

## Award

### Professor Emeritus Dr. Kenji SODA

(Molecular Microbial Science, Division of  
Molecular Biofunction)



Dr. Kenji Soda, Professor Emeritus of Kyoto University, received a Purple Ribbon Medal (Shijuhosho) on November, 1997.

Dr. Soda was born in Aichi Prefecture on February 7, 1933. He graduated from Faculty of Agricultural and Biological Chemistry, Kyoto University in 1956 and continued his studies on microbial biochemistry under the supervision of the late Professor H. Katagiri. He graduated from the Doctor Course of Agricultural and Biological Chemistry, Kyoto university, and awarded the degree of Ph.D. in 1961.

He started his academic carrier as an instructor of the Department of Agricultural and Biological Chemistry, Kyoto University to study microbial biochemistry and biotechnology with the late Professor K. Ogata, and Professor T. Tochikura in 1962. During 1963 and 1965, on leave from Kyoto University he stayed at Tufts University School of Medicine, Boston, Mass, U.S.A. as a visiting research fellow of Department of Biochemistry, and studied the biochemistry of amino acids with Professor A. Meister. In 1965, he was promoted to an associate professor at the Laboratory of Microbial Biochemistry of the Institute for Chemical Research, Kyoto University. In 1981, Dr. Soda was appointed full professor of Kyoto University, and directed the Laboratory of Microbial Biochemistry, Institute for Chemical Research. At the Graduate School of Agriculture, Kyoto University, he gave lectures on Microbial Biochemistry and Applied Microbiology and supervised the dissertation works of many graduate students.

On the 31st of March, 1996, Dr. Kenji Soda retired from Kyoto University after having completed his 35 years of service at Kyoto University, and was honored with the title of Emeritus Professor of Kyoto University on the following day. Now, he takes a position as a professor of Kansai University.

Dr. Soda devoted himself to the Japanese Biochemical

Society and officiated as President of the Society between 1992 and 1993. He was also the trustee of Japan Society of Bioscience, Biotechnology and Agrochemistry, Vitamin Society of Japan, and others. He was awarded the Prize of Agricultural Chemical Society of Japan for Young Scientists in 1969, the Prize of Vitamin Society of Japan in 1985, and the Prize of the Japan Society of Bioscience, Biotechnology and Agrochemistry in 1992.

For the past forty years, he extensively investigated various aspects of microbial biochemistry. He studied the structure and functions of biocatalysts produced by microorganisms, in particular, pyridoxal enzymes, NAD enzymes, and flavin enzymes: he characterized L-lysine  $\epsilon$ -aminotransferase, D-amino acid aminotransferase, kynurenine aminotransferase, arginine racemase, alanine racemase, amino acid racemase with low substrate specificity, methionine  $\gamma$ -lyase, leucine dehydrogenase, alanine dehydrogenase, phenylalanine dehydrogenase, *meso*- $\alpha,\epsilon$ -diaminopimelate D-dehydrogenase and others. He carried out also the research on the metabolism and biofunction of selenium containing amino acid and peptides. He has found new enzymes participating in the selenium metabolism such as selenocysteine  $\beta$ -lyase and a new pathway of the microbial fluorine metabolism. He also engaged himself in the characterization and application of new biomolecules. For example, he has elucidated the molecular structure and functions of thermostable and thermolabile enzymes and studied their application.

He discovered a few halo acid dehalogenases, and studied their structure and functions, and new oxygenases and oxidases acting on nitro compounds, and characterized. He modified and improved their properties by protein engineering and developed a new procedure to effectively decompose the nitro compounds in waste water by means of these enzymes.

## Retirement

### Professor Jun'ichi ODA

(Functional Molecular Conversion Laboratory,  
Division of Molecular Biofunction)



On the 31st of March, 1998, Dr. Jun'ichi Oda retired from Kyoto University after 33 years of service to the University and was honored with the title of Professor Emeritus of Kyoto University.

Dr. Oda was born in Kyoto on the 20th of December, 1934. After graduation from Department of Agriculture, Kyoto University in 1959, he continued his studies on the synthesis and evaluation of biologically active natural products as a graduate student. In 1965, he was appointed an instructor of the Laboratory of Plant Product Chemistry, Institute for Chemical Research, Kyoto University, under the supervision of the late Emeritus Professor Minoru Ohno. He was granted a doctoral degree from Kyoto University in 1965 for his studies on the synthesis of naturally occurring cumarane compounds. During 1968 and 1969, on leave from Kyoto University, he stayed at the Department of Chemistry, Bonn University in West Germany and studied the metabolism of chlorinated hydrocarbon insecticides with Professor F. Korte. In 1973, Dr. Oda was promoted to Associate Professor of the same laboratory. In 1984, he was appointed full Professor of Kyoto University and directed the Laboratory of Plant Product Chemistry (present name, Molecular Biofunction I), Institute for Chemical Research, Kyoto University. From the 1st of April, 1992, to the 31st of March, 1994, Dr. Oda was appointed Director of the Institute and made great contributions not only to the Institute but also to the University as a councilor.

During the past 33 years, his research interest encompassed a wide array of synthetic organic

chemistry, stereochemistry, bioorganic chemistry, molecular biology and structural biology. Following his early studies on the synthesis of biologically active plant products, he developed a series of asymmetric reactions such as Simmons-Smith reactions, cyclopropanations and a sigmatropic rearrangement. He synthesized a series of chiral dihydronicotinamide (NADH) derivatives as a model study of alcohol dehydrogenase, and carried out the stereoselective reduction of ketones with high enantioselectivity. He also focused on the use of lipases as a chiral catalyst in organic synthesis and prepared several important chiral synthons. As a molecular biological aspect of his research, he cloned the gene of a microbial lipase and characterized a hitherto unknown protein which might assist the folding of the lipase. He also prepared the catalytic antibodies which are capable of stereoselective hydrolysis of esters and carbonates, and defined the mechanisms of the catalyzed reaction and product inhibition. His research interest in enzyme chemistry and structural biology was highlighted by the X-ray crystallography of ATP-dependent ligases such as glutathione synthetase and asparagine synthetase. He also designed and synthesized a transition-state analogue inhibitors of these ligases and used for the elucidation of the detailed reaction mechanisms of the ligases by inhibition kinetics and structural characterization of the enzyme-inhibitor complex, along with a time-resolved X-ray crystal analysis. For his brilliant achievements on biocatalysts, he was awarded a prize from Japan Society for Bioscience, Biotechnology, and Agrochemistry in 1996.