

NEW JERSEY COMMISSION ON BRAIN INJURY RESEARCH

RESEARCH PROGRAM GUIDELINES

FY 2020 GRANT CYCLE

INTRODUCTION

Approximately 175,000 New Jersey residents suffer from traumatic injuries that damage the brain. Approximately 12,000 new brain injuries occur each year in New Jersey. The economic consequences of the resulting physical disabilities are enormous. Medical and long-term care costs to the nation's economy are estimated to be 48 billion dollars annually. The personal toll on individuals and families with brain injuries and their communities is incalculable.

Therefore, in January 2004, Governor James E. McGreevey signed legislation creating the New Jersey Commission on Brain Injury Research (NJCBIR), allocating funding to the New Jersey Brain Injury Research Fund.

The charge to the NJCBIR is:

The NJCBIR will solicit and approve support of research projects, administer the awards through research grants, and promote development of brain injury research projects within the State of New Jersey. Because the majority of brain injuries within the State are a result of traumatic events, the Commission is particularly interested in funding projects that focus on the treatment and cures of traumatic brain injuries. The NJCBIR will compile a research directory of all traumatic brain injury research projects being conducted within the State and provide the Governor and the Legislature with an annual report by January 30th of each year describing the status of the NJCBIR's activities and the results of its funded research projects.

PROGRAM OBJECTIVES

The NJCBIR is committed to accelerating research to develop effective interventions and cures for the disabilities associated with traumatic brain injury. Its primary objectives are:

- To advance the field of brain cell repair and regeneration in the New Jersey research community by encouraging established scientists to apply their expertise to the brain.
- To foster collaborative, interdisciplinary approaches to brain injury research.
- To develop models of neural repair and regeneration that establishes a basis for additional scientific investigation.
- To develop models of neural repair and regeneration after brain injury that can lead to clinical interventions.
- To stimulate epidemiological analysis of the New Jersey TBI Registry data in order to improve injury prevention, develop treatment guidelines and enhance patient outcomes.
- To promote dissemination of the research findings generated by those scientists supported by the NJCBIR.
- To develop and evaluate clinical interventions that lead to improved treatment and function after TBI.

NJCBIR awards are intended to promote collaboration among brain injury researchers in New Jersey and encourage innovative research, not to provide long-term support. Grantees are eligible to apply for funding for additional research projects; all applications will be reviewed competitively.

FUNDING PRIORITIES

The NJCBIR will fund research activities that hold promise of developing effective interventions and cures for the disabilities associated with traumatic brain injury. One goal of the Commission is to provide funding to promote the development of brain injury researchers and their research capabilities so that they may seek federal and other external funding. The program is not meant to provide long-term financial support for brain injury research. The areas of research listed below highlight the focus of current NJCBIR emphasis and funding:

Basic Studies

- Studying strategies to promote neuronal growth and survival, encourage the formation of synapses, enhance appropriate myelination, restore axonal conduction, replace or regenerate injured brain cells, or otherwise improve function after brain injury.
- Evaluating efficacy of drugs and other interventions that prevent or reduce secondary neuronal injury or providing insight into the mechanisms causing progressive damage.
- Defining anatomical characteristics of brain injury in well-defined animal models and in the human brain, specifically documenting the cellular systems vulnerable to injury and the functional losses which occur as a result thereof.
- Translational research on the mechanism and interventions that promote recovery of function after brain injury.

Clinical Studies

- Demonstrating the efficacy of innovative rehabilitation strategies based on basic research that offer promise to promote recovery of function (e.g., physiologic function, cognitive impairment, activity limitation, social participation, quality of life) through their clinical application.
- Demonstrating the putative mechanisms of action of rehabilitation intervention based on changes in brain activity (e.g. functional imaging), neurocognitive function, or psychosocial factors (e.g. resilience).
- Comparative effectiveness research to evaluate the relative risks and benefits of alternative rehabilitation interventions intended to promote recovery of function.
- Epidemiological studies of the New Jersey Traumatic Brain Injury Registry data, to identify contributions of demographic and risk factors; patient transport, rehabilitation and physical therapy; and medical/surgical interventions to population treatment and outcomes.

