

# CMET Seminar



## Dr. Isidro (Dan) E. Zarraga

Senior Scientist

**Genentech**

Dr. Isidro (Dan) E. Zarraga is a Senior Scientist at Genentech and manages a group that provides R&D support for formulation optimization and scale-up operations for biomolecules in late stage development (Phase 3 to commercial). He obtained his BS in Chemical Engineering at the University of the Philippines, and his PhD from the University of Notre Dame, also in Chemical Engineering. In his thesis, he investigated solid-liquid suspensions in Newtonian and polymer solutions. Upon completion in 2000, he applied his knowledge to the spray congealing of biopolymer suspensions for drug delivery in a joint industrial-academic Postdoc position at Abbott Labs and Georgia Tech. In 2001, Dr. Zarraga joined 3M as a Senior Research Engineer in their Health Care division to work on their novel immune response modifier (IRM) platform for therapeutic and prophylactic vaccine development, where he co-authored 3 patents. In 2007, when 3M's main IRM pipeline was sold to Pfizer, Dr. Zarraga was recruited by and joined Genentech's pharmaceutical development organization. He has since worked on multiple biopharmaceutical products, including novel drug delivery and device projects, and has co-authored several FDA filings including three that were approved and went commercial. In addition, he continues to actively publish in scientific journals, give presentations at conferences and co-chair sessions, and currently represents Genentech in two industrial consortia, the Biomolecular Interaction Technology Center (BITC) and nSOFT consortium at NIST. Dr. Zarraga has also taught part-time in Santa Clara University as an adjunct faculty in their Bioengineering program in 2010-2012. He visits family and friends in the Philippines each year and participates in the Philippine International Aid (PIA) fundraisers and community activities in San Francisco, for underprivileged youth.

**DATE:**  
**August 5, 2014**

**TIME:**  
**3:00 pm**

**LOCATION:**  
**366 CLB**

### **“Nanocolloid science in immunotherapy: therapeutic vaccine and antibody formulations”**

Progress in the design and production of biomolecular constructs has led to breakthrough applications in the pharmaceutical and medical fields. These technologies require nanometer and molecular level precision, and unprecedented control of targeting and clearance would not have been possible without the collaborative use of molecular biology, polymer and nanocolloid science. In this talk, examples of biomolecular constructs in the areas of therapeutic vaccination and biopharmaceuticals will be presented. Advances in molecular immunology, such as synthetic agonists to the pathogen-associated molecular pattern (PAMP) receptors called TLRs, aided by polymeric drug delivery systems, has opened unique opportunities to control the precision in which immunotherapeutic drugs are delivered, released, and cleared. Similarly, advances in targeted therapeutics based on monoclonal antibody constructs, such as antibody drug conjugates, have provided a variety of mechanisms for battling cancer, treating immune disorders, and are opening new opportunities in neuroscience.