Autism Rat Models Consortium 2.0 RFA

Grants awarded through this request for applications (RFA) are intended to recharge and extend a consortium of researchers using rats as an experimental system to advance our understanding of the behavioral and circuit neuroscience mechanisms underlying autism and related neurodevelopmental disorders (NDD).

Policies and Procedures
Application Available
January 6, 2025

Important Dates

Application Available
January 6, 2025

Informational Zoom Meeting
January 23, 2025

Application Deadline
March 6, 2025

Team Presentations
June 20, 23, 24, 2025

Award Notification
July 2025

Award Start Dates
Beginning October 1, 2025

SFARI Mission

SFARI's mission is to advance the basic science of autism and related neurodevelopmental disorders.

Background and Objectives

Grants awarded through this request for applications (RFA) are intended to recharge and extend a consortium of researchers using rats as an experimental system to advance our understanding of the behavioral and circuit neuroscience mechanisms underlying autism and related neurodevelopmental disorders (NDD).

SFARI launched the Autism Rat Models Consortium (ARC) in 2022 with a group of researchers funded through the original Autism Rat Models Consortium RFA. These researchers are using rats generated with SFARI funding that carry mutations in high-confidence genes that in humans significantly increase the likelihood of developing autism and related NDD. These genes include *FMR1*, *ARID1B*, *CHD8*, *CNTNAP2*, *DYRK1A*, *NRXN1*, *SCN2A* and *GRIN2B*, and all lines are on the Long-Evans outbred genetic background (Charles River Laboratories). As part of the consortium, these same rat models are being evaluated through a comprehensive behavioral phenotyping pipeline established by the Simons Initiative for the Developing Brain (SIDB). Access to these models, as well the resulting data from the SIDB pipeline, are available to any qualified researcher.

ARC members have studied the behavior and neurophysiology underlying social interaction[1–3], sensory processing[4], navigation[5–7] and learning and memory[8–11] in these models, finding similarities across genes for some phenotypes as well as an interesting array of differences both across lines and within individuals of the same lines. Throughout this work, ARC members have shared methods, reagents and data within the consortium leading to new insights and research directions in many cases.

SFARI is launching a new RFA to build upon the successes of the initial phase of ARC as well as to integrate new ideas and new researchers into the existing collaborative framework. As in the original RFA, awardees of this RFA will work as a consortium to use these rat models to further our understanding of the behaviors and underlying neural circuits relevant to autism and related NDD.

Scientific Scope and Priorities

Proposals are expected to utilize SFARI rat models (additional rat models generated elsewhere may be added if relevant to autism/NDD) to conduct in-depth behavioral and/c circuit analyses to further understand mechanisms underlying autism and NDD. Competitive applications will utilize the rat's advantages as a highly trainable species innately capable of expressing varied, complex behavior. We also encourage proposals that incorporate recent advances in high-resolution behavioral phenotyping (e.g. refs 1 and 12) as well as neural imaging and analysis.

SFARI is interested in a diversity of relevant functional domains—from sensorimotor to cognitive, sleep to social/affective functioning and beyond. Applicants should familiarize themselves with relevant phenotypes in humans with variants in the genes that are disrupted in rats. Applicants are also encouraged to note findings from other species witl disruptions in the same gene(s) in thinking about which functional domains to focus on and which rat model(s) to study. Proposals directly comparing phenotypes across rats an other species with mutations in the same genes are within scope for this RFA. SFARI encourages applicants to utilize resources such as SFARI Gene and Simons Searchlight a starting points for their literature review.

Regardless of the domain(s) of focus, applicants should consider framing hypotheses fro genes to circuits to behavior. We also encourage applicants to examine the development trajectory of the behavioral and circuit phenotypes they plan to study, particularly as the larger size of rats relative to mice makes such studies more feasible.

Consortium Framework

As with the first phase of ARC, SFARI will facilitate coordination across all funded project (including both tracks, see below) through a research consortium. Participation in the consortium involves quarterly Zoom calls amongst PIs, monthly calls for trainees and an annual in-person workshop. Consortium members are also required to share data, reagents and protocols with other consortium members prior to publication throughout the grant period, via a platform managed by SFARI, and to adhere to SFARI's broader data-sharing policies. SIDB will also regularly update and provide consortium members with full access to data obtained from the SFARI rat models in their behavior phenotypinç pipeline. Costs associated with attending any SFARI-initiated meetings will be covered separately by the Simons Foundation, and limited funds are also available for additional collaborative opportunities (e.g. visits to SIDB or other consortium labs).

Level and Duration of Funding

To maintain successful collaborations developed during the first phase of ARC, as well as to infuse the consortium with new ideas and membership, SFARI will offer two tracks within this RFA: Explorer and Collaboration. Applicants should select the track that best matches the maturity and goals of their research project, as review criteria will be appropriately adapted for each track. We encourage investigators to take advantage of th flexibility in budget and duration, tailoring the scope of the award as appropriate for their specific aims. Funds are expected to be expended as requested during each annual budget period.

Please note that in the event of budgetary or other considerations, the Simons Foundatio Inc. reserves the right to refer an application that has advanced through scientific review to the Simons Foundation International, Ltd. (SFI) for consideration and funding, in which case SFI's grant policies would apply.

