

NJCSCR



NEW JERSEY COMMISSION ON SPINAL CORD RESEARCH

**Annual Report
State Fiscal Year 2007**



**Jon S. Corzine
Governor**



**Heather Howard
Commissioner**



Annual Report State Fiscal Year 2007 January 30, 2008





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**NEW JERSEY COMMISSION ON
SPINAL CORD RESEARCH
2007 COMMISSION MEMBERS**

2007 COMMISSION MEMBERS

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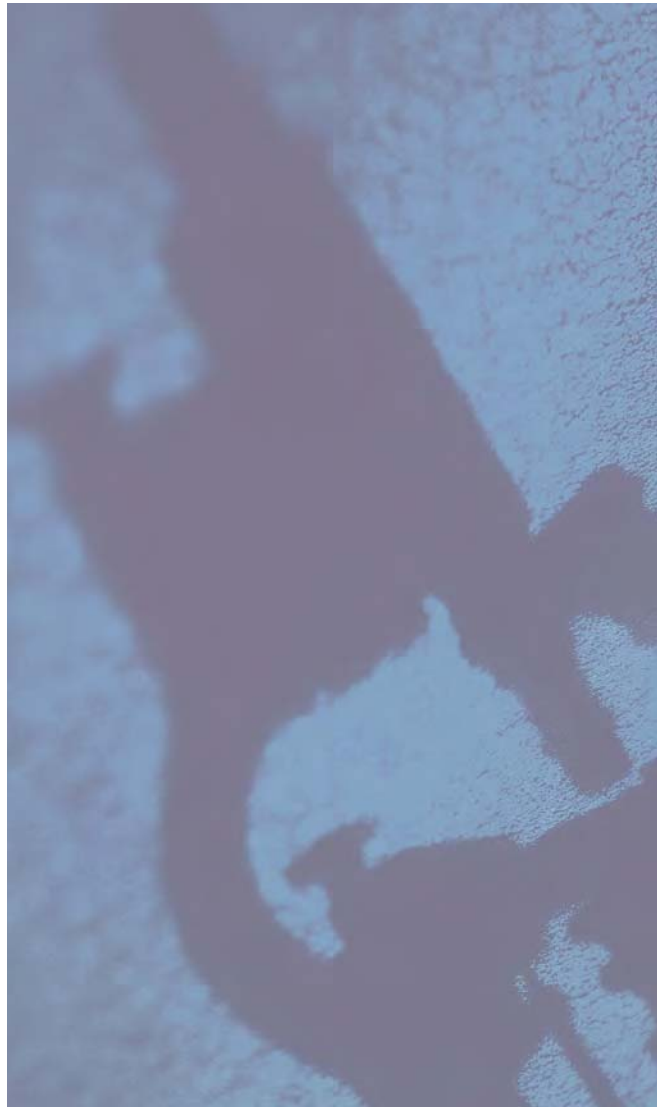


ACKNOWLEDGEMENTS

The NJCSCR would like to express its sincere appreciation to all present and past Commission members, the New Jersey Department of Health and Senior Services for their expertise, time, and effort.

The NJCSCR also wishes to thank Katherine Hempstead, Director, Office of Injury Surveillance and Prevention, Center for Health Statistics, for the spinal cord injury surveillance statistics, Executive Director Gabriel B. Milton, and Commission staff members Christine Traynor and Mary Ray for their support.

This report is being submitted in fulfillment of the legislative mandate in the N.J.S.A. 52:9E-1 et seq. The report describes the implementation of the Spinal Cord Research Act and evaluates the benefit of the Act as evidenced in this report of grant awards for FY2007.





EXECUTIVE SUMMARY

The New Jersey Commission on Spinal Cord Research (NJCSCR), established in 2000, funds spinal cord injury research projects in New Jersey.

- ❖ The NJCSCR currently offer four grant programs:
 - ▶ Five-Year Named Chairs for Senior and Junior Faculty
 - ▶ One-Time Start-Up Costs Grants
 - ▶ Individual Research Grants
 - ▶ Postdoctoral and Graduate Fellowship Grants
- ❖ Since 2001, \$22.2 million has been awarded to 77 individual researchers and 104 research projects at six New Jersey institutions.
 - ▶ 34 research projects have been completed and final reports submitted.
 - ▶ 65 scientific articles have appeared in 35 publications; more are in preparation.
 - ▶ Research findings have been presented at over 30 scientific conferences, symposia and meetings.
- ❖ The NJCSCR programs have enabled wider scientific interaction and at least 16 active research collaborations.
 - ▶ The NJCSCR funding has been a positive factor in the professional progress and development of 18 researchers, including the successful defense of one doctoral dissertation.
 - ▶ The NJCSCR research has provided the foundation for more than 40 applications to NIH, NSF and other organizations.

The NJCSCR 2007 Achievements:

- ❖ 62 applications from seven institutions requesting more than \$17.8 million.
- ❖ Over \$4.2 million in awards to 23 researchers at four institutions.
 - ▶ 12 Individual Research Grants were approved for over \$3.4 million.
 - ▶ 11 Fellowships were awarded totaling \$780,000.
- ❖ Six Neuroscience Workshop Series events were held, engaging researchers and clinicians in cross-disciplinary and cross-institutional conversations and building interest in the work of the NJCSCR.

NJ Spinal Cord Registry:

- ❖ The NJCSCR supports a central registry of spinal cord injured persons in New Jersey in cooperation with the NJDHSS Center for Health Statistics.
- ❖ All Level I trauma centers are now equipped to collect and submit comprehensive data electronically.
- ❖ Plans are underway to enable an on-line system allowing all NJ acute care facilities to participate.



INTRODUCTION

Spinal cord injury and paralysis has been recognized by medical practitioners for literally thousands of years as catastrophic events with a poor long-term outlook and few treatment options. Only since World War II has this changed appreciably - life expectancy has improved from a matter of months to years and even decades. Many people with long-term injury are enjoying far more vital and productive lives.

Notwithstanding such advances, the economic, social, and human costs of these injuries are huge, and the need for therapies that can restore lost functionality is felt more acutely than ever. Paralysis resulting from spinal cord injury may no longer be "a condition not to be treated," but the search for real cures remains among the greatest challenges to medical science and the healing arts.

NEW JERSEY'S COMMITMENT TO SPINAL CORD RESEARCH

Established in 1999 under New Jersey's Spinal Cord Research Act, the New Jersey Commission on Spinal Cord Research ("NJCSCR") represents the successful culmination of years of effort by New Jersey citizens and organizations determined to enlist New Jersey in the fight for a cure for paralysis and repair of spinal cord injuries.

The New Jersey Commission on Spinal Cord Research is an independent, state-supported organization. It is one of only nine such publicly-funded organizations nationwide that support the essential scientific research necessary to discover treatments and cures.

These organizations, together with the National Institutes of Health (NIH) and a handful of international entities provide the principal means for advancing the research and learning that will inevitably find the long-sought-for solutions to this devastating and, to date, incurable injury.

Since it began operation in 2000, the NJCSCR has awarded over \$22.2 million dollars in 104 grants to 77 individual researchers at seven New Jersey research institutions. Success in treating spinal cord injury will produce significant savings on medical and support costs, and most importantly, fulfill the hopes of people affected by spinal cord injuries and paralysis.

The Challenge

- ◆ More than 6,000 New Jersey residents now live with traumatic spinal cord injury - nationally the number totals 250,000.
- ◆ About 300 of the estimated 11,000 new spinal cord injury cases in the US are New Jersey residents.
- ◆ Direct medical costs can easily exceed tens or even hundreds of thousands dollars per year - life time costs can be in the millions.
- ◆ Indirect costs on victims and their families are hard to quantify, but place a significant burden on individuals, and state and local resources.
- ◆ The toll in emotional costs and quality of life is incalculable.





NJCSCR DEDICATED TO SERVING A DIVERSE COMMUNITY

Spinal cord injury impacts individuals and families across the state and nation. Though young men have been the most likely to be injured historically, the number of women and older people suffering spinal cord injury is increasing. Traffic accidents still account for the greatest share of trauma, but falls of the elderly and gunshot are placing seniors and individuals in violence-prone neighborhoods at greater risk.

