be paid separately must include a signed budget template and budget justification for each PI institution. Applications with subcontracts must include a budget and budget justification. The budget template and budget justification are available for download in the proposal attachments section of proposalCENTRAL’s full application.

5. Research environment and resources. Investigators should demonstrate access to appropriate resources for high-capacity data collection and analysis, although SFARI will work with awarded investigative teams to provide additional informatics support as needed.

6. Data-sharing plan. The plan should include sharing of raw and analyzed data. SFARI will work closely with awarded investigative teams to ensure that the final plan includes timely dissemination of data with reasonable embargo provisions.

For more details, see the Instructions document available for download in the proposal attachments section of proposalCENTRAL.

Application deadline
The deadline for full proposal submission is 21 June 2013, 5 p.m. EDT. Competitive applications will receive external peer review. SFARI will make final funding decisions; notification of award is expected by 1 October 2013, with funding expected to begin 1 November 2013.

Instructions for submission
Applications must be completed electronically and submitted using forms provided at proposalCENTRAL. Please log in as an applicant, scroll to ‘Simons Foundation’ and click on the program.

Contacts
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References: