

# URI/EpiVax Tokyo Westin Immunogenicity Seminar 2014



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Venue: Westin Tokyo

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## Speakers:

**Dr. Naonobu Sugiyama, MD, PhD**  
JCR-board Certified Rheumatologist  
Director, RA & Inflammation  
Medical Affairs Pfizer Japan

**Prof. Annie De Groot, MD**  
Professor and Director, Institute of Immunology and Informatics,  
University of Rhode Island, CEO/CSO, EpiVax, Inc.

**Frances Terry**  
Bioinformatics Program Manager

**Sandra Garces, MD, PhD**  
Department of Immunology, Instituto Gulbenkian de Ciencia, Portugal

**Tomoyuki Igawa, PhD**  
Manager of Antibody Engineering Group, Chugai Pharmaceuticals

**Futa Mimoto, PhD**  
Research Scientist, Discovery Division, Chugai Pharmaceuticals

**Takuya Tsunoda, MD, PhD**  
Visiting Associate Professor, Wakayama School of Medicine

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## Conference Agenda

<b>URI/EpiVax Westin Immunogenicity Seminar 2014 September 17<sup>th</sup> 2014</b>		
<b>Time</b>	<b>Presenter</b>	<b>Topic</b>
9:30	<b>Prof. Annie De Groot, M.D.</b>	Welcome and Introduction to the Seminar
10:15	<b>Dr. Sandra Garces</b>	What is the impact of Immunogenicity? Clinical Experience with TNF Inhibitors in the Clinic
11:00	BREAK	
11:15	<b>Frances Terry</b>	Using In Silico Tools to Analyze the Immunogenic Potential of a Candidate Protein
12:00	<b>Dr. Tomoyuki Igawa &amp; Dr. Futa Mimoto</b>	Our current practice of immunogenicity assessment and deimmunization in antibody therapeutic development
12:45	<i>Lunch 12:45-1:45 (Provided)</i>	
2:00	<b>Dr. Takuya Tsunoda</b>	Lesson from Clinical Trials with Cancer Vaccines
2:45	<b>Prof. Annie De Groot, MD</b>	Basic Science Immunogenicity Update: The Two Faced T cell epitope: Relevance to better design of Biologics and Vaccines
3:30	<i>Break</i>	
4:00	<b>All Speakers</b>	Panel Discussion and Questions
4:45	<b>Speakers and Attendees</b>	Cocktail Reception & Networking
5:30	<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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