The New Jersey Commission on Spinal Cord Research is made up of 11 Commissioners appointed by the Governor with the advice and consent of the Senate. Commissioners volunteer their time and energy, serving without pay for three-year terms. Any qualified person wishing to be considered for appointment may submit his or her name to the Governor's Office of Appointments.

Five Commission seats are designated by statute to represent specific organizations and stakeholders. Public members provide a diversity of backgrounds and interests united by a shared commitment to the cause of spinal cord research. The Commission will normally have one or more members in each of these categories:

- ❖ The Commissioner of the NJDHSS, or designee (voting ex-officio member)
- ❖ University of Medicine and Dentistry of New Jersey
- ❖ Rutgers, The State University of New Jersey
- ❖ Federally designated Spinal Cord Injury Model System
- ❖ Christopher and Dana Reeve Foundation (American Paralysis Foundation.)
- ❖ Six public members including:
 - ❖ At least one New Jersey spinal cord physician
 - ❖ At least one New Jersey resident with spinal cord injury

The Commission establishes and oversees the operations of the grants process and other activities which are implemented by its administrative staff.

The NJCSCR provides a range of funding opportunities for both established scientists and younger researchers committed to the goals of spinal cord injury research. Through its adherence to an impartial, professional, and scientifically rigorous application and review process, the NJCSCR has become a vital resource for New Jersey's best spinal cord researchers in their pursuit of answers and cures.

The Commission is mandated to establish and maintain a central registry of all spinal cord injured patients within the state to serve as a resource for research evaluation and information on spinal cord injuries and available services.

The Spinal Cord Research Act

- ◆ The Spinal Cord Research Act, N.J.S.A. 52:9E-1 et seq. (the "Act") created the New Jersey Commission on Spinal Cord Research and the New Jersey Spinal Cord Research Fund to support its activities.
- ◆ The Act was passed by the New Jersey State Legislature in September 1999 and signed into law by Governor Christine Whitman. Assembly members Nicholas Felice and Anthony Impreveduto and Senators Robert Singer and Jack Sinagra were the principal sponsors.



MISSION AND GOALS

The New Jersey Commission on Spinal Cord Research embodies the commitment of New Jersey to the international quest for cures for catastrophic, disabling spinal cord injuries.

The NJCSCR enhances New Jersey's preeminence as a center of biomedical research and establishes it as a leader in neuroscience, neurotrauma, and spinal cord research.

- ❖ The NJCSCR supports meritorious research projects that advance the understanding of spinal cord injury and explore potential therapeutic strategies.
- ❖ The NJCSCR supports the progression of research from laboratory to animal and clinical applications.
- ❖ The NJCSCR is creating a central data base on New Jersey spinal cord injured persons.
- ❖ The NJCSCR programs foster scientific interest and involvement in New Jersey, attract talented researchers, and enable access to additional sources of research funding.

Objectives

The NJCSCR seeks to accelerate research that will deepen our understanding of spinal cord injury and open the way to interventions and cures for paralysis and associated conditions. The NJCSCR has identified the following objectives:

- ❖ Advance the field of spinal cord research in New Jersey by encouraging established scientists to apply their expertise to spinal cord research.
- ❖ Foster collaborative, interdisciplinary approaches to spinal cord research.
- ❖ Nurture future generations of spinal cord researchers by supporting young scientists and postdoctoral fellows.
- ❖ Prevent or treat secondary biological conditions resulting from spinal cord injury.
- ❖ Promote dissemination of the research findings generated by scientists supported by the NJCSCR.





PROGRAM AND ACTIVITIES

The NJCSCR offers a broad range of funding opportunities that:

- ❖ Support promising scientific research.
- ❖ Enable the creation of new spinal cord injury research facilities.
- ❖ Establish named professorships in spinal cord research.
- ❖ Attract new researchers to spinal cord research via graduate and post-doctoral fellowships.

Research Funding Priorities

The NJCSCR currently offers an array of grant programs including individual research grants, fellowships, professorships, and research facility start-up costs grants. Each of these programs is designed to support and encourage spinal cord research in New Jersey in a unique way. The NJCSCR is continually evaluating its programs and seeking ways to improve performance and results.

The New Jersey Commission on Spinal Cord Research Guidelines provide detailed guidance and instruction on funding criteria and policies. The Guidelines embody scientific agenda and views on the critical issues confronting spinal cord research. The full text is available on the NJCSCR website at: www.nj.gov/health/spinalcord.

The NJCSCR Research Guidelines

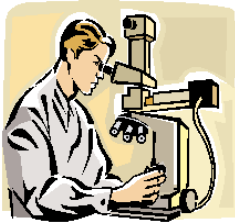
"The New Jersey Commission on Spinal Cord Research will fund research activities that hold promise of developing effective interventions and cures for paralysis and other consequences of spinal cord injury and disease. The areas of research listed below highlight the focus of current NJCSCR emphasis and funding:

- ◆ Studying strategies to promote neuronal growth and survival, encourage the formation of synapses, enhance appropriate myelination, restore axonal conduction, replace injured cells, or otherwise improve function after spinal cord 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 spinal cord injury or disease in well-defined animal models and in the human spinal cord, specifically documenting the cellular systems vulnerable to injury or disease and the functional losses which occur as a result thereof.
- ◆ Elucidating biological or physical mechanisms underlying approaches to improve functions compromised by spinal cord injury, e.g., bladder, bowel, and sexual function, and alleviate chronic pain, spasticity, and severe hypertension.
- ◆ Developing strategies to prevent or treat secondary complications arising from injury or disease to the spinal cord.
- ◆ Developing innovative restorative rehabilitation strategies to promote recovery of biological function.
- ◆ Translating basic and pre-clinical findings into clinical application.
- ◆ Supporting the investigation of promising new approaches."



CURRENT GRANTS PROGRAMS

A brief outline of current the NJCSCR Grants programs is provided below. Complete details are available on the NJCSCR website.



Individual Research Grants

- ❖ Individual Research Grants support senior scientists explore meritorious novel scientific and clinical ideas.
- ❖ Up to \$400,000 for up to two years. (\$200,000 per year)
- ❖ Key goal is to enable established researchers to test and develop pilot data needed for future funding.

Fellowship Grants

- ❖ Postdoctoral and Graduate Student Fellowships engage promising young investigators in spinal cord research.
- ❖ Fellowships run for two years with annual stipend, research allowance and travel budget.
- ❖ Post-doctoral awards total \$100,000. (\$50,000 per annum)
- ❖ Graduate Fellowships total \$60,000. (\$30,000 per annum)



Five-Year Named Chairs Faculty Grants

- ❖ "New Jersey Professor of Spinal Cord Research" is the title awarded to recipients of the NJCSCR Five-Year Named Chairs Senior and Junior Faculty Grants.
- ❖ Up to \$1,000,000 for senior faculty and \$600,000 for junior faculty over a five-year period, plus up to \$100,000 and \$50,000 respectively in start-up costs.
- ❖ Awardees must be highly qualified and relocate from outside the state or from other fields to focus on spinal cord research.

One-Time Start-Up Costs Grants

- ❖ One-Time Start-Up Costs Grants support the recruitment of highly qualified researchers and creation of spinal cord injury research facilities in New Jersey.
- ❖ Up to \$250,000 to \$1,000,000 for renovation, personnel support and equipment.
- ❖ Overall laboratory goals must be clearly defined and relevant to spinal cord research.





THE NJCSCR APPLICATION AND REVIEW PROCESS

The NJCSCR application process is now completely electronic and web-based utilizing the *proposalCENTRAL* grants management system, accessible through the NJCSCR website.

The NJCSCR grants review process, modeled after NIH procedures, provides a thorough and rigorous review and has earned respect from grantees and applicants.

The on-line process ensures broad access, convenience, and flexibility, and greatly reduces administrative workloads for applicants, the NJCSCR office, and the Scientific Merit Review Panel.

The NJCSCR administrative staff reviews all applications for completeness and accuracy and assists applicants in correcting errors or omissions.

