

Proteins: from Chemical to Physiological Mechanism

26 October 2001

The Molecular Enzymology Group of the Biochemical Society held a special 1-day meeting at the Royal Society on 'Proteins: from Chemical to Physiological Mechanism'. The aim of the meeting was to inform and stimulate discussion on kinetic approaches to the life sciences by bringing together work on dynamic aspects of protein function. The meeting also honoured Professor H. (Freddie) Gutfreund, FRS, on his 80th birthday. Professor Gutfreund persuaded the Executive Committee of the Society to found the Molecular Enzymology Group, the first sub-group of the Society. His view of the strategic value in encouraging like-minded biochemists to interact has done much to provide the critical mass necessary for sustaining excellence in the various sub-disciplines of biochemistry.

The talks reflected Professor Gutfreund's many contributions to the study of biochemistry and biophysics. His early prominence arose from developing the methodology to study fast events on enzymes which are now central to the field of molecular enzymology. After beginning in physical biochemistry, he moved on to detailed studies of chemical mechanism of enzyme catalysis and, in particular, showed the importance of ligand-induced changes in protein conformation for defining the biological function of proteins. In hindsight, this appears like a natural progression from physico-chemical mechanisms to ligand-induced conformational changes to the role of proteins in mediating the response of an organism to its environment.

A central theme of Professor Gutfreund's work and writing has been the importance of new technology in developing ideas

about how proteins function.

In particular, he has made major contributions to the development of transient and relaxation kinetic methods including stopped-flow, quenched-flow and pressure-jump techniques. He has written influential books on enzymology and thermodynamics culminating in his most recent book *Kinetics for the Life Sciences*. This seminal work brought together common conceptual approaches to the study of dynamic phenomena from the level of purified individual proteins to whole cells, organisms and populations. As such, it forms a fitting climax to a career that began on the firm foundation of physico-chemical studies of proteins and gradually embraced more and more of the biological processes that proteins direct.

The meeting was followed by a reception and dinner to which we were delighted to welcome Freddie Gutfreund's wife Mary,



by **David Trentham**
(National Institute of Medical Research, Mill Hill) and
Michael Greeves
(University of Kent)

Professor Freddie Gutfreund during his presentation 'Development of kinetics in biology'.

and his family. The dinner was followed by entertaining and affectionate talks presented by Nigel Scrutton, the present Chairman of the Molecular Enzymology Group, Hugh Huxley, a long-time friend from the Cambridge days back in the 1950s, and Kenneth Holmes, a Director of the Max Planck Institute in Heidelberg where Freddie has been a frequent Visiting Scientist over the past decade.

Speakers and Chairmen:
Back row (from left to right): R.S. Goody, H.E. Huxley, K.C. Holmes, D.R. Trentham, B.D. Sykes, S.E. Halford. Front row (from left to right): J.F. Eccleston, M.A. Geeves, T.J.T. Pinheiro, H. Gutfreund, J. Howard.