ELIGIBILITY

The following researchers are eligible to submit proposals to the NJCBIR for research grant awards. All applicants, organizations/institutions must be located within the State of New Jersey.

- Ph.D., M.D., or other such professionals.
- Independent investigators at any stage of professional development.
- Postdoctoral fellows, Graduate fellows.

Qualifying Institutions: For the purpose of all NJCBIR grants, a qualifying institution is defined as any academic institution, research organization, public or private institution or other entity, located in the State of New Jersey, with a demonstrated capability to conduct grant funded research, and specifically approved by the vote of the Commission, but in no event, can an individual be a qualifying institution. All applicants, organizations/institutions must be located within the State of New Jersey.

All applicants including Principal Investigators and organizations/institutions are encouraged to collaborate with other New Jersey-based researchers as well as with researchers located out-of-state, or out of the country.

PROTECTION OF HUMAN SUBJECT, ANIMAL WELFARE, AND RECOMBINANT DNA

Compliance with National Institutes of Health regulations for the protection of human subjects, animal welfare and recombinant DNA is required for all grants. Inclusion of women and minorities in clinical trials is a target objective for all grants.

- A. NJCBIR supports compliance with NIH regulations, OHRP and institutional guidelines defined for the protection of human subjects in research. Violations of these regulations and guidelines must be reported and reviewed by the appropriate institutions and NJCBIR including, but not limited to OHRP, the IRB overseeing the research, the associated institution and the laboratory's senior scientist.
- B. NJCBIR shall have the right to arrange for observation and/or auditing without prior notice of any research activity and research records associated with research funded by NJCBIR.

It is the responsibility of the applicant as a potential recipient of a NJCBIR grant to assure that the rights and welfare of all human subjects used in any NJCBIR sponsored research are protected. Any applications involving human subjects must be reviewed and approved by the appropriate institutional review board.

It is the responsibility of the applicant as a potential recipient of a NJCBIR grant to assure proper care and treatment of all laboratory animals used in any NJCBIR sponsored research. Any applications involving laboratory animals must be reviewed and approved by the appropriate institutional review board. Under no circumstance will any funds be released until documentation of full, project-specific IACUC approval has been received by NJCBIR. By its very nature animal-based experimentation into the subject of traumatic brain injury is among the most sensitive types of research programs. Thus, the NJCBIR takes great care in ensuring that any and all animals used in their sponsored research projects are handled appropriately. Investigators are strongly encouraged to have full IACUC approval before submitting their proposal as this will expedite the review process.

It is the responsibility of the applicant as a potential recipient of a NJCBIR grant to assure that the physical and biological containment needed for research involving any recombinant DNA molecules is within policies set out in the current "National Institutes of Health Guidelines for Research Involving Recombinant DNA Molecules." Any applications involving recombinant DNA molecules must be reviewed and approved by the appropriate institutional review board.

RESEARCH GRANTS AVAILABLE

Individual Research Grant

The NJCBIR will fund Individual Research Grants with an emphasis on the objectives and priorities stated above. Applicants are encouraged to apply for a one-year, two-year or three-year award. Maximum funding is up to \$150,000 per year for direct costs and 20% applicable indirect costs.

The goals of this program are (1) to encourage investigators to undertake research on neural protection, repair and regeneration after traumatic brain injury; (2) to encourage individuals to undertake research on the effectiveness of clinical interventions for traumatic brain injury; and (3) to enable researchers with novel scientific and clinical ideas to test them and develop pilot data needed to develop a programmatic area of research that can be supported by additional funding from the National Institutes of Health, and other funding sources.

Senior scientists and young investigators may serve as principal investigator. If the applicant is a fellow, s/he must submit a letter of support from the laboratory's senior scientist, as well as two other appropriate letters of reference.

Pilot Research Grant

The NJCBIR will fund Pilot Research Grants with an emphasis on encouraging (1) experienced investigators to pursue a new direction in brain injury research, or (2) new investigators who want to gather preliminary data for larger research projects.