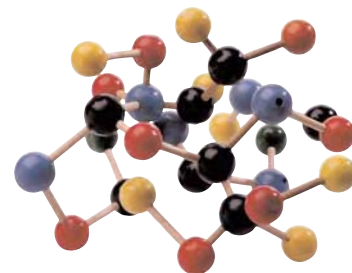
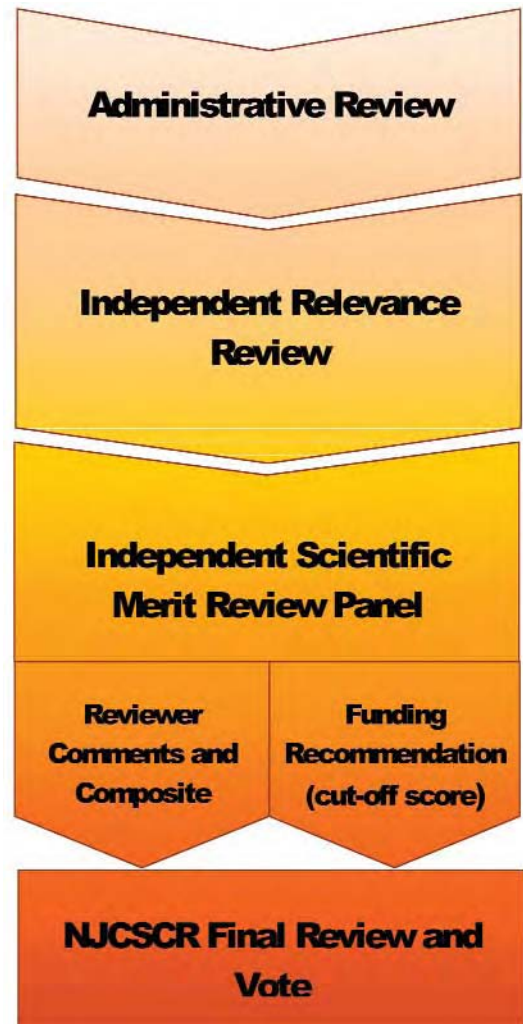
Relevance to the overall goals of the NJCSCR is assessed by an expert panel who also recommend reviewers for each grant from a pool of over 100 highly qualified scientists.

Each application is reviewed and scored independently by three peers prior to discussion at the Scientific Merit Review Panel meeting ("triaged" applications are not discussed or scored.)

The remaining applications are fully discussed and scored by the entire panel at a face-to-face meeting and given a composite score. The panel also suggests a cut-off point for funding. The scores, comments, and funding recommendations are delivered to the NJCSCR for final consideration and vote.

The NJCSCR makes the final decision whether to fund each application by majority vote. The Commissioners pay close attention to the results of the Independent Scientific Merit Review, but retain discretion to take other factors into consideration in judging the merit of each application.

All applicants, regardless of the decision, receive "blinded" reviewer comments. These are often valuable and may help a researcher rethink a project or reframe a future application.





OTHER ACTIVITIES

The NJCSCR supports *the New Jersey Spinal Cord Registry* through a Memorandum of Agreement with the NJDHSS' Center for Health Statistics ("CHS".) All hospitals and facilities now provide a standardized data set on each new case of spinal cord injury to a centralized data base created and administered by CHS.

The registry is mandated by statute as a resource for research, evaluation, and information on spinal cord injuries and available services. CHS provides an annual report on spinal cord injury in the state as well as periodic updates to the NJCSCR.

The *New Jersey Neuroscience Proposal Development Workshop Series* is an outreach program of the NJCSCR through which scientists interested in spinal cord research and related fields may meet, interact, and explore possibilities for projects and collaborations.

Each Workshop consists of a small panel of 3-5 senior clinicians and researchers specially selected to provide a sharp and stimulating focus on key areas of interest in neuroscience. Participants are drawn from the medical, academic and research communities.

The NJCSCR maintains several active standing committees that meet on an ad hoc basis and provide an informal structure to discuss issues and proposals in advance of presenting them to the full NJCSCR.

- ❖ Research Committee
- ❖ Registry Committee
- ❖ Personnel and Finance Committee
- ❖ Bylaws and Legislative Committee
- ❖ Public Information Committee

The NJCSCR is also engaged, through the activities of its administrative staff, in promoting awareness and interest in spinal cord research, advanced technologies, and research.

New Jersey Spinal Cord Research Fund

The work of the NJCSCR is supported by a one dollar surcharge imposed by statute on all traffic and motor vehicle fines or penalties. Similar sources of funding have been implemented successfully by several other jurisdictions - vehicular accidents are a significant cause of spinal cord injury.

The monies are collected by the State Treasurer for deposit into the New Jersey Spinal Cord Research Fund (the Fund). The NJCSCR funds all its grant programs and other activities entirely from this dedicated source, which may not be diverted to any other purpose. No portion of the NJCSCR's funds come from New Jersey's general tax revenue.





MANAGEMENT AND ADMINISTRATION

In many ways the NJCSCR administrative office staff and the Executive Director are the public face of the NJCSCR. Grantees, applicants and other member of academia and the public interact with the NJCSCR staff at all stages of the grants process.

The NJCSCR office provides the vital linkages and machinery that implement the NJCSCR's programs and ensure the integrity of its operations.

All operations of the NJCSCR are managed by the office and its staff, from day-to-day housekeeping, to budgeting and financial matters, to arranging meetings and other activities, and maintaining its files and records.

The Executive Director, through outreach and other activities on behalf of the NJCSCR, serves as its main spokesperson and advocate and liaison with the NJDHSS, other state entities, outside institutions and third parties.

The Executive Director and the administrative staff are responsible for the management of the office of the Commission, monitoring, measuring, and reporting on performance and activities.

The Office is maintained in the Health and Agriculture Building complex in Trenton.

