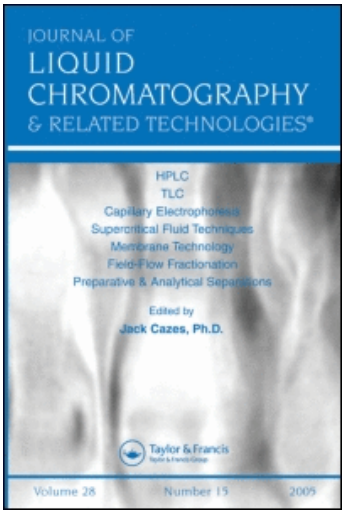

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Dedication

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DEDICATION

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PROFESSOR SHOJI HARA, PERSONAL HISTORY AND CAREER AS A RESEARCH SCIENTIST

Active in the field of chromatography for some 30 years, Shoji Hara made outstanding contributions to the clarification of retention and its mechanism including the chiral recognition mechanism in

chromatography, in particular liquid-solid chromatography. He was honored by TSWETT-Medal in 1986 for his accomplishments in a career devoted to the chromatographic research.

Shoji Hara was born in Shiki, Saitama near Tokyo in Japan and received a B.S. degree in the pharmaceutical sciences in 1950 from the University of Tokyo. His career apparently had its origins from his experience as a graduate student at the University of Tokyo. He worked in the laboratory of the late Eiji Ochiai, a prominent professor of organic chemistry and an expert in the field of heterocyclic chemistry, and received a Ph.D degree in 1960. On graduation, he was invited to join the Division of Organic Chemistry, Tokyo College of Pharmacy where he spent all of his professional career.

Hara became interested in chromatography in the early 1950s. During the early part of his career, he was engaged in synthetic research on various natural products such as steroids and alkaloids and introduced column LC as an efficient purification technique to routine organic synthesis and thin-layer chromatography(TLC) as a valuable pilot technique. He established a preparatory procedure for fine silica gel for LC and TLC in the late 1950s, followed by the development of particles characterized by small and specific diameter, leading to high performance LC in the 1960s. Hara was honored in 1964 with the Award of the Pharmaceutical Society of Japan for his theoretical and technical improvements in chromatography to promote research in the fields of applied chemistry associated with biomedical and pharmaceutical sciences.

In the first half of his professional career, he also worked out the total synthesis of all azasteroids in salamander venom and made illuminating contributions to the elucidation of structures of salamander alkaloids and revised proposed structures on the basis of synthetic studies. It should be pointed out that this synthetic research required very pains-taking

endeavor. But such work has been greatly facilitated through the sophisticated purification techniques he established.

In the second half, much of his research was focused on the clarification of retention characteristics related to molecular structures of solutes to improve solvent optimization and on the optical resolution of enantiomers by LC. Hara established a quantitative correlation between molecular structure and retention index in LC over a period of about 20 years. Extensive chromatographic data accumulated using more than 300 naturally occuring substances including steroids, terpenoids, alkaloids, peptides, and nucleotides led to determination of the mathematical relationship between retention and solvent composition in LC. Separation procedures using these retention characteristics has found wide acceptance by analytical chemists in solvent optimization for a given solute mixture.

The recognition of molecular chirality by chromatography has given rise to a novel type of separation with chiral selector molecules carrying the intended binding affinity for enantiomeric selected molecules. Hara was a pioneer in this field and demonstrated several noteworthy problem-solving strategies for enantiomer separation by LC since 1979. He demonstrated the resolving power of hydrogen-bond association, whose driving force is the action of bidentate hydrogen bonds on optically active tartramide and amino acid diamides. This was done by three different methods to introduce this association into chromatographic phase systems: chiral stationary phases (CSPs), chiral mobile phase additives, and injection of enantiomerically enriched mixtures. The first could separate many different enantiomers as a practical analytical tool and the last, possibly an exceptional means by which an additional enantiomer itself exceeding racemic composition can act as the chiral selector. Hara's molecular design on CSPs has been also extended to gas chromatographic enantiomer separation.

The strategy for maximizing the separability of enantiomers and structures and thermodynamic features of diastereomeric hydrogen-bond associated were demonstrated by Hara. He was one of very few researchers who accepted the challange to propose chiral recognition mode is consistent with chromatographic data. He found that enantiomer separation is also possible in aqueous media when hydrogen bonding functionality was within a hydrophobic environment such as the liquid-solid interface in CSPs and micellar interior core. His attention is now being directed to the hydrophobic features of interfacial phase and micellar hydrophobic core related to enantiomer separation.

Hara is author and coauthor of more than 200 original papers and review articles, mainly on chromatography and has authored or coedited 30 books on organic and analytical chemistry. He has been invited to appear on the editorial boards of a number of international journals.

Hara retired in March, 1992 from Tokyo College of Pharmacy on completion of thirty five years service and has been appointed an emeritus professor of the college. In April, He was nominated as director of the "Dynamic System Design Institute" in Tokyo, an organization for scientific research and technological development. Through his participation in various research projects, he will continue to make important academic contributions.

Guest Editors of this issue
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