Suitable projects include feasibility studies; secondary analysis of existing data; self contained research projects; development of research methodology; development of new research technologies; and investigation of novel scientific ideas, model systems, tools, agents, targets and technologies that have the potential to substantially advance brain cell regeneration and repair.

Applicants are encouraged to apply for a one-year or two-year award. Maximum funding is up to \$75,000 per year for direct costs and 20% applicable indirect costs, including a maximum of \$10,000 per year for principal investigator salary and fringe.

Postdoctoral and Graduate Student Fellowship Grant

Postdoctoral Fellowships are generous three-year salary awards that may be active up to and including the 8th postgraduate year. The beginning stipend levels are based on years of relevant research experience since obtaining the doctoral degree, starting at \$40,000 for 0 years' experience, then \$42,000 for 1-year experience, etc., (See table). For each experience level, salaries for the next 2 years increase each year by \$2,000 (for example: 0 years' experience; Year 1 = \$40,000, Year 2 = \$42,000, Year 3 = \$44,000). Applicants may apply by no later than their 6th year after their degree award. In addition to the stipend, there will be an annual research allowance of \$7,500 and an annual travel budget of \$1,500. Additional support includes a fringe benefit supplement at 12% of each annual stipend amount and indirect costs for the institution at 20% of each annual total amount. Institutions may supplement stipends, but not with other full-time fellowship awards, or other NJCBIR monies. Candidates of outstanding quality must hold a Ph.D., and/or M.D., or equivalent graduate degree. Appropriate degrees must be awarded prior to activation of award. Candidates must be accepted for postdoctoral training under the supervision of an appropriate mentor at a qualifying academic research institution in New Jersey. A candidate may not apply for a NJCBIR Postdoctoral Fellowship and a NJCBIR Individual Research grant in the same grant cycle. If a first-year Fellow applies for and is awarded a NJCBIR Individual Research Grant, funding will

be contingent upon cancellation of the second or third year of the fellowship. Non-research activities, such as teaching or clinical care, may not occupy more than 10% of the fellow's time.

Starting Salary for Year 1 Based on Research Experience:

Years of Experience	Stipend Amount
0	\$40,000
1	\$42,000
2	\$44,000
3	\$46,000
4	\$48,000
5	\$50,000
6	\$52,000
7	\$54,000

Graduate Student Fellowships are three-year awards of \$27,500 per annum. They provide an annual stipend of \$24,000, and consistent with institution policy, an annual research allowance of \$2,000, and an annual travel budget of \$1,500. Up to \$6,000 of additional funds will be provided for tuition. No part of this award may be used for institutional overhead. Institutions may supplement stipends, but not with other full-time fellowship awards or other NJCBIR monies. Applicants must be full-time graduate students in residence in a proposed course of study directly related to regeneration and repair of the damaged brain. Students must begin study in the semester following activation unless special permission is received prior to activation date. The NJCBIR prefers to support graduate student candidates who have completed the first year of graduate study and are concentrating on research projects at least 80% of their time. Applicants may not serve as teaching assistants while holding a NJCBIR Graduate Student Fellowship.

All Postdoctoral and Graduate Student Fellows must submit a first-year progress report accompanied by a letter of support from the fellow's mentor. Second-year and third-year fellowship funding is contingent upon the successful review of a comprehensive progress report and a recommendation from the mentor. A Final Narrative Report is required and must be submitted to the NJCBIR office within 60 days of termination of a Fellowship Research Grant. An Evaluation Form must be submitted to the NJCBIR office each year for two years following termination of the Fellowship Research Grant. All forms are available at www.nj.gov/health/njcbir.

Successful fellowship applicants are offered the opportunity to participate in an approved brain injury techniques course. The NJCBIR will make available up to \$4,000 for a grantee to attend a brain injury techniques course at an approved university that has the necessary experience and database on the use of standard brain injury models and devices. Grantees are responsible for making all necessary travel and course participation arrangements and payments. Reimbursements will be made to those who provide proof of course completion and expense receipts.