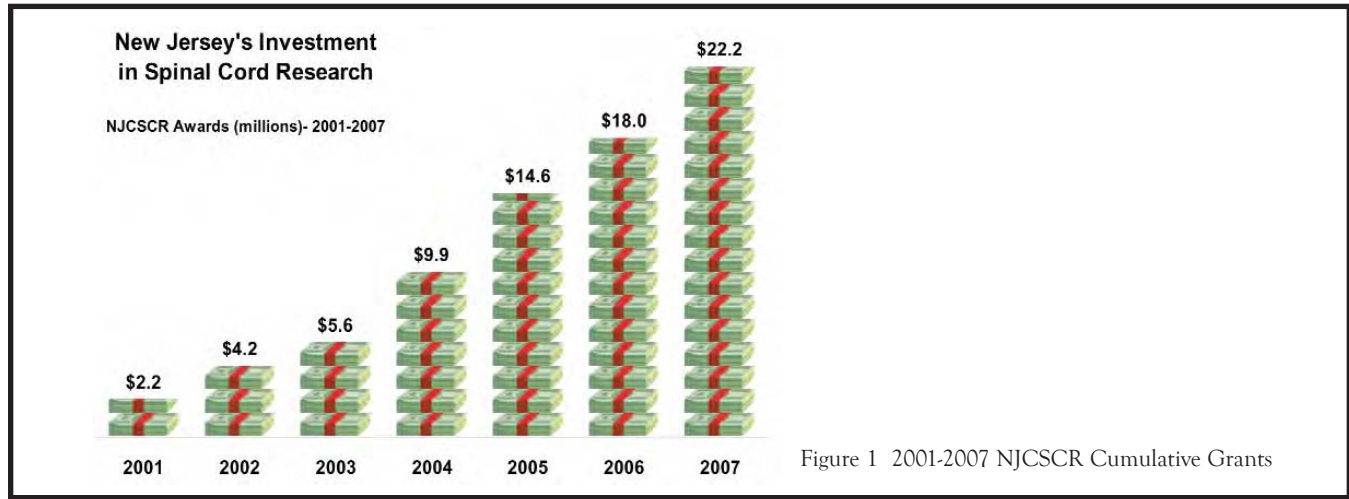




2001-2007 NJCSCR SUMMARY AND PERFORMANCE RECORD

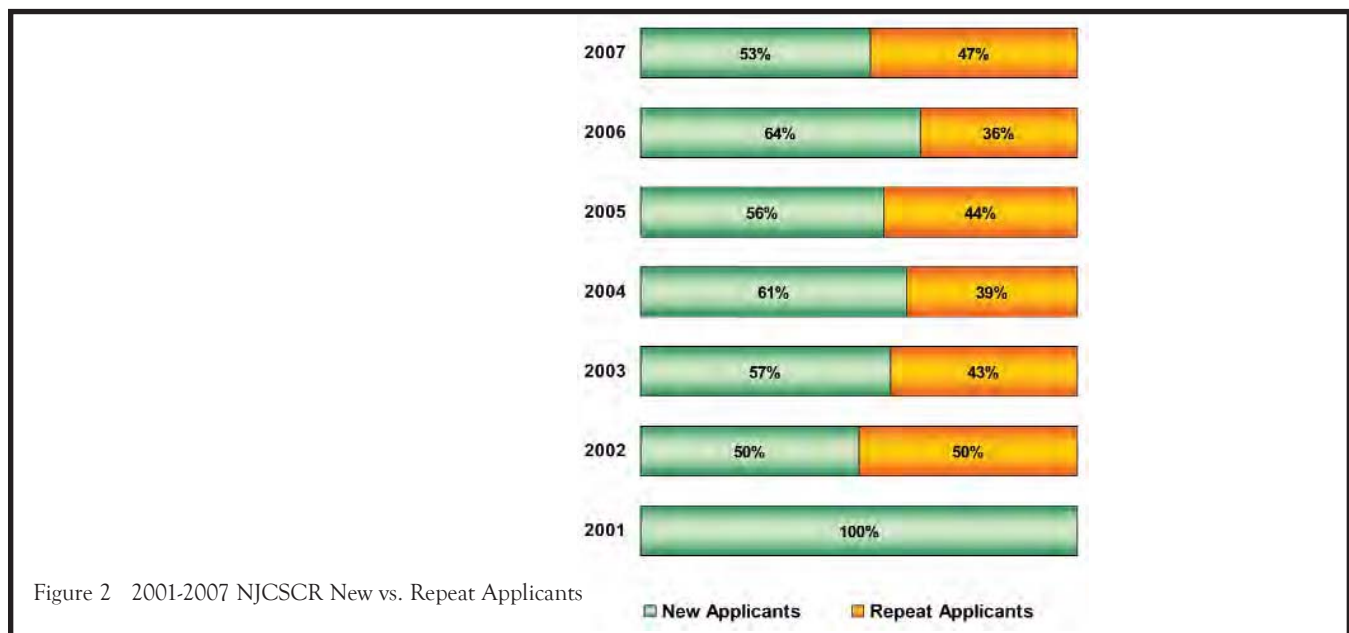
Since 2001, the New Jersey Commission on Spinal Cord Research has awarded over \$22.2 million to 77 individual scientists at six academic and research institutions, and approved 104 separate scientific research projects.

In recent years, the NJCSCR has reviewed an average of over 60 applications annually, approving 20 or more new awards, totaling between \$3.5 and \$4 million.



As the NJCSCR continues to invest in spinal cord research, the number of New Jersey researchers attracted to the field is growing. The NJCSCR has been successful in attracting large numbers of new applicants to its programs every year.

First-time applicants represent a significant majority of applications received by the NJCSCR each year. These applications are an indication of the continued interest generated by the NJCSCR in spinal cord research.





PROGRAM APPLICATIONS

In total the NJCSCR has received 296 total applications from 163 professors, post-doctoral fellows, and graduate students at 14 New Jersey research institutions. These requests for funds exceed \$78.7 million.

Overall, individual research grant applications have accounted for over two-thirds of the total. Since the introduction of additional grant programs in 2004, the percent of individual research grant applications has dropped to around half of all applications each year, while the total number of applications received has gone up dramatically. The expanded range of programs seems to have stimulated interest broadly across all the NJCSCR's research opportunities.

<i>Program</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>Total</i>
Individual Research	34	14	14	28	52	31	37	210
Fellowship				12	9	29	21	71
One-time Start-up				1	1	3	3	8
5-Yr. Named Chair				2	2	2	1	7
All Applications	34	14	14	43	64	65	62	296
<i>Funds Requested</i>								
Individual Research	\$5.4	\$3.2	\$3.4	\$8.2	\$16.9	\$10.9	\$12.8	\$60.9
One-time Start-up				\$0.9	\$0.8	\$2.3	\$2.6	\$6.5
5-Yr. Named Chair				\$2.1	\$2.0	\$1.3	\$1.0	\$6.4
Fellowship				\$0.9	\$0.6	\$2.0	\$1.4	\$4.8
All Applications	\$5.4	\$3.2	\$3.4	\$12.1	\$20.3	\$16.4	\$17.8	\$78.7

Table 1 2001-2007 NJCSCR Applications by Program





GRANT FUNDING

The NJCSCR offers an array of grant programs that provide opportunities to both very senior and younger researchers, and larger programs for establishing new spinal cord research facilities and support for Professorships.

To date, the NJCSCR has approved 104 of the 296 applications representing a 35.1% funding rate. This compares very favorably with other funding sources, particularly in light of the recent restrictive policies of NIH and other federal agencies.

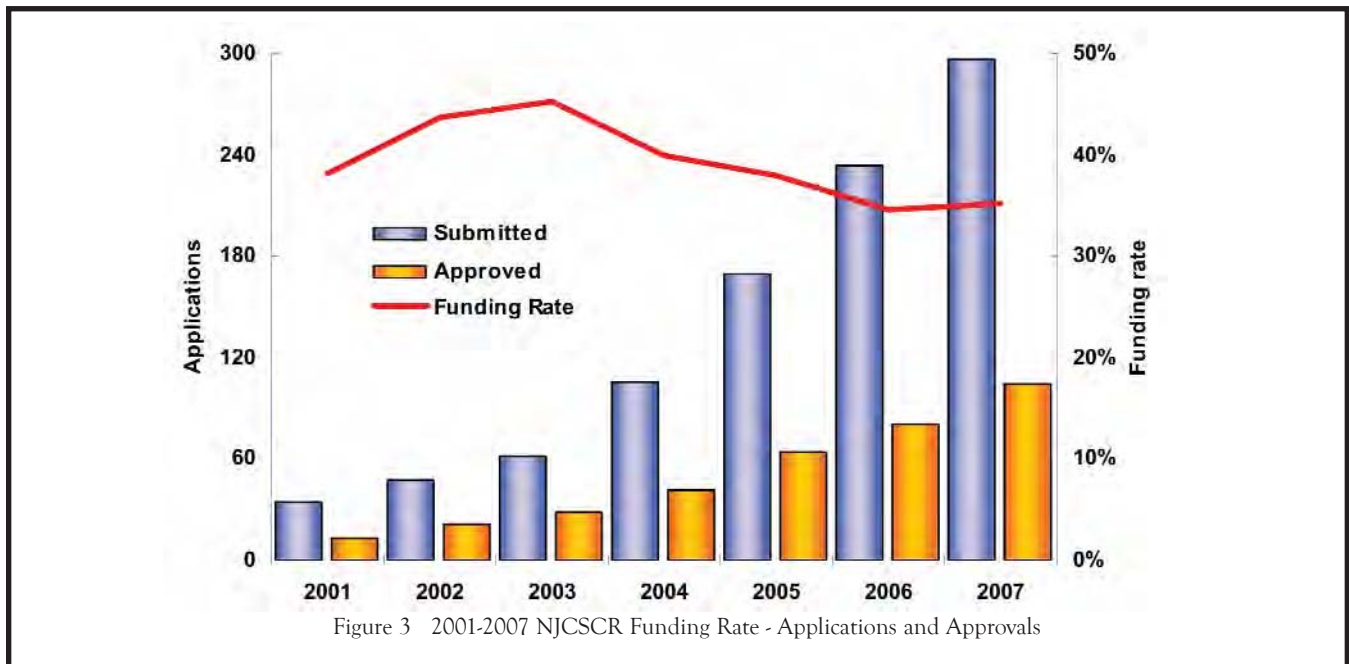


Figure 3 2001-2007 NJCSCR Funding Rate - Applications and Approvals

Funding rates vary among the programs offered by the Commission - Fellowship applications enjoy a funding rate of over 46%, compared with much lower rates of approval for the NJCSCR's larger, more complex programs.

