



**AUTISM SPEAKS™**  
It's time to listen.

## **Request for Applications Environmental Sciences Research**

### Introduction

Autism is a complex and heterogeneous disease the etiology of which likely includes both genetic and environmental factors. The goal of this RFA is to stimulate research on the role of the environment in the etiology of autism spectrum disorders.

Autism Speaks invites applications for grants to study the role of environmental influences in the etiology, course, prognosis, and pathophysiology of autism spectrum disorders. These proposals will be reviewed by a committee with expertise in environmental sciences, neurotoxicology, and epidemiology, and clinical science.

Research projects may pertain, ***but need not be limited to***, the following topics:

- Maternal medical conditions and interventions
- Biomedical factors pertaining to the prenatal environment
- Maternal use of pharmacological agents, diet, and dietary supplements, including drugs used during pregnancy, labor, and delivery
- Prenatal and postnatal challenges to the immune system
- Exposure to environmental chemicals, including heavy metals, including but not limited to mercury
- Types and timing of vaccines administered to mother or child
- Medication use

A range of scientific methods may be used including:

- Research on the pathophysiology of a system of interest
- Cellular and molecular research
- Clinical science
- Toxicology
- Assessment of exposures
- Epidemiology and public health studies
- Social and behavioral studies

A wide range of research projects are appropriate, including laboratory-based studies that focus on pathophysiology, molecular genetics, epigenetics, or cell biology of the process of interest in studying of environmental factors that contribute to autism spectrum disorders. Studies that explore gene and environmental interactions in

determining risk for autism and/or identify particular subgroups of individuals who may be particularly affected by specific environmental factors are welcomed.

Autism Speaks also encourages studies that investigate the role of vaccines in the pathophysiology of autism spectrum disorders. Applicants proposing such studies are advised to carefully consider experimental design and power analyses of their proposals, and consult with epidemiologists and biostatisticians as they design their proposals.

Autism Speaks is committed to rapid review and funding of meritorious proposals. We intend to continue to accept applications in response to this RFA for the next year. Applications will be reviewed at least twice a year.

Types of projects eligible for support and funding available:

- 1) **Pilot research projects.** Research projects that address a novel or important question or utilize a novel method to assess the role of the environment. **These grants will be funded at \$100,000 per year (max. three years) in direct costs.**
- 2) **Augmentation or Expansion Grants.** Projects that broaden or leverage existing clinical, basic, or epidemiological research by proposing to expand or extend current studies that investigate the role of the environment in autism. This can include projects in which autism is a primary question or those where autism diagnostic information may be collected in conjunction with other pre-existing exposure collections. These studies can build on existing resources for both infrastructure and data analysis provided by federal agencies such as the NIH, NSF and CDC, as well as governmental and non-governmental-funding agencies in international territories including the Medical Research Council, the Canadian Institutes of Health Research, and the Wellcome-Trust Foundation. **These projects would be supported at a maximum of \$200,000 per year (max. three years) in direct costs.**
- 3) **Think Tanks/Workshops.** Think tanks or workshops that target the role of environment factors in autism. Such applications must state a purpose, goals, potential invitees and expected outcomes. **Applicants may apply for a one-year, one-time award up to \$25,000 to support these meetings.**

The appropriateness of the budget and length of the study will be judged based on the scope of the project, utilization of existing infrastructure, and the need to develop new resources to study the research questions. An amount not to exceed 10% of direct costs may be given to the Sponsoring Institution for indirect (overhead) costs in addition to the grant amount.

Investigator qualification

Investigators holding full-time tenured or tenure-track faculty appointments or equivalent fulltime non-tenure track appointments at accredited academic, medical or research institutions are eligible to apply. A clinician who does not have an academic affiliation is required to collaborate with an individual with a track record in research at an academic or research institution.

Postdoctoral fellows and medical residents in their last year of training are eligible to apply, but must provide documented evidence of appointment to a full-time academic faculty position before an award will be made.

### Awards:

Autism Speaks will make a limited number of awards determined by the quality of the applications, the efficient use of the funds requested, and the available financial resources of Autism Speaks. Pilot and Augmentation Grants will be awarded for a maximum period of three years in an amount not to exceed the maximum amount allowable per year based on the type of award funded. Think Tank/Workshop Awards will be for a maximum period of one year. An amount of 10% of direct costs may be awarded to the Sponsoring Institution's indirect (overhead) costs. ***While applicants may apply for a maximum of three years, proposals and applications will be judged, in part, by the efficient use of the funds requested. Applicants must demonstrate the need of the budgeted amounts in their proposal and application.***

### Application Process

#### V. Proposal

The applicant must submit a proposal through the Autism Speaks Grants Administration website at <http://grants.autismspeaks.org/research/login.asp>. All new investigators should review the layout and format of the grants administration system at least one month prior to the application deadline.

