Section VIII 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: ~30–35 awards anticipated from the FY02 appropriation

The Disease

Transmissible spongiform encephalopathies (TSE) 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 TSE 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 TSE 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, TSE's 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 FY02 by Joint Appropriations Conference Committee Report No. 107-350, which provided $42.5M for research on prion disease. The Senate Appropriations Committee Report No. 107-109 also specified that "The priority goal of the Project's first phase is to rapidly develop a diagnostic test to detect the presence of prion disease." A USAMRMC Steering Committee, including representatives of the Walter Reed Army Institute of Research (WRAIR), has been 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 May 2002 in which military, scientific, regulatory, industry, and public health stakeholders provided input on the major issues in TSE research. Meeting participants included leading scientists and representatives from the DOD (i.e., the WRAIR, the Assistant Secretary of Defense [Health Affairs], the Armed Services Blood Program Office, and the Veterinary Corps), the Departments of Health and Human Services (including the National Institutes of Health, the Food and Drug Administration, and the Centers for Disease Control and Prevention), and Agriculture. Representatives from the Department of Veterans Affairs and the American Red Cross also attended the meeting. Based upon the stakeholders' recommendations, a smaller programmatic advisory group (Integration Panel, see page VIII-4), composed of TSE experts from the military, scientific, regulatory, industry, and public health communities, was selected to determine the FY02 vision and investment strategy.

The Vision for the FY02 Program

The goal of the FY02 NPRP is 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 TSE to include chronic wasting disease. Proposals with military relevance are specifically sought. Five award mechanisms are being offered in three award categories: (1) research, (2) infrastructure, and (3) training/recruitment. A brief description of each award mechanism follows:

- Idea Awards are designed 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 emphasize and strongly encourage 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 are intended to facilitate career advancements by accommodating the relatively long time that it takes to generate data in prion experimental models. Awards are designed to support the last 2 years of a postdoctoral traineeship and the first 3 years of a junior faculty position.
- Prion Techniques Fellowship Awards offer investigators the opportunity to work in the laboratory of established prion researchers to acquire critical skills or learn new methods relevant to prion research.
- Resource Development Contracts will provide support for developing experimental materials from relevant animal models of prion disease to support prion research.

The FY02 NPRP Program Announcement was released August 2, 2002 and proposals are due in electronic format by October 30, 2002. Scientific peer review will be conducted December 2002, and programmatic review is scheduled for February 2003. Programmatic review will be supported by an Institute of Medicine report that was negotiated by the USAMRMC to assess the field of TSE, specifically focusing on prion detection and disease diagnosis. Approximately 30–35 awards are anticipated.

Summary

The NPRP was established in FY02 with a $42.5M congressional appropriation. The Program's primary goal is 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. Projects funded by this program are anticipated to advance knowledge and research in the area of TSE.

FY02 Integration Panel Members

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