Shedding Light on Protein Function

David Kliger

Research Professor, Chemistry Campus Provost & Executive Vice Chancellor Dean, Physical & Biological Sciences

CURRENT RESEARCH

Natural rhythms of proteins

Proteins are made up of amino acids that determine the protein's unique three-dimensional structure and its specific function. Responsible for most of the work in cells, proteins are required for the function and regulation of the body's tissues and organs. The study of proteins is thus necessary for illuminating our understanding of the body's functions and diseases. Dr. David Kliger, Research Professor of Chemistry at the University of California, Santa Cruz, uses lasers to understand how proteins function. Specifically, using time-resolved laser spectroscopy, he and his team aim to understand how various proteins carry out their function and, furthermore, how they fold into the native structures that enables them to carry out their function. Dr. Kliger's research is also helping to create molecular tools that can be used to map out neural connections in optogenetics experiments as well as study the effects of protein mutations to ultimately understand how protein function is affected by mutations.

Over the years Dr. Kliger and his team have developed new spectroscopic tools to enable them to measure various forms of polarized light spectroscopy with high time resolution. This allows them to gain information about structural changes in proteins on microsecond or sub-microsecond timescales. As the only lab in the world with this capability, Dr. Kliger's team of advanced researchers and undergraduate researchers alongside collaborators within the University of California, Santa Cruz and elsewhere, are also able to study proteins and their mutants that are available in only very small quantities. Therefore, while Dr. Kliger has continued to develop novel techniques, his lab's tools and findings have been...

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AFFILIATION

University of California, Santa Cruz

EDUCATION

- B.A., in Chemistry, 1965 , Rutgers University
- Ph.D., in Chemistry, 1970 , Cornell University
- Postdoctoral Fellow, 1970 , Harvard University

AWARDS

- Fellow of the American Association for the Advancement of Science
- UCSC Faculty Research Lecturer
- Outstanding Natural Sciences Faculty Award
- Danforth Associate
- Golden Key International Honour Society

RESEARCH AREAS

Life Science, Cardiovascular, Neurological / Cognitive, Neurological / Cognitive

FUNDING REQUEST

Your contributions will support the continued research of Dr. David Kliger, at the University of California, Santa Cruz, as he uses lasers to understand protein function. Donations will fund the necessary $100K/year required for each project to make substantial progress. When we make sense of the complexities of proteins, leaps in medicine are possible; join in making such an understanding a reality!