

## **COOPERATIVE STUDY GROUP FOR AUTOIMMUNE DISEASE PREVENTION (PREVENTION CENTERS)**

### **Description of Project**

- The Cooperative Study Group for Autoimmune Diseases Prevention (Prevention Centers) supports a multidisciplinary collaborative network of investigators focused on understanding the immune mechanisms that underlie autoimmunity and autoimmune diseases, approaches to immunomodulation in autoimmunity, and the application of this knowledge to the prevention of these chronic, debilitating diseases.

### **Accomplishments**

#### Core projects

- Quantitation and characterization of T cells in type 1 diabetes;
- Gene therapy of NOD diabetes and collagen arthritis;
- Tolerizing DNA vaccines for EAE and diabetes;
- Protein microarrays to guide therapy in disease models;
- Oral feeding strategies for diabetes prevention;
- Genetic immunization of NOD mice;
- Regulatory T cells in diabetes and MS;
- Mechanism of action of CD4<sup>+</sup> CD25<sup>+</sup> T cells in NOD mouse diabetes.

#### Innovative pilot projects-FY 2002

- Cholera Toxin B coupling of autoantigens enhances diabetes prevention after oral feeding;
- Human islet-infiltrating T cells in beta-cell autoimmunity;
- Role of Notch signaling in the development of autoimmune diabetes;
- Microarray analysis of islet and pancreatic lymph nodes in NOD mice;
- Prevention of type 1 diabetes after DNA immunization;
- Proteomics pilot project.

#### Innovative pilot projects-FY 2003

- Cholera Toxin B coupling of autoantigens enhances diabetes prevention after oral feeding;
- Microarray analysis of islet and pancreatic lymph nodes in NOD mice;
- MHC class II reagents for staining low-affinity T cells;
- Islet cell antibody testing of organ donors;
- Immunoprotection by SOCS-1 in islet transplantation.

#### Innovative pilot projects-FY 2004

- A roadmap to inflammation in the NOD mouse (coordinated study of autoantibodies, tetramer staining, gene expression, proteomics);
- High-density SNP mapping of the MHC to facilitate identification of diabetes susceptibility genes.

## **Future directions**

- Create improved models of disease pathogenesis and therapeutic strategies;
- Facilitate rapid translation of findings in animal models to human studies, emphasizing surrogate markers of disease progression and/or regulation;
- Develop promising new targets and approaches to disease prevention, which will be evaluated in clinical trials.

## **Participants**

Sponsors: National Institute of Allergy and Infectious Diseases  
National Institute of Child Health and Human Development  
National Institute of Diabetes and Digestive and Kidney Diseases  
NIH Office of Research on Women's Health  
Juvenile Diabetes Research Foundation International

### Participating Institutions

Brigham and Women's Hospital  
La Jolla Institute for Allergy and Immunology (LIAI)  
Stanford University (2 Centers)  
Virginia Mason/University of Colorado Health Sciences Center

### Steering Committee

The Steering Committee includes the five principal investigators of the above Centers and program staff from NIAID and NIDDK.