Explorer track

The Explorer track is especially suited for those who have experience studying rat models but are new to studying autism/NDD and/or are focused on a functional domain or question that is not well represented in existing consortium projects. Explorer projects are meant to support individual labs or small collaborative groups. The total budget is $200,000, inclusive of 20 percent indirect costs, for each year of funding over a period of two (2) years, with the possibility of an additional two (2) years of funding for successful projects based on progress in the first two years. Allowable indirect costs to the primary institution for subcontracts are not included in the total budget threshold (see grant policies).

Collaboration track

The Collaboration track is appropriate for multi-lab collaborative projects that are based o existing work in autism/NDD-relevant rat models. Each lab within a Collaboration project may request a maximum of $300,000, inclusive of 20 percent indirect costs, for each yea of funding over a period of three (3) to four (4) years. The budget for Collaboration Projects, regardless of the number of labs included, may not exceed an annual maximum of $900,000 (and a four-year maximum of $3,600,000). Allowable indirect costs to the primary institution for subcontracts are not included in the total budget threshold (see grant policies).

As with all SFARI-funded projects, it is at the foundation's discretion to modify final budgets and scientific scope as needed. Grant progress will be critically evaluated at the end of each annual funding period before support for the upcoming year will be approved

Adherence to the open-science ethos of the research consortium will be an important consideration in yearly assessments.

Review Process

Applications will be evaluated by the SFARI science team, with a subset selected for further evaluation by an external review panel. Competitive applications will be invited to present their proposal to the SFARI science team and outside experts on June 20, 23, and 24, 2025.

Applicants need not have been prior participants in ARC. For the Collaboration track, applications should build upon previous work in autism/NDD-relevant rat models (whether SFARI-funded or otherwise). For Explorer track applications, preliminary data in autism/NDD-relevant rat models is not required.

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.

SFARI recognizes the importance of diverse viewpoints for scientific advancement. As such, SFARI encourages the inclusion of researchers who span career stages and groups historically underrepresented in science.

Applications may be submitted by domestic and foreign nonprofit organizations; public and private institutions, such as colleges, universities, hospitals, laboratories and units of state and local government; and eligible agencies of the federal government. There are no citizenship or country requirements.

Simons Foundation employees who receive a W-2 (Wage and Tax Statement) from the Simons Foundation, including employees of the Flatiron Institute, may not apply as a principal investigator (PI) to any Simons Foundation or Simons Foundation International Requests for Applications (RFAs) released by the Simons Foundation. PIs and any project personnel listed on the application who will receive funding for salary, travel, support for students, postdocs or research staff, lab equipment, computing time or other individual expenses may not be employees of the Simons Foundation, which includes the Flatiron Institute.

Instructions for Submission

The deadline for application submission is Tuesday, March 6, 2025 at 12:00 p.m. (noon) Eastern Time.

Applications must be submitted via the Simons Award Manager (SAM). Please click on the 'Funding Opportunities' icon and navigate to the 'Autism Research' – 'Autism Rat Models Consortium' call. Click the 'Create Application' button to begin. Applications should be started and submitted under the applicant's own account in SAM.

Application templates will be available in SAM beginning on January 6, 2025. Explorer applications will include a specific aims page and a three-page proposal narrative. Collaboration applications will include a specific aims page and a five-page proposal narrative. For both tracks, up to 10 figures may be included separately and do not count towards the page limit.

Informational videos on submitting applications in SAM can be found here.

Informational Sessions for Potential Applicants

To answer questions about this RFA, SFARI will hold an informational Zoom meeting on January 23, 2025 at 12 p.m. (noon) Eastern Time. Interested applicants can register here.

Our Commitment to Diversity, Equality and Inclusion

Many of the greatest ideas and discoveries come from a diverse mix of minds, backgrounds and experiences. The Simons Foundation is committed to grantmaking that inspires and supports greater diversity and inclusiveness by cultivating a funding environment that ensures representation of all identities and differences and equitable access to information and resources for all applicants and grantees.

The Simons Foundation provides equal opportunities to all applicants for funding without regard to race, religion, color, age, sex, pregnancy, national origin, sexual orientation, gender identity, genetic disposition, neurodiversity, disability, veteran status or any other protected category under federal, state and local law. We also fund programs directed at supporting scientists from disadvantaged backgrounds or underrepresented groups, ofte working closely with professional societies and other funding agencies.

References

1. Klibaite U. *et al*. bioRxiv (2024) Preprint

2. Shukla A. *et al*. Society for Neuroscience Annual Meeting (2024)

3. Rivera E.L. *et al*. Society for Neuroscience Annual Meeting (2024)

4. Tadic A. *et al*. S FENS Forum (2024)

5. Duszkiewicz A.J. *et al*. Society for Neuroscience Annual Meeting (2024)

6. Vadher A. *et al*. Society for Neuroscience Annual Meeting (2024)

7. Chahine N. *et al*. Society for Neuroscience Annual Meeting (2024)

8. Taloma S. E. *et al*. Society for Neuroscience Annual Meeting (2024)

9. Kastner D.B. *et al*. Society for Neuroscience Annual Meeting (2024)

10. Kastner D.B. *et al*. Society for Neuroscience Annual Meeting (2023)

11. Diaz Rodriguez N. *et al*. Society for Neuroscience Annual Meeting (2023)

12. Weinreb C. *et al*. *Nat. Methods* **21**, 1329-1339 (2024) PubMed

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