<i>Program</i>	<i>Applications</i>	<i>Grants</i>	<i>Funding Rate</i>
Fellowship	71	33	46.5%
Individual Research	210	68	32.4%
5-Yr. Named Chair	7	2	28.6%
One-time Start-up	8	1	12.5%
Grand Total	296	104	35.1%

Table 2 2001-2007 NJCSCR Funding Rates by Program

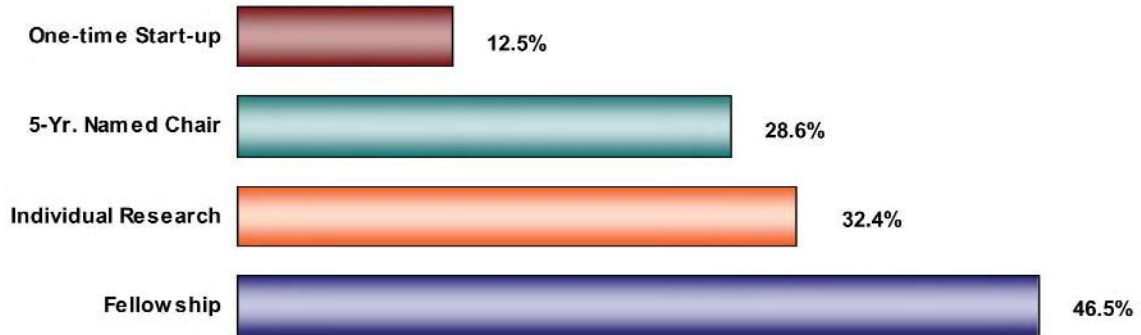


Figure 4 2001-2007 NJCSCR Funding Rate Percentage by Program

NEW JERSEY QUALIFIED RESEARCH INSTITUTIONS

Under The Spinal Cord Research Act, the NJCSCR funds may only go to researchers affiliated with "**New Jersey Qualified Research Institutions**" ("QRIs".)

Five institutions are named in the Spinal Cord Research Act and seven others have been designated by the NJCSCR. These organizations provide a continuing source of interest and applications for the NJCSCR funds.

Statutory NJQRIs

Rutgers, The State University of New Jersey
University of Medicine and Dentistry of New Jersey
Kessler Medical Rehabilitation, Research and Educational Corporation
Princeton University
Coriell Institute

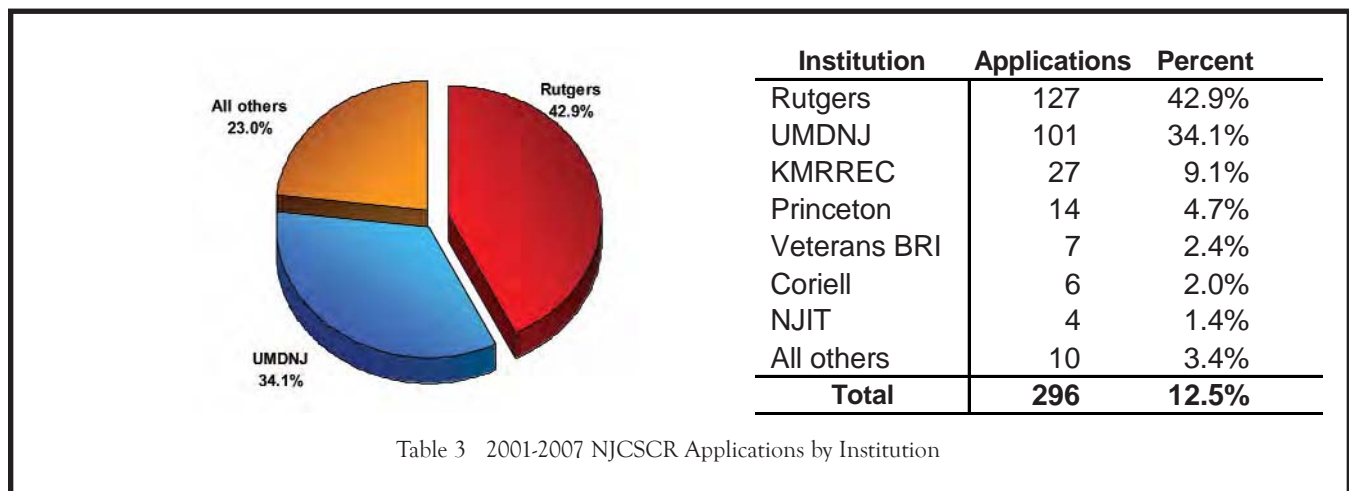
NJCSCR Designated NJQRIs

New Jersey Institute of Technology
Veteran's Biomedical Research Institute
Stevens Institute
Drew University
JFK Medical Center, NJ Neuroscience Institute
Progenitor Cell Therapy, LLC
Seton Hall University
Wyeth Research

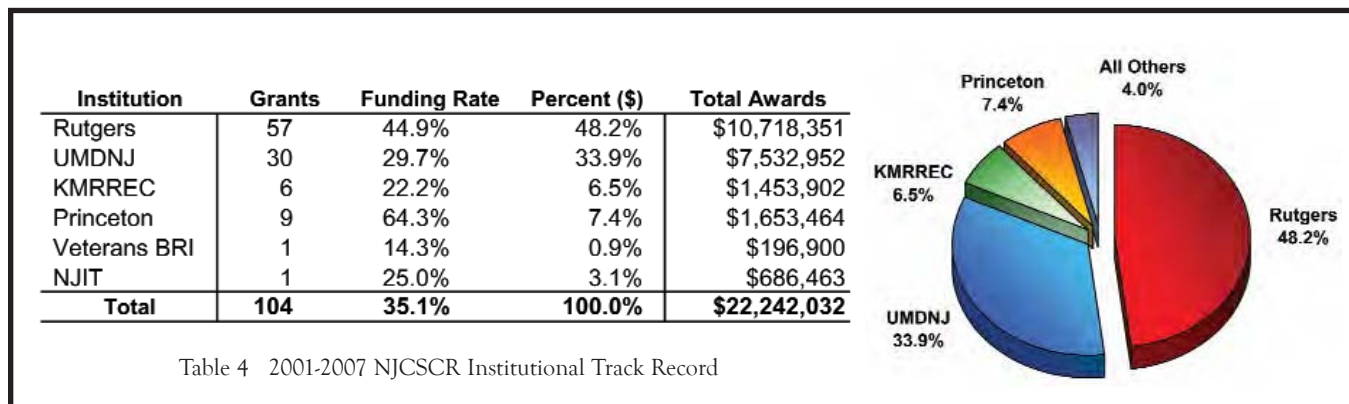


INSTITUTIONAL PERFORMANCE

Of the 296 applications received by the NJCSCR thus far, 127 have been submitted by researchers at Rutgers (all campuses) - nearly 43% of the total - followed by 101 for the UMDNJ system, for 34% of the total. An additional 42 applications were submitted from 11 other institutions around the state, including Princeton University, Kessler Medical, Rehabilitation, Research and Education Corporation (KMRREC) and New Jersey Institute of Technology. Interest in the NJCSCR programs has not been limited to just a few departments within each institution. In all, over 30 academic departments have applied for funds from 14 New Jersey institutions.



The public universities, Rutgers and UMDNJ, have benefited substantially from the NJCSCR grants. With a combined total of 87 grants and over \$18 million dollars in awards, these institutions have become the center of gravity for spinal cord research in the New Jersey. Applicants from Princeton University have also been successful with over 64% its proposals approved for funding. At Rutgers, 15 separate departments have received funding from the NJCSCR; at UMDNJ-RWJMS six departments.





RESULTS AND ACHIEVEMENTS

Cure of spinal cord injury remains an elusive and frustrating goal. Years of intensive research and the investment of millions of dollars by the NJCSCR and other organizations still leave much work to be done. The NJCSCR continues to pursue its mission, encouraging and supporting spinal cord research in New Jersey, and in fact many of its researchers can now point to significant accomplishments.

- ❖ Since 2001, thirty-four research projects have been completed.
- ❖ Sixty-five scientific articles reporting on work funded by the NJCSCR have appeared in 35 publications; more than a dozen are pending.
- ❖ Progress made by the NJCSCR researchers has been presented at over 30 scientific conferences, symposia and meetings.
- ❖ The NJCSCR programs have enabled wider scientific interaction and at least 16 active research collaborations.
- ❖ Success in achieving the NJCSCR funding has resulted in academic and career advancement for 18 researchers, including the successful defense of one doctoral dissertation.
- ❖ At least 43 applications to NIH, NSF and other organizations based on the NJCSCR grants.

