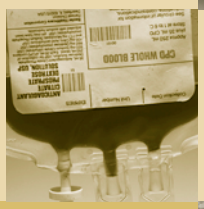

X. National Prion Research Program

Vision: To eliminate the occurrence of human transmissible spongiform encephalopathies.

Mission: To develop a diagnostic test to detect the presence of prion disease.

Congressional Appropriations for Peer Reviewed Research: $42.5M in FY02

Funding Summary: 38 awards from the FY02 appropriation

...shaping the future of health care to prevent, control, and cure diseases.

The Disease

Transmissible spongiform encephalopathies (TSEs) refer to several apparently related diseases including Creutzfeldt-Jacob disease (CJD) and its new variant (nvCJD), kuru, bovine spongiform encephalopathy ("mad cow disease"), and others. Except for nvCJD, TSEs appear to develop progressively over many years, lead to extensive central nervous system vacuole formation, and are invariably fatal. At present, definitive diagnosis can only be made at autopsy. The diseases are relatively rare in humans but have been documented most extensively in hoofed mammals. The current disease theory attributes TSEs to "prions," normal cell membrane proteins with atypical three-dimensional configurations, transmitted by ingestion or possibly blood transfer. Although a Nobel Prize was awarded for the work underlying this proposed mechanism (Prusiner, 1997), it remains controversial because disease transmission is traditionally associated with an agent capable of replication.

The health threats posed by TSEs currently appear to involve the food and blood supplies. These health threats put military beneficiaries in affected areas overseas at risk. Research and development of means for diagnosis, prevention, and treatment face significant difficulties. These include uncertainty about disease mechanisms, TSEs' slow progression in most cases, the lack of a diagnostic tool, and uncertainty about the similarities between animal and human diseases. In addition, TSE research requires BioSafety Level 3 facilities for some work.

Program Background

The Department of Defense (DOD) National Prion Research Program (NPRP) was established in fiscal year (FY02) by Joint Appropriations Conference Committee Report No. 107-350, which provided $42.5 million (M) for research on prion disease. A U.S. Army Medical Research and Materiel Command (USAMRMC) Steering Committee, including representatives of the Walter Reed Army Institute of Research, was convened to address TSE-related issues specific to military missions and to support the NPRP based upon the USAMRMC's experience in infectious disease detection and diagnosis. A stakeholders' meeting was held in which military, scientific, regulatory, industry, and public health stakeholders provided input on the major issues in TSE research. Based upon the stakeholders' recommendations, an Integration Panel (composed of TSE experts from the military, scientific, regulatory, industry, and public health communities) was selected to determine the vision and investment

Table X-1. Funding Summary for the FY02 NPRP

Category and Award Mechanism	Number of Proposals Received	Number of Awards	Investment
Research			
Idea	65	17	$7.8M
Investigator-Initiated	64	16	$27.8M
Training/Recruitment			
Career Transition	6	4	$1.6M
Prion Techniques Fellowship	1	1	$0.04M
Total	**136**	**38**	**$37.24M**

strategy. Appendix B, Table B-8, summarizes the congressional appropriations and the investment strategy executed by the NPRP for FY02.

The Fiscal Year 2002 Program

The goal of the FY02 NPRP was to develop a rapid, sensitive, and reproducible test for the detection of prions suitable for use as an antemortem diagnostic test as well as a screening assay. In support of this goal, proposals were also solicited to better understand the prevention, transmission, and pathogenesis of TSEs to include chronic wasting disease, and proposals with military relevance were specifically sought. Four award mechanisms were offered in two award categories: research and training/recruitment. Table X-1 provides a summary of the FY02 NPRP award categories and mechanisms in terms of number of proposals received, number of awards, and dollars invested. As illustrated in Figure X-1, the portfolio of research supported by the FY02 NPRP spans four award mechanisms.

A total of 136 proposals was received, and 38 awards were made. The Idea Awards were offered to encourage innovative approaches to TSE research from both established TSE investigators and investigators in other fields who want to move into TSE-related research. Investigator-Initiated Research Awards (with an option for nested pre- and postdoctoral traineeships) emphasized the introduction of new research paradigms, technologies, and expertise to the TSE field especially through the development of partnerships between academic and industry researchers or between established TSE researchers and researchers from other disciplines. Career Transition Awards were intended to facilitate career advancements by accommodating the relatively long time that it takes to generate data in prion experimental models. These awards were designed to support the last 2 years of a postdoctoral traineeship and the first 3 years of a junior faculty position. Finally, Prion Techniques Fellowship Awards offered investigators the opportunity to work in the laboratory of established prion researchers to acquire critical skills or learn new methods relevant to prion research.

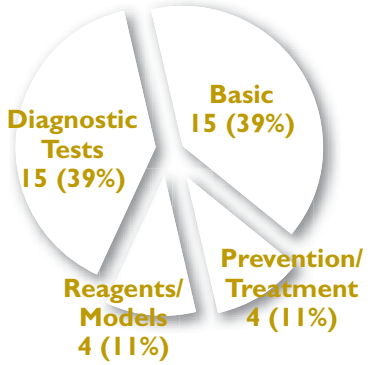

Figure X-1. FY02 NPRP Portfolio by Award Mechanism

Expanding the Prion Research Community

The prion research community has long been recognized as a small group of dedicated researchers studying an elusive disease. Recent concerns over potential contamination of the food and blood supply prompted the U.S. Congress to provide the largest single appropriation in history for prion-related research – $42.5M to the FY02 NPRP. This influx of funding has opened the doors to a number of institutions and researchers, including previously established prion disease researchers, new researchers entering the field, and established scientists in other fields interested in expanding their expertise to the study of prion disease. The NPRP is supporting investigators from 30 institutions, including 14 previously established prion disease researchers, 40 pre- and post-doctoral trainees, and 15 scientists in other fields that are now turning their attention to the study of prion disease. With this expansion in the prion research community, it is anticipated that the research supported by this program will help answer many questions associated with the disease.

Summary

The NPRP was established in FY02 with a $42.5M congressional appropriation. While Congress did not appropriate funds for the NPRP in FY03, investigators supported by this program are working to rapidly develop a definitive and reproducible diagnostic test for the detection of prion disease before death as well as for use as a screening assay.

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