Each new applicant/investigator must first register with the Grants system at [http://grants.autismspeaks.org/research/signup\\_form.asp](http://grants.autismspeaks.org/research/signup_form.asp). Please be sure to choose the role "Investigator". Please fill out the form completely.

The full proposal must include the following information, according to the guidelines in this RFA and in the Autism Speaks grant system, with limitation on pages, figures, tables, and appendices:

- a. Register your proposal by clicking on "new letter of intent". While no letter of intent needs to be uploaded, please
  1. Enter the title of your project (less than 128 characters, spaces included)
  2. Specify that you are applying through the Environmental Sciences RFA and choose the type of award
  3. Choose 3-5 keywords germane to your proposal from the drop down menu (at least 3 keywords are required).
  4. Click on "Submit Pertinent Project Information" at the bottom of the page.
- b. Institutional info and contacts link – "View" the responsible official to assign the Responsible Official from your institution. If not in the current database, you should enter in appropriate information.
- c. Scientific Abstract: Please state your specific hypothesis, and names and affiliations of all active collaborators. The abstract should state a brief synopsis of the questions asked, the methods to be used, as well as the expected outcomes. This can be found under "Keywords and Abstract". The abstract should be no longer than 1 page.

- d. A layperson version of an abstract (maximum 500 words) for the project which must (1) be easily intelligible to a knowledgeable lay person or non-expert, (2) describe the project goal(s) and/or hypothesis, and (3) describe the relevance and potential significance, and the relationship of the project to understanding the causes, diagnosis, treatment, and possible prevention of autism spectrum disorders. (“Keywords and Abstract”)
- e. A one-page statement of how the proposed research will address Autism Speaks priorities, as well as how the project will answer a question involving environmental or genetic and environmental interactions relevant to autism spectrum disorders. (“Relationship to our Priorities”)
- f. A description of the Research Plan (10 pages max) that includes: (1) the specific aims; (2) background and rationale for the project; (3) preliminary data in support of the project; (4) detailed study methods including description of the study design, participants, procedures, and measures; (5) data analytic strategies and power analyses, and (6) timeline. The Research Plan should not exceed not to exceed 10 pages. Research Plans exceeding the 10-page limit will be returned without review. ***(This should be one document, uploaded to “Experimental Plan and Methods” under “Research Plan”).*** Please note that there are additional upload fields for relevant images, figures and graphics below “Experimental Plan”. Images uploaded in those fields will not be counted towards the 10 page maximum limit. Those applications for a think tank/workshop should indicate the focus of the meeting, potential invitees and topics of discussion, relevance to autism research, and expectations and outcomes from the proposed meeting.
- g. Literature cited. (“Literature Cited - Bibliography”)
- h. Detailed budget for each year. The budget may include:
  - Personnel Costs (to be commensurate with the % effort dedicated to the project)
    - Technical research assistant support salaries and benefits
    - Graduate Research Assistant or Postdoctoral Fellow stipend, benefits, and if required, tuition
  - Research supplies, services and related expenses
    - Essential equipment not to exceed \$15,000 per year or \$30,000 total. A vendor estimate is required for a single item of equipment costing more than \$5000.
  - Consultants
  - Travel to professional meetings
  - Patient- or participant-related costs or reimbursements
  - Publication costs

Please hit “save” to keep from losing your calculations during the budget entry process.

***In addition, applications must upload a budget justification in the budget section. Applicants should ensure that their budget is in accordance with the RFA. Budgets which exceed the maximum amount will not be accepted by the grants system.***

- i. A 1 - 1 ½ page description of resources and environment that will support the successful completion of the project. If the project will be utilizing existing samples and/or collecting samples, it should be specified how and when they will be used and shared with the autism community following the end of the project. This should be uploaded under “Facilities and Resources”. Please note that applications which involve post-mortem tissue through the Autism Tissue Program should receive prior approval of tissue use. Please see [www.atpportal.org](http://www.atpportal.org) for more details.
- j. If a letter of collaboration is needed to demonstrate ability to share these samples, it must be noted in the Research Plan and uploaded to “Collaborative Arrangements” in the “Other Attachments” section.
- k. Other letters of collaboration, if applicable (“Collaborative Arrangements”)
- l. NIH biographies of the principal investigator and all co-investigators, not to exceed 4 pages each (“Biographical Sketches” section of “Other Attachments”)
- m. Current and pending grant support (“Current and Pending Support” under “Other Attachments”)
- n. Publications, powerpoint presentations and other files that are relevant to the application must be referenced in the research plan and may be uploaded to “Other Attachments” under the “exhibits” section.