The NJCSCR is committed to broadening its portfolio of institutional grantees and increasing the size and diversity of its funding activities. Through outreach activities, the NJCSCR encourages participation by all research organizations with an interest in spinal cord research.

The NJCSCR grantees and, to a lesser extent, grantee institutions have capitalized on the opportunities afforded by the availability of Commission funding through advancement of individual careers, increased institutional investment, and applying for additional outside funding. The NJCSCR has been a major factor in fostering this interest and continued involvement in spinal cord research within the state of New Jersey.





2007 NJCSCR YEAR IN REVIEW

2007 NJCSCR SPINAL CORD RESEARCH GRANTS PROGRAM

2007 saw the New Jersey Commission on Spinal Cord Research in its eighth year of operation and its ninth and tenth cycle of grants. Sixty-two applications were submitted from seven institutions. Total funds requested exceeded \$17.8 million.

<i>Type</i>	<i>Applications</i>	<i>Amount</i>
Individual Research	37	\$12,829,306
Fellowship	21	\$1,420,000
One-time Start-up	3	\$2,593,592
5-Yr. Named Chair	1	\$1,000,000
Grand Total	62	\$17,842,898

Table 5 2007 NJCSCR Grant Program Applications

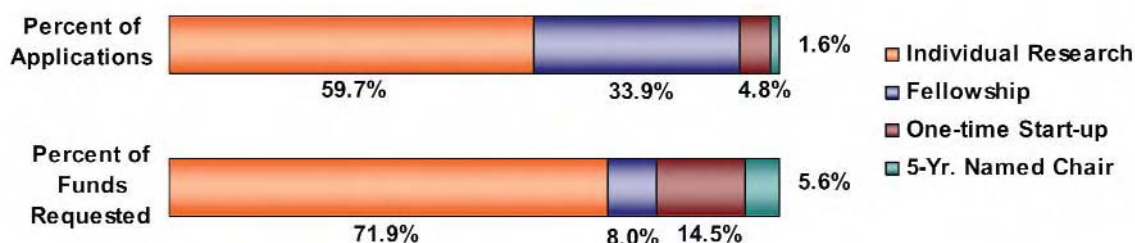


Figure 5 2007 NJCSCR Percent of Applications by Program

More than 59% of these applications were for Individual Research Grants and more than 33% were for Fellowships. New Jersey scientists and students show widespread, multi-disciplinary interest in spinal cord research. In 2007 the NJCSCR applications came from 17 academic departments at seven institutions.

Rutgers, The State University of New Jersey	31	Princeton University	6
Biomedical Engineering	15	Molecular Biology	4
W.M. Keck Ctr for Collaborative Neuroscience	5	Neurology and Neuroscience	2
Cell Biology & Neuroscience	3		
Chemical Biology	2	Veterans Biomedical Research Inst.	1
Molecular Biology & Biochemistry	2		
Computer Science & Biomedical Engineering	1	Kessler Medical Rehabilitation	1
Mechanical Engineering	1		
Nelson Labs	1	New Jersey Institute of Technology	1
Waksman Institute	1		
University of Medicine and Dentistry of New Jersey-RWJMS	16	University of Medicine and Dentistry of New Jersey-NJMS	5
Robt. Wood Johnson Medical School	10	NJ Medical School	4
Neuroscience and Cell Biology	3	Neurology and Neuroscience	1
Pathology and Laboratory Medicine	2		
Pediatrics	1		

Table 6 2007 NJCSCR Grant Applications by Institution and Departments



2007 RESULTS BY PROGRAM

Twenty-three applications were recommended for funding to the NJCSCR by the independent Scientific Merit Reviewers, as were 17 applications for continued funding. The NJCSCR voted to fund all the grants recommended awarding a total of over \$4.2 million to 23 researchers at four institutions. Twelve Individual Research Grants were approved for over \$3.4 million and 11 Fellowships were awarded totaling \$780,000.

Type	Grants	Amount
Fellowship	11	\$780,000
Individual Research	12	\$3,488,540
Grand Total	23	\$4,268,540

Table 7 2007 NJCSCR Grant Awards by Program

Overall, the NJCSCR funded about 37% of the applications submitted in 2007. Fellowship applicants did very well - over half the Fellowship applications were approved. Fellowships provide the greatest leverage in terms of involving individuals in spinal cord science for the dollars spent. The NJCSCR continued to demonstrate its commitment to support well thought-out and properly mentored fellowship grants for highly qualified applicants through its funding decisions. The NJCSCR did not fund any of the applications for the larger grant programs (Named Chair and Start up Costs grants).

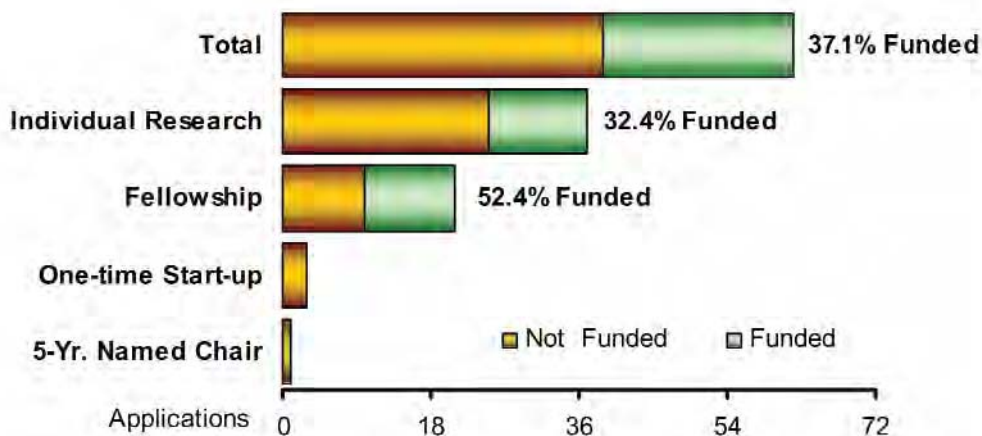


Figure 6 2007 NJCSCR Funding Percentages by Grant Program



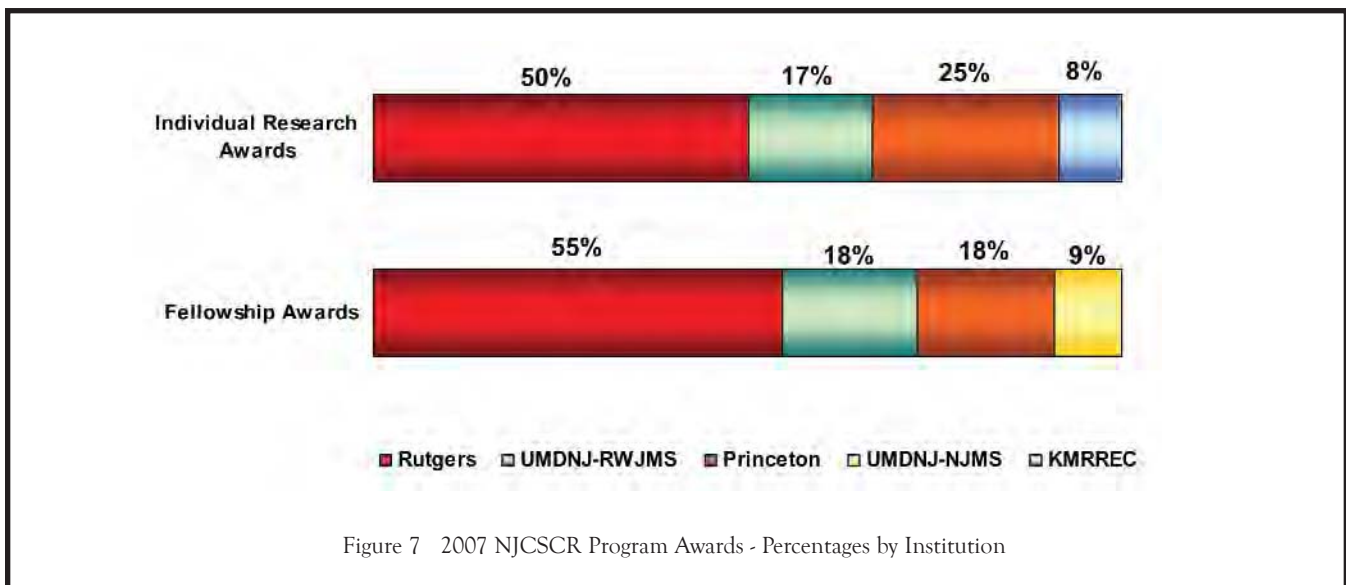
2007 RESULTS BY INSTITUTION

The NJCSCR approved 12 applications from researchers at Rutgers, five from Princeton University, four from UMDNJ-RWJMS and one each from UMDNJ-NJMS and KMRREC in 2007. Rutgers researchers will receive disbursements of over \$2 million, UMDNJ system about \$950,000, and Princeton \$842,000.

