BIOORGANIC CHEMISTRY 15, 333–334 (1987)

IN MEMORIAM
Professor Iwao Tabushi
(April 22, 1933–March 22, 1987)

It is with deepest regret that we have to inform our readers of the unexpected death of Professor Iwao Tabushi, Department of Synthetic Chemistry, Faculty of Engineering, Kyoto University, Japan. He died on March 22, 1987 at the age of 53.

Many of us are quite familiar with his pioneering work in bioorganic and bioinorganic chemistry. He became prominent in this field for his work on molecular recognition and on artificial enzyme systems, especially those using cyclodextrins. He introduced the principle of "capping" of cyclodextrins which permits a regiospecific orientation of the substrate within the cyclodextrin molecule. Professor Tabushi applied this method to the construction of enzyme models, such as an artificial vitamin B_6 enzyme which catalyzes chiral amino transfer reactions, a vitamin K synthetase model, and a carbonic anhydrase model. He also illustrated principles of molecular recognition using other systems. These include the molecular design of a number of macrocyclic chelating agents acting as specific uranophiles and their use of the recovery of uranium from seawater. Finally, he

0045-2068/87 $3.00

extended his work on molecular recognition to the construction of a liquid crystalline system capable of responding to electric stimulus.

Different types of artificial enzymatic systems introduced by Professor Tabushi include the reductive activation of dioxygen by a cytochrome *P*-450 model showing a high turnover of the oxygen transfer reaction. He also investigated a system containing a "gable" porphyrin and a metal ion in order to study the mechanism of allosteric (cooperative) substrate binding to these metals.

Professor Tabushi made important contributions to the area of electron (or proton) flow by using artificial cells. He succeeded in illustrating vectorial electron flow across artificial membranes. Thus, he demonstrated that an artificial membrane double layer modified by a manganese porphyrin permits passage of electrons only in one direction, and that an unusually fast proton transfer coupled to the electron transport occurs through self-aggregated cyt c_3 on a liposomal membrane. Such a functionalized liposome, which is called an "artificial cell," mimics the electron flow occurring in photosynthetic and respiratory systems. In this context, Professor Tabushi constructed chemical models for photosynthetic processes, such as the fast electron transfer occurring in a zinc(II) porphyrin–quinone system or the oxidation of water using manganese(IV) porphyrins.

These innovative achievements of Professor Tabushi in the field of bioorganic and bioinorganic chemistry, as well as his earlier work on reactive species in organic reactions, resulted in over 200 publications which have stimulated research in each of these areas over the past decades.

Professor Tabushi's creative work has been acknowledged by his fellow scientists. He was honored by receiving the Chemical Society of Japan Award for Young Chemists in 1965 and a Lansdowne Lectureship of Victoria University, Canada, in 1983 as well as invitations to give plenary lectures at many international symposia. Participants in such symposia remember his fascinating lectures in which he conveyed to the audience his passion and enthusiasm for bioorganic and bioinorganic chemistry. He devoted his efforts to the recent establishment of the Biofunctional Division of the Chemical Society of Japan and served as the second chairman of the Division at the time of his death. He was also serving as a member of the editorial boards of this Journal, of the *Journal of Inclusion Phenomena*, and of the *Journal of Molecular Catalysis*.

The Editor, the members of the Editorial Board, and the readers of this Journal mourn the passing of Professor Iwao Tabushi.

TERUO MATSUURA
Kyoto University