

BIOENGINEERING

PRESENTS

**Counting molecules, dodging blood cells: real-time
molecular measurements directly in the living body**



WEDNESDAY, APRIL 5, 2017

1:00 – 2:00 PM

2101 ENGINEERING V

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ABSTRACT:

The development of technology capable of continuously tracking the levels of drugs, metabolites, and biomarkers in situ in the body would revolutionize our understanding of health and our ability to detect and treat disease. It would, for example, provide clinicians with a real-time window into organ function and would enable therapies guided by patient-specific, real-time pharmacokinetics, opening a new dimension in personalized medicine. In response my group has pioneered the development of a “biology-inspired” electrochemical approach to monitoring specific molecules that supports real-time measurements of arbitrary molecular targets (irrespective of their chemical reactivity) directly in awake, fully ambulatory subjects.

BIOGRAPHY:

Dr. Kevin Plaxco is a Professor at the University of California, Santa Barbara, with shared appointments between the Department of Chemistry and Biochemistry, the Department of Mechanical Engineering, and the Biomolecular Science and Engineering Graduate Program. Prof. Plaxco also serves as Director of campus's Center for Bioengineering.

Prior to joining UCSB in 1998 Dr. Plaxco received his Ph.D. from Caltech and performed postdoctoral studies at Oxford and the University of Washington. Dr. Plaxco's research focus is on the physics of protein folding and its many and varied engineering applications. A major aim of the group's applied research is to harness the speed and specificity of folding in the development of sensors, adaptable surfaces, and smart materials.

Dr. Plaxco has co-authored nearly a dozen patents and more than 180 papers on protein folding, protein dynamics, and folding-based sensors and materials, and is recognized by Thomson Reuters as one of the most highly cited chemists of the prior decade. He serves on the scientific boards of a half dozen biotechnology firms (several of which are commercializing technologies developed by his group), and has also written a popular science book on Astrobiology.