

## **2007 Annual Immune Epitope Database and Discovery Workshop Meeting Report Executive Summary**

The Fourth Annual Immune Epitope Database and Discovery Workshop was held November 14 and 15, 2007 at the Sheraton Hotel in La Jolla, California. The meeting provided an opportunity for the contractors of the Immune Epitope Database and Analysis Resource (IEDB) and the Large Scale Antibody and T Cell Epitope Discovery programs to present their project status and plans and to discuss common interests.

The two-day meeting started with a presentation of the status of the IEDB. In the past year, the IEDB has focused on adding epitope data from literature and Epitope Discovery groups, increasing user base and usability, enhancing the Analysis Resource with new and better tools, and improving data consistency and quality. After soliciting feedback from users at meetings and online and from usability experts, we started a major redesign of the website and underlying data schema. The goal of this redesigned system, called IEDB 2.0, is to make the features of the site intuitively accessible to users while improving many of those features, such as the query and reporting capabilities. This process will result in a more complete and refined ontology of the database.

A significant quantity of data has been added to the IEDB in the past year from literature curation and data submissions. Curation of epitope literature for Category A-C priority pathogens, Emerging/Reemerging infectious diseases, Malaria, Hepatitis B, Clostridium tetani, Leishmania, and Candida albicans has been completed, and curation of herpesvirus and allergen references is in progress. The second order analyses of tuberculosis, anthrax, and botulinum conducted this year have been key to augmenting data quality and utility.

Several enhancements have been made to the Analysis Resource. Antibody epitope prediction tools BepiPred and DiscoTope have been added, and the inclusion of NetChop and NetCTL is in progress. New prediction tools for antibody and MHC class II epitopes are under development, and evaluations of antibody and MHC class II prediction tools are also in progress. The 3D visualization and mapping capabilities are being expanded.

The coming year will see the deployment of IEDB 2.0 and its many associated benefits, the curation of allergy and most autoimmune epitope references, enhanced epitope prediction capabilities, MHC class II and antibody prediction tool evaluations, and additional second order analyses. Increasing the IEDB's usability and user base within the scientific community will continue to be a priority.

The IEDB presentation was followed by fourteen 40 minute presentations by the Large-Scale Antibody and T Cell Epitope Discovery contractor teams. The project title and presenters, in the order they presented, are listed at the end of the Executive Summary.

The Fifth Annual Immune Epitope Database and Discovery Workshop will be held in March 10 and 11, 2009.

## **1.1 Presentation Titles**

### **The Immune Epitope Database and Analysis Resource**

Presented by Alessandro Sette Ph.D. and Bjoern Peters Ph.D.  
La Jolla Institute for Allergy and Immunology

### **Identification and Characterization of T Cell Epitopes from *F. tularensis***

Presented by Jeffrey Frelinger, Ph.D.  
University of North Carolina

### **Prediction of Peptide Binding to HLA Class I Molecules**

Presented by Soren Buus, M.D., Ph.D. and Morten Nielsen  
University of Copenhagen

### **Discovery of Epitopes of NIAID Category A-C Pathogens Using Bioinformatics and Immunology**

Presented by Ole Lund, Ph.D.  
Technical University of Denmark

### **West Nile Virus HLA Class II T Cell Epitope Sequences**

Presented by J. Thomas August, M.D.  
Johns Hopkins University School of Medicine (JHU)

### **Display of Naturally Processed Peptides: Poxvirus-Derived CTL Epitopes and Self Peptidome Shift in Vaccinia Virus Infected Cells**

Presented by Sebastian Joyce, Ph.D.  
Vanderbilt University

### **Identification of Class I and Class II Restricted Epitopes Derived from Variola and Vaccinia Viruses**

Presented by Alex Sette, Ph.D.  
The La Jolla Institute for Allergy & Immunology

### **T Cell Epitopes of Vaccinia Virus in Immunized Donors**

Presented by Clemencia Pinilla, Ph.D.  
Torrey Pines Institute for Molecular Studies,

### **CD4 T Cell Epitopes for *Bacillus anthracis* and *Yersinia pestis* Antigens**

Presented by Daniel M. Altmann, Ph.D. and John Robinson, Ph.D.  
Imperial College, London and University of Newcastle, UK

### **Identification of CD4+ T Cell Epitopes for Influenza, Severe Acute Respiratory Syndrome-Coronavirus and Bacillus anthracis Antigens**

Presented by William Kwok, Ph.D.  
Benaroya Research Institute at Virginia Mason

### **Influenza, West Nile Virus, and Q Fever Epitope Characterization**

Presented by William Hildebrand, Ph.D.

University of Oklahoma Health Sciences Center

**Botulinum neurotoxins A, B, and E: Investigations Using Human Antibodies for Epitope Mapping and Neutralization**

Presented by Kim Janda, Ph. D.  
The Scripps Research Institute

**Identification and Immunological Validation of Candidate T Cell Epitopes Encoded by poxvirus, Ebola Virus, and *Mycobacterium tuberculosis* Genes**

Principal Investigator: Kent J. Weinhold, Ph.D.  
Duke University Medical Center

**M. Tb Specific Human CD8 T Cells Antigens and Epitopes**

Presented by Deborah Lewinsohn, M.D.  
Oregon Health and Science University

**Class I and Class II Restricted Epitopes from a Representative Sample of the Different Arenavirus Species Pathogenic in Humans**

Presented by Maya Kotturi, Ph.D.  
La Jolla Institute for Allergy & Immunology