

URI/EpiVax Westin Immunogenicity Seminar 2013

THE
UNIVERSITY
OF RHODE ISLAND



Venue:
The Westin Osaka

Tuesday, October 8th, 9:00 am – 5:00 pm
1-1-2 0 Oyodonaka, Kita Ward, Osaka Japan 531-0076

Speakers:

Prof. Shimon Sakaguchi, M.D., Ph.D

Principal Investigator
Immunology (Immunological tolerance and autoimmune disease)
Osaka University

Dr. Naonobu Sugiyama, MD, PhD

JCR-board Certified Rheumatologist
Associate Director, RA & Inflammation
Medical Affairs Pfizer Japan

Prof. David W. Scott, PhD

Professor of Medicine
Vice Chair for Research
Department of Medicine (MED)
Uniformed Services University of Health Science

Prof. Ken Ishii, M.D., Ph.D

Project Leader
National Institute of Biomedical Innovation
Professor, PI
Laboratory of Vaccine Science, Osaka University

Prof. Annie De Groot, M.D.

Professor and Director, Institute of Immunology and Informatics,
University of Rhode Island, CEO/CSO, EpiVax, Inc.

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Conference Agenda

URI/EpiVax Westin Immunogenicity Seminar 2013 October 8th, 2013

Time	Presenter	Topic
9:00	Dr. Keizo Yoshida, PhD. EpiVax Asia	Introduction & Welcome
9:15	Prof. Annie De Groot, M.D. Professor, URI and CEO, EpiVax	Teff and Treg Epitopes in the Drug Development Context
9:45	Prof. Shimon Sakaguchi, M.D., Ph.D PI, Professor, Osaka University	Keynote Talk: Regulatory T cells, Immune Tolerance and Treg Plasticity
11:00	Dr. Naonobu Sugiyama, MD, PhD, Associate Director, RA & Inflammation, Medical Affairs Pfizer Japan	Case Study: Immunogenicity and Clinical Outcomes in RA Treatment
11:30	<i>Break</i>	
11:45	Prof. David W. Scott, PhD Professor, Vice Chair Department of Medicine Uniformed Services University of Health Science	From B cell Gene Therapy to Ig Fusions to Antigen-specific Tregs
12:30	<i>Lunch (Provided)</i>	
1:30	Prof. Ken Ishii, M.D., Ph.D Project Leader National Institute of Biomedical Innovation Professor, PI, Osaka University	Innate Immune Modulation and Tolerance
2:15	Prof. Annie De Groot, M.D. Professor, URI and CEO, EpiVax	Tregitope Update: Applications to Protein Medicine, Autoimmunity and Vaccine Design
3:00	<i>Break</i>	
3:15	All Speakers	Panel Discussion and Questions Topic: Relevance of Today's Talks to Protein Medicine
4:15	Speakers and Attendees	Cocktail Reception & Networking
5:00	<i>Close</i>	

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EpiVax and iCubed Introduction:

The team at **EpiVax**, Inc., led by Dr. Annie De Groot and Bill Martin, has pioneered the development of a set of immunoinformatics tools which allows researchers to predict the immunogenicity of peptides and proteins. The potential applications of this technology are vast: for instance, one could be to predict which vaccines will be most effective or which protein therapeutic drugs will have the possibility of eliciting an adverse immune response. It is a powerful research and development tool for designing effective and safe protein/peptide based therapeutics. The leaders of EpiVax, Inc. have been resolute in availing these tools to the research community. To that end, Dr. De Groot and her team, with funding from an NIH U19 grant, have developed the iVAX website where investigators can access their own set of genome sequences, proteins of interest, and tools for the analysis of vaccines and diagnostics. Using the iVAX toolkit, researchers can quickly and efficiently identify the most reactive proteins contained within a given pathogen, and optimize the antigenic content of vaccines. Furthermore, by selecting the highest quality epitopes from a protein sequence new antigens that are relevant for vaccine development can be discovered.

The **Institute for Immunology and Informatics** (iCubed) was established in 2008 under the leadership of Annie De Groot, M.D. and Denice Spero, Ph.D., as part of the University of Rhode Island's emerging Biotechnology Program. iCubed's research focuses on new and safer vaccines, new methods of predicting and treating adverse immune responses, and improving tolerance in the case of transplantation. iCubed supports a wide variety of training efforts that will provide opportunities to teach the next generation the tools for effective vaccine design.

The iCubed excels in immunoinformatics-driven vaccine development, colloquially known as "Gene-to-Vaccine". The approach involves computer-driven analysis of genome sequences, selection of immunogenic segments, and composition of vaccines *in silico*. The next step in the process is to validate the vaccine candidates *in vitro* and *in vivo*, using methods developed in the iCubed laboratories. A wide array of vaccine delivery technologies are under evaluation, including monoclonal antibodies, liposomes, and DNA vaccines (De Groot with the Department of Defense). Using immunoinformatics tools, research also is being conducted on eliminating parts of vaccines that may contribute to deleterious immune responses. Collaborations extend internationally to Thailand (Dengue virus), and Mali (HIV, TB, HPV). Cross-disciplinary collaborations exist between the iCubed, which is actively developing vaccines using immunoinformatics tools, and the laboratory of Geoff Bothun, where the vaccines are being packaged in liposomes for delivery. Research collaborations also have been developed with Steve Williams (filaria, Smith College), another investigator that will be involved in the iCubed program. In addition, iCubed researchers are actively carrying out field research in vaccines that will accelerate the delivery of new vaccines to the developing world; iCubed student researchers are collaborating with clinicians in Mali to evaluate 'knowledge, attitudes and practices' related to vaccines and the efficacy of existing vaccines (such as HPV) in that setting. Each of these cross-cutting areas of research, comprising experience that covers the biotech field 'from gene to vaccine' is currently being integrated into the activities of the iCubed.

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