THE SAN DIEGO CHEMIST

American Chemical Society **San Diego Section**
Volume 22, Number 1 **January 2010**

"Applications of High Sensitivity Fluoresence"

Brent S. Gaylord, PhD

Chief Scientific Officer, Cofounder, Sirigen Inc.

DATE: **Monday, January 18, 2010**

TIME: **6:00 PM Light dinner**
7:00 PM Lecture

PLACE: **Ardea Biosciences, Inc.**
4939 Directors Place
San Diego, CA 92121

DIRECTION: http://www.ardeabio.com/contactus.html

RESERVATION: **By Thursday, January 14, 2010**
http://sandiegoacsjan2010.eventbrite.com/

About the Speaker:
Dr. Gaylord received his Ph.D. for the study of Light Emitting Conjugated Polymers for Use in Biological Detection Platforms and is responsible for directing and performing Sirigen's critical research and development. In his work as a graduate student at the University of California Santa Barbara and in collaboration with his advisor, Professor Guillermo C. Bazan and the Nobel Prize winning physicist, Professor Alan J. Heeger, Dr. Gaylord invented Sirigen's proprietary technologies and subsequently cofounded the Company. Prior to joining the University of California Santa Barbara, he obtained a B.S. in Chemistry-Material Science Engineering and a minor in Mathematics from the United States Air Force Academy. Dr. Gaylord's experience in chemistry and materials science is extensive, which has resulted in several major accolades including the American Institute of Chemists Foundation award. As CSO, Dr. Gaylord oversees Sirigen's scientific and intellectual property base while directly supporting its commercial sales processes through the development and management of key technical relationships.

About the Lecture:
Sirigen was formed in 2003 to adapt and commercialize a unique class of materials, conducting polymers, for applications in diagnostics and life sciences. These materials were originally reported by Dr. Alan J. Heeger, Dr. Hideki Shirakawa and Dr. Alan G. MacDiarmid who were awarded the Nobel Prize in 2000 for the discovery of "Fourth Generation of Polymeric Materials". Sirigen's interest in these materials is their exceptional light harvesting and fluorescent properties. Biological detection typically requires the detection of trace quantities of material and is often constrained by the signal output of conventional fluorescent dyes which have fundamentally limited abilities to absorb or collect light. By utilizing the polymers as direct reporters or in combination with common dyes as energy transfer pairs, specific performance improvements exceeding over an order of magnitude have been demonstrated in a number of biological applications including flow cytometry, immunoassays and nucleic acid analysis. Material properties from solubility, non-specific binding, wavelength, charge, energy levels, conjugation chemistry (type, number & position), size, brightness, can all be tailored or tuned via reproducible chemical processes. The ability to "dial in" assay specific properties provides a versatile platform with unique advantages over and alternative options to other commonly used fluorescent reporters including organic dyes, fluorescent proteins and Quantum Dots. Such capabilities have allowed Sirigen to successfully transition these High Sensitivity materials from original uses in electronic and optoelectronic applications (LEDs, solar cells, etc.) to address specific limitations in the life science and diagnostic testing markets.