FUNDING AVAILABILITY, OBLIGATIONS AND DEADLINES, TRAINING COURSES

Estimated amount of money in the grant program available for all grant categories in the 2020 grant cycle is \$4.3 million. The NJCBIR reserves the right to distribute funds among the grants in all its grant programs. The NJCBIR reserves the right not to fund any of its grant programs to the maximum amount, or not to fund any grant in any grant program at all. Funding estimates may vary and are subject to annual appropriations.

Principal Investigators must be affiliated with a New Jersey State academic institution, research organization, public or private agency or other entity with a demonstrated capability to conduct research responsibly. Individuals of any nationality or citizenship status may apply, provided they are employed by or affiliated with a qualified New Jersey State organization/institution.

Awards will begin on or about **April 1, 2020**. All qualifying institutions in the State of New Jersey may apply. Multi-year awards are made through one-year contracts. Each funding award within the multi-year period will be contingent upon the availability of funds. Subsequent years continued grant support for all grants is contingent upon the annual submission and approval of a comprehensive progress/narrative report. All progress/narrative reports must be favorably reviewed by an independent scientific merit review panel and recommended to the NJCBIR for continued funding. A final progress/narrative report is required for all grants within 60 days of termination of the grant. An Evaluation Form must be submitted to the NJCBIR office each year for two years following termination of all grants. All forms are available in SAGE or at www.nj.gov/health/njcbir.

LETTER OF INTENT

A one-page letter of intent is highly recommended for all grant applications. Letters of intent must be filed with the NJCBIR office by **August 1, 2019**.

PROPOSAL SUBMISSION

All research proposals will be reviewed in accordance with the grant review process set forth herein. Scientists supported by the NJCBIR are expected to report on their work at a symposium organized by the NJCBIR. Grantees will acknowledge the support of the New Jersey Commission on Brain Injury Research in all presentations and publications.

All grant applications must be submitted following the guidelines below. Grant applications that do not adhere to these guidelines will be returned to the applicant without further consideration. Grant applications may not be sent by FAX.

Online applications will be made available for the preparation and submission of all grant applications. Forms for the various grant programs are available to applicants after they have started an online application. To start an application for a particular grant category, you will need to login as a new user at www.SAGE.NJ.GOV.

Applicants in all grant categories must complete an online application and mail one hard copy including copies of all reprints, appendices, and any attachments. **Online applications must be submitted via the SAGE system no later than 3:00PM, OCTOBER 1, 2019. No grant applications will be accepted past this stated deadline.** The hard copy should be mailed immediately following electronic grant submission to:

New Jersey Commission on Brain Injury Research
369 South Warren Street
P.O. Box 360
Trenton, New Jersey 08625

All necessary and required forms, progress reports, narrative reports, final narrative reports, policies, research guidelines, and other additional information can be viewed and downloaded from the SAGE system or from the NJCBIR website at www.nj.gov/health/njcbir.

GRANT REVIEW PROCESS

For all grant categories, the determination of grant awards will be made through a three-step review process:

1. **Administrative Review** (NJCIBIR office):

Upon receipt, all grant applications will be reviewed by the NJCIBIR office for compliance with all applicable New Jersey State statutes and regulations, and to ensure completeness, and accuracy. In the event a grant application needs correction due to a budgetary issue, the applicant will be contacted to provide a revised budget.

2. **Independent Relevance Review** (Independent Relevance Review Panel):

Independent relevance review will be conducted by a three-person panel appointed by the office of the NJCIBIR. The panel will determine the relevance of all applications to the NJCIBIR mission, priorities and Research Guidelines, and will assign scientific reviewers for each proposal that meets those relevancy requirements. In the event the panel determines that an application does not meet those requirements, the application will be triaged, and will not be forwarded for independent scientific merit review.

The decision to forward an application for independent scientific merit review is based only on relevance to the NJCIBIR mission, priorities, and research guidelines, and does not guarantee that an award will be made.