Institution	Individual Research		Fellowships		Total	
	#	\$	#	\$	#	\$
Rutgers	6	\$1,646,406	6	\$440,000	12	\$2,086,406
UMDNJ-RWJMS	2	\$731,112	2	\$160,000	4	\$891,112
Princeton	3	\$722,713	2	\$120,000	5	\$842,713
KMRREC	1	\$388,309			1	\$388,309
UMDNJ-NJMS			1	\$60,000	1	\$60,000
Grand Total	12	\$3,488,540	11	\$780,000	23	\$4,268,540

Table 8 2007 NJCSCR Grant Program Awards by Institution

Rutgers received 55% of the Fellowship awards and 50% of Individual Research Grants. Princeton received 25% of Individual Research Grants and tied with UMDNJ-RWJMS with 18% of Fellowships.





OUTREACH EFFORTS

Expanding scientific research in spinal cord injury is a major goal of the NJCSCR. Activities and initiatives undertaken in 2007 continued to increase awareness and stimulate broader interest in spinal cord research.

These activities are implemented by the administrative office of the NJCSCR and the Executive Director through personal contacts, attendance at events and meetings with researchers and potential applicants. Website and publication resources are also used to promote the NJCSCR grant opportunities and other activities throughout the state.

Publication of Grant Programs

Formal Notices of Grant Availability are the official means of notifying interested parties of the NJCSCR grant programs. In 2007, these so-called "NOGAs" were published in the New Jersey Register and the NJDHSS' Directory of Grant Programs together with advertisements placed in leading scientific journals, announced the 2007B and 2007A grant programs.

New Jersey Neuroscience Proposal Development Workshop Series

The New Jersey Neuroscience Proposal Development Workshop Series (described earlier) held six events in 2007. Each workshop featured a select panel of 3-5 senior clinicians and researchers, and 20-30 participants from the medical, academic and research communities. The workshops provided a sharp and stimulating focus on key areas of interest in neuroscience.

In all over 120 individuals participated in these workshops. Attendees exchanged ideas and developed connections that may advance spinal cord research in New Jersey. Interest in continuing the series is high and plans are to continue the series in 2008.

2007 New Jersey Neuroscience Proposal Development Workshops

- ❖ The UMDNJ - Robert Wood Johnson Medical School - June 26, 2006
- ❖ Rutgers - Newark - August 9, 2006
- ❖ Kessler Institute for Rehabilitation - September 27, 2006
- ❖ Rutgers/NJIT - Newark - October 6, 2006
- ❖ Rutgers/W. M. Keck Center for Collaborative Neuroscience - February 22, 2007
- ❖ Coriell Institute - April 27, 2007



GRANTS PROGRAM FOR FY2008

The NJCSCR can award up to eight million dollars for spinal cord research in 2008. The NJCSCR will announce two funding cycles and will accept applications for all four grant programs. The grant funding cycle dates and programs appear below:

2008 Cycle B

Grant Application Deadline: June 8, 2007

Award Notification Date: November 30, 2007

Available Grant Programs:

- ❖ Five-Year Named Chairs for Senior and Junior Faculty Grants
- ❖ One-Time Start-Up Costs Grants
- ❖ Individual Research Grants
- ❖ Fellowship Grants

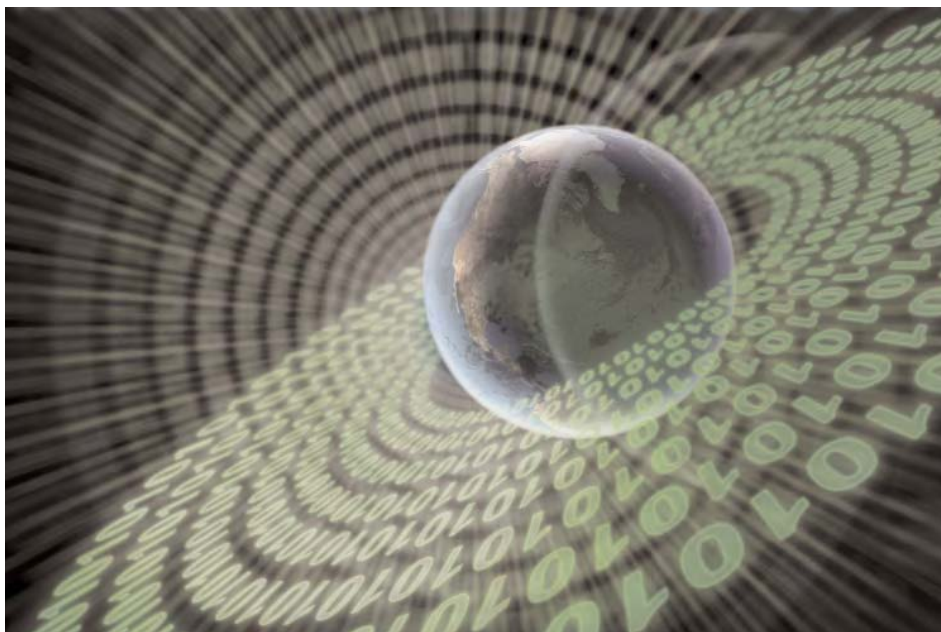
2008 Cycle A

Grant Application Deadline: December 8, 2007

Award Notification Date: May 28, 2008

Available Grant Programs:

- ❖ Five-Year Named Chairs for Senior and Junior Faculty Grants
- ❖ One-Time Start-Up Costs Grants
- ❖ Individual Research Grants
- ❖ Fellowship Grants





NEW JERSEY SPINAL CORD INJURY REGISTRY

The Spinal Cord Research Act mandates the establishment and maintenance of a central registry of persons who sustain spinal cord injuries throughout the State. The NJCSCR has been supporting the work of the NJDHSS' Center for Health Statistics (NJDHSS-CHS) to create the mechanism for the collection and analysis of spinal cord injury data.

In 2007, the NJCSCR and the NJDHSS Center for Health Statistics entered into a second three-year Memorandum of Agreement to further this effort. All Level I trauma centers are now equipped to collect and submit comprehensive data electronically. Plans are underway to enable an on-line system allowing all NJ acute care facilities to participate.

When fully established, the registry will provide a database indicating the incidence and prevalence of spinal cord injuries and will serve as a resource for research, evaluation, and information on spinal cord injuries. CHS will publish an annual report providing data on spinal cord and brain injury in New Jersey.

An overview of non-fatal hospitalizations for spinal cord injury in New Jersey appears below, based on data supplied by CHS. Over the period 2003-2006, there have been 1,268 such admissions, with an overall incidence of 3.6 cases per 100,000 population. An additional 133 succumbed for a total of 1,401 victims.

Rates vary among ethnic groups, age brackets, and gender. Blacks have the highest incidence at 5.8, and black males have the highest incidence of any group at 10.3 per 100,000. Clear trends are not apparent among any of the groups, though the incidence of injury for older persons appears to be growing.