Autism Speaks reserves the right to return without review any proposal that in its judgment is not in compliance with its rules and procedures for application preparation and submission, is not responsive to its research goals, or exceeds its funding limits or available resources.

Proposals may be returned to the applicant with a specific request for resubmission, based on the feedback of the review committee. These applicants may resubmit a proposal based on the suggestions of the review committee, including recommendations for additional collaborators with appropriate expertise.

The applicants should comply with the standard Terms and Agreements of Autism Speaks awards, including documentation of proper IRB or IACUC approvals. Please review these terms and agreements before submitting your proposal at <http://grants.autismspeaks.org/research/tandc.asp>.

#### VI. Submission of Proposals and Proposals

Only Proposals and Applications electronically submitted through the Autism Speaks Grants Administration System at <http://grants.autismspeaks.org/research/login.asp> will be accepted for review. Applicants should refer to the Grants Administration web site for

specific requirements and instructions about electronic proposal submission. A successful electronic proposal submission will be confirmed by a system generated email notification to the applicant.

Proposals or applications submitted by regular mail or by email will be returned without review.

## VII. Review Process and Evaluation Criteria

Applications will be reviewed by staff and by members and ad-hoc members of the environmental sciences committee of Autism Speaks. These members are respected researchers in the fields of autism clinical diagnosis, neurotoxicology, general toxicology, animal models and animal behavior, environmental and population based epidemiology, gene and environment interactions, risk assessment, and child development.

Proposals will be evaluated using the following criteria:

### a. Significance & Relevance

Does the proposal address an important autism-specific problem? Will the proposed research and expected results contribute new or important knowledge or methods to advance the goal(s) of understanding the causes, diagnosis, treatment and/or cure of autism as it relates to environmental factors? If the focus is on a novel exposure or model, does the proposed research emphasize the impact that such a project will make on knowledge of the environmental influences of autism.

### b. Innovation or Expansion

Does the proposal develop innovative ideas or methods of research? Does the proposal challenge an existing paradigm, will it validate or replicate previous findings reported elsewhere or will it build on or leverage existing resources to address an important question involving environmental contributions to autism? How will the research project improve upon, or repeat, what has been reported elsewhere?

### c. Approach

Is the experimental approach hypothesis-based or exploratory? If exploratory, will the approach result in testable hypotheses? Will the experimental design, methods and analyses achieve the stated aims of the proposal? Are potential problems and alternative approaches adequately addressed?

### d. Investigators' Qualifications

Do the investigators have the appropriate training and experience to conduct the proposed research? Have they demonstrated satisfactory productivity and demonstrated abilities to conduct the research in which they are proposing to engage? Have necessary collaborations been established and documented with letters of agreement?

e. Environment: Is the Institutional Support Sufficient?

Does the applicant's institution provide an environment conducive to the research and experiment proposed? Do the investigators have access to necessary research resources (equipment, supplies, biomaterials) either on site or off site? Has access to necessary special research equipment or facilities been appropriately documented with letters of agreement?

f. Appropriateness for the Environmental Sciences RFA

How will this project make an important contribution to autism research to help in the understanding of the environmental, or genetic and environmental contributions to the etiology of ASD? Is the budget described appropriate, given the type of study proposed?

g. Unique Ability to Answer the Questions Posed

What are the qualities of this proposal that will enhance the study of environmental factors in autism? Will the study design adequately address the specific aims as listed in the research grant? Does the proposed study leverage other Autism Speaks or federally funded initiatives, and what unique questions will this project answer?

VIII. Review, Notification and Award Schedule (subject to change):

**Applications are due by 11:59 p.m. on June 2, 2008.** Applications will be peer-reviewed by a panel of experts within 3 months after proposal submission. Funding notifications are expected to be made by September 15, 2008. Visit the Autism Speaks web site for updates on future RFA's for this grants program.

Please address questions about proposal submission using the web-based Grants Administration System to Adam Liebling, Grants Manager, [aliebling@autismspeaks.org](mailto:aliebling@autismspeaks.org), Grants Manager by telephone at 917-475-5071. All other questions should be directed to Alycia Halladay, PhD. Associate Director of Environmental Sciences, [ahalladay@autismspeaks.org](mailto:ahalladay@autismspeaks.org), 917-475-5062.