3. **Scientific Merit Review** (Independent Scientific Merit Review Panel):

Members of the Independent Scientific Merit Review Panel will convene to evaluate all grant applications forwarded by the Independent Relevance Review Panel, applying the criteria described below. This panel will assign scores to each application and make funding recommendations to the NJCIBIR.

If it is determined that ad hoc expertise is needed, additional scientific referees may be used.

The Independent Scientific Merit Review Panel will forward its recommendations to the NJCIBIR for final review and action.

Grants triaged by either the Independent Relevance Review Panel and/or the Independent Scientific Merit Review Panel will not be forwarded to the NJCIBIR and will not be funded.

The authority to authorize or not authorize grants is fully vested in the NJCIBIR according to New Jersey statute N.J.S.A. 52:9EE-1.

CRITERIA FOR INDEPENDENT SCIENTIFIC REVIEW

Grant applications will be judged on scientific and technical merit, relevance to the NJCIBIR's mission and priorities, clinical relevance, and interdisciplinary collaborations.

The independent scientific reviewers will perform two levels of review:

1. Each panel member will peer review his/her assigned proposals for scientific and technical merit and significance, and determine an initial score for each proposal.
2. The panel will then convene for group discussion, final scoring, and ranking of all proposals;

the panel will also recommend a cut-off point for funding.

The following topics will be addressed during the review process:

Significance

- Is the research proposal relevant to NJCBIR priorities?
- Does the research proposal develop new ideas and approaches, or simply extend a current ongoing project that would be better supported by other grant programs?
- Is the research proposal of significance to the field of brain injury research?
- Is the proposed research innovative, including novel concepts, approaches, and/or methods?
- Is the research proposal original in theory and application?

Experimental Design and Capability

- Does prior research and theory provide a rational basis for the proposed research?
- Is the proposed project adequate in terms of experimental design and analyses, anticipation of potential problems, and consideration of alternative approaches?
- Does the design have adequate methodological quality and power to increase the likelihood of producing statistically sound conclusions?
- Does the researcher have access to appropriate facilities, equipment, expertise, and research environment either in-house and/or with collaborators or consultants?
- Does the design include interdisciplinary collaborations, and if so, is the proposed combination of disciplines both novel and likely to generate meaningful results?

Investigator

- Are the qualifications, productivity, and time commitments of principal investigator and key staff commensurate with the proposed project?

Research Subjects

- If a human model is proposed, is the availability of subjects adequate and system of education and protection of subjects appropriate?
- Is there evidence of compliance with National Institutes of Health regulations for the protection of animal welfare?

Budget

- Is the budget reasonable and justified for the project proposed? Is there evidence of institutional commitment and/or cost sharing in the proposal?

RESULTS NOTIFICATION

All applicants including Principal Investigators and organizations/institutions will be formally notified of the outcome of his/her application at the conclusion of the selection process anticipated to be no later than

March 31, 2020. At that time, formal notification will be made to the institutions of successful applicants and contracts will be initiated shortly thereafter.

Blinded reviews will be provided to both funded and non-funded applicants; no further information shall be provided. No reviews will be generated for triaged proposals.

Non-funded applicants also will be notified. There is no appeal process. All non-funded applicants in any given grant cycle are eligible to revise their applications based on reviewer feedback and reapply, one time only, through the reapplication process. All reapplications will be reviewed as new competing proposals for the next cycle.

ANTICIPATED RESULTS

The goal of the NJCBIR is to assume a catalytic role in the worldwide movement to develop effective methods of brain cell regeneration as a means to cure brain injury.

Through the judicious use of funds raised through violations under Title 39 of the Revised Statute, or any other motor vehicle, or traffic violation in the State of New Jersey, the NJCBIR will encourage and support meritorious scientific research in the State of New Jersey in fulfillment of that goal.

This will benefit the State of New Jersey in savings on medical and support costs, enhance the development of the State's public and private biomedical sector, establish leadership in the field of brain cell repair, and most importantly, help develop effective interventions and cures for the disabilities associated with brain injury.