

Jeremy Knowles to deliver the thirteenth annual Behring Diagnostic Lectureship in Chemistry

February 13, 1986

NOTED BIOCHEMIST TO SPEAK AT UCSD

Professor Jeremy Knowles, Amory Houghton Professor of Chemistry and Biochemistry at Harvard University, who is acclaimed for his pioneering work in bioorganic chemistry, will deliver the thirteenth annual Behring Diagnostic Lectureship in Chemistry at the University of California, San Diego on Feb. 24, 25 and 27.

The three-part lectureship is co-sponsored by Behring Diagnostics and UCSD. Each talk will be held at 4 p.m. in the Liebow Auditorium (room 2100) in the Basic Science Building at the School of Medicine.

The titles for the lectures and dates are:

Monday, February 24 -- "Phosphate Group Transfer and the Quest for Metaphosphate in Solution"

Tuesday, February 25 -- "Synchronicity and Concert in Enzymatic Reactions"

Thursday, February 27 -- "Tinkering with the Active Site of an Enzyme: What Can We Learn?"

Knowles is recognized by the scientific community for determining an arrangement, or relationship, of enzyme molecules that touches off a series of biochemical reactions. In a subsequent study in phosphate ester chemistry, he found that the spatial relationship of the molecules determines their function.

"Every chemical reaction in the body is speeded up by an enzyme," Knowles said recently. "If we can understand how these dramatic accelerations occur, then we will understand at a molecular level how our bodies work--because enzymes are the catalysts of life.

"Also, nature has been honing these catalysts to make them more effective for several billion years. There are exciting lessons to be learned from that billion years of Darwinian evolution. Once we understand how nature speeds up chemical reactions, maybe we can design better catalysts for ourselves or for industry," he said.

Knowles was a pioneer in applying the methods of chemistry to "the exciting problems of biochemistry." Using these sophisticated methods, he determined the chemical nature of bacteria's defense against penicillin.

"Bacteria make an enzyme which destroys penicillin. We looked at that process in detail to learn how they do that. And we looked at a number of pharmaceuticals to learn how they overcome bacterial resistance. If you understand the details of those processes, you are in the position to design better pharmaceuticals," he said.

"Dr. Knowles' work in bioorganic chemistry has been noted for its unusual thoroughness and penetrating insights," Elvin Harper, professor of chemistry and chair of the Behring-Diagnostics Lectureship Committee, said. "He has contributed greatly to the basic biochemical knowledge of physical interactions of proteins."

Knowles received his B.A., M.A. and Ph.D. degrees in chemistry at Oxford University, England. After spending 1961-62 as a research fellow at California Institute of Technology, he was appointed a fellow of Wadham College, Oxford, serving as departmental demonstrator of the Dyson Perrins Laboratory from 1962 to 1966 and university lecturer at Oxford University from 1966 to 1974. He joined the chemistry faculty at Harvard in 1974.

A recipient of the Royal Society of Chemistry Charmian Medal in 1981, Knowles is a fellow of the Royal Society of London and the American Academy of Arts and Sciences.

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