Groups	2003		2004		2005		2006		2003-2006	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Males	179	4.3	209	5.0	249	6.0	219	5.2	856	5.1
Females	98	2.0	91	1.8	103	2.1	120	2.4	412	2.1
Under 15 years	12	**	15	**	21	1.2	9	**	57	0.8
15-24 years	39	3.6	43	3.9	65	5.7	38	3.3	185	4.2
25-44 years	83	3.3	93	3.7	99	4.0	83	3.4	358	3.6
45-64 years	80	3.8	72	3.3	76	3.4	97	4.3	325	3.7
65 years and older	63	5.6	77	6.8	91	8.1	112	9.9	343	7.6
White non-Hispanic	162	2.6	177	3.0	208	3.5	188	3.0	735	3.0
Black non-Hispanic	55	4.8	55	4.9	69	6.1	82	7.5	261	5.8
Native American	-	-	1	**	1	**	-	-	2	**
Asian/Pacific Islander	5	**	3	**	7	**	12	**	27	1.3
Hispanic	30	2.5	42	3.9	38	3.2	34	2.8	144	3.1
Other race/ethnicity	13	-	16	-	17	-	17	-	63	-
Unknown race/ethnicity	12	-	6	-	12	-	6	-	36	-
Total	277	3.1	300	3.4	352	4.0	339	3.8	1,268	3.6

Hospitalization for spinal cord injuries for New Jersey residents.
 Rates are per 100,000 population and are either age-specific or age-adjusted using the 2000 US Standard Population.
 Data sources: New Jersey Discharge Data Collection System; NCHS Bridged Race Estimates for population.

Table 9 Non-fatal spinal cord injury hospitalizations, New Jersey, 2003-2006



2007 NJCSCR INDIVIDUAL RESEARCH GRANTS

"Stand Retraining and FES for SCI", Kessler Medical Rehabilitation Research and Education Corporation, Gail Forrest, Ph.D., Principal Investigator

"Shh Signaling and Neuronal Differentiation of ES Cells", Princeton University, Molecular Biology, Jonathan Eggenschwiler, Ph.D., Principal Investigator

"Elucidating Alpha-Herpesvirus Interactions with Host Neurons", Princeton University, Molecular Biology, Tracy D. Parker & Moriah I. Szpara, Principal Investigators

"Artificial Signaling Pathways for Tissue Regeneration", Princeton University, Electrical Engineering, Ron Weiss, Ph.D., Principal Investigator

"Astroglial of EAAT-1 in Spinal Cord Neuroprotection", Rutgers, The State University, Cell Biology & Neuroscience, Bonnie Firestein, Ph.D., Principal Investigator

"Overcoming Myelin Inhibition with MicroRNAs", Rutgers, The State University, W.M. Keck Ctr. for Collaborative Neuroscience, Ronald P. Hart, Ph.D., Principal Investigator

"Bifunctional DNA Hydrogel to Promote Spinal Cord Regeneration", Rutgers, The State University, Biomedical Engineering, Noshir Langrana, Ph.D., Principal Investigator

"Rapid Non-Invasive Oxygen Monitoring in Cerebrospinal Injury", Rutgers, The State University, Biomedical Engineering, John Li, Ph.D., Principal Investigator

"The Role of Macrophage Migration Inhibitory Factor in Spinal Cord Injury", Rutgers, The State University, W.M. Keck Ctr. for Collaborative Neuroscience, Yi Ren, Ph.D., Principal Investigator

"Regulation of Spinal Sensory Afferent Ingrowth by B-ephrins", Rutgers, The State University, Chemical Biology, Renping Zhou, Ph.D., Principal Investigator

"Molecular Mechanisms of UNC-6/Netrin Axon Branching", University of Medicine and Dentistry of New Jersey-RWJMS, Pathology and Laboratory Medicine, William Wadsworth, Ph.D., Principal Investigator

"Role of Brn3 Genes in Spinal Neuron Development and Survival", University of Medicine and Dentistry of New Jersey-RWJMS, Pediatrics, Mengqing Ziang, Ph.D., Principal Investigator



2007 NJCSCR FELLOWSHIP GRANTS

"Extracellular Matrix-Induced Differentiation of Stem Cells", Princeton University, Molecular Biology, Geoffrey Hunt, Principal Investigator

"The Role of Tulp3 in Axon Guidance and Neuronal Development", Princeton University, Molecular Biology, Ryan Norman, Principal Investigator

"Pre-Differentiation of Therapeutic Stem Cells Using Micro RNAs", Rutgers, The State University, W.M. Keck Ctr. for Collaborative Neuroscience, Cynthia Camarillo, Principal Investigator

"Guiding Axonal Regeneration with Piezoelectric Polymers", Rutgers, The State University, Biomedical Engineering, Maria Nuri Royo-Gascon, Principal Investigator

"Molecular Mechanisms of Action of an Anti-Necrosis Drug", Rutgers, The State University, Molecular Biology & Biochemistry, Shaunak Kamat, Principal Investigator

"Genetic Dissection of Neuronal Regeneration in *C. elegans*", Rutgers, The State University, Molecular Biology & Biochemistry, Berangere Pinan Lucarre, Principal Investigator

"The Role of p38 MAPK in GluR Trafficking and Excitotoxicity", Rutgers, The State University, Waksman Institute, EunChan Park, Principal Investigator

"InVitro/in Silico Comparison of Neurite Arborization", Rutgers, The State University, Biomedical Engineering, Andrew Voyiadjis, Principal Investigator

"Toll-like Receptor 9 Mediated Neuropathology in the Spinal Cord", University of Medicine and Dentistry of New Jersey-NJMS, Neurology and Neuroscience, Kevin Christian Donahue, Principal Investigator

"Opioids and Cell Proliferation Following Spinal Cord Injury", University of Medicine and Dentistry of New Jersey-RWJMS, Neuroscience and Cell Biology, Tara Cominski, Principal Investigator

"A C-type Lectin-like Receptor in Axon Growth and Guidance", University of Medicine and Dentistry of New Jersey-RWJMS, Pathology and Laboratory Medicine, Gauri Kulkarni, Principal Investigator.



FINANCIAL STATEMENTS

The activities and programs of the NJCSCR are supported by the New Jersey Spinal Cord Research Fund (the Fund) as established by the Act. A one dollar surcharge is imposed on all fines or penalties levied under the provisions of Title 39 of the Revised Statutes or any other motor vehicle or traffic violation. The surcharge is collected and forwarded to the State Treasurer and deposited annually into the New Jersey Spinal Cord Research Fund.

The Fund opened SFY 2007 with a balance of \$6.10 million. Revenues and interest of \$4.88 million brought the total to \$10.98 million.

Disbursements and expenses for SFY 2007 were \$5.1 million, considerably less than the projected total of \$7,695 million. Disbursements to grantees amounted to \$4.6 million. Approximately \$500,000 was spent for office and administrative expenses. The Fund closed the year with a balance of \$5.88 million.

The NJCSCR is committed to granting a substantial majority of the Fund each year to support as much meritorious research as possible, while retaining the ability to meet expenses. SFY 2008 disbursements to grantees of \$7,035 million and expenses of \$630,000 are projected for budgeting purposes. Actual disbursements are likely to be lower.

FUND BALANCE STATEMENT:

	SFY 2007 <i>Projected</i>	SFY 2007 Actual	SFY 2008 <i>Projected</i>
Opening Fund Balance (July 1)	\$5,760,000	\$6,100,000	\$5,880,000
Revenues			
Assessments ¹	\$4,000,000	\$4,100,000	\$4,200,000
Investments Earnings - Interest ²	\$300,000	\$780,000	\$750,000
Total Revenue:	\$4,300,000	\$4,880,000	\$4,950,000
Total Funds Available	\$10,060,000	\$10,980,000	\$10,830,000
Disbursements and Expenses			
Disbursements to Grantees	\$6,020,000	\$4,600,000	\$7,035,000
Total disbursements	\$6,020,000	\$4,600,000	\$7,035,000
Expenses			
Administrative & Office Expense	\$470,000	\$400,000	\$450,000
Professional Review Panel	\$80,000	\$50,000	\$80,000
NJCSCR Registry	\$100,000	\$50,000	\$100,000
Total expenses	\$650,000	\$500,000	\$630,000
Total Disbursements and Expenses	\$6,670,000	\$5,100,000	\$7,665,000
Closing Fund Balance (June 30)	\$3,390,000	\$5,880,000	\$3,165,000

¹ Net revenue variance

² Funds plus interest deposited annually in Jan.

Table 10 NJCSCR Fund Balance Summary

