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## PREFACE

### Dr. Keiichiro Fukumoto

It is a great privilege to be able to provide the preface to this special issue of Heterocycles honoring Professor Keiichiro Fukumoto. Professor Fukumoto is a world famous synthetic organic chemist who developed new reaction and synthetic methodologies. On his 75th birthday, we would like to acknowledge his devotion to Heterocycles, serving as the executive editor since its launch in 1973, and now as the chief editor. I will only briefly refer to his international reputation and academic achievements because Dr. Masataka Ihara (Emeritus Professor of Tohoku University: Professor of Hoshi University and my senior in Tohoku University) will detail his achievements, awards, honors, and services in chemistry later in this volume.

Professor Fukumoto's research has been characterized by a highly sophisticated imagination and a high level of innovation, and he has covered a wide range of topics to do with organic synthetic chemistry. He introduced novel methodologies that have simplified the construction of many natural and biologically important complex targets, namely alkaloids, terpenes, steroids, antibiotics, and so on. The methodology stemmed from his meticulous study of the biogenesis of natural products; as well as the unique investigations on the fragmentation pattern of mass spectrum of targeted compounds. He also carried out an environmentally friendly one-pot successive reaction process called "green chemistry", or "atom efficiency", which minimizes waste production.

From an academic standpoint concerning my research, Professor Fukumoto has always been a stimulating presence for me, and especially for one of my long-term research projects covering synthetic organic chemistry using benzocyclobutene as a synthon, which I started upon his suggestion just after I returned from my postdoctoral studies in the USA in the mid-seventies. He never demanded or forced me to do his own favorite projects, however, just give me suggestions to entice my motivation further. His enthusiasm for chemistry and his open nature is remarkable. He is a real educator and an ideal director for a research group. His fertile organizational talents produced a lot of outstanding academic achievements as you can see in his list of scientific achievements.

I wish to note some other aspects of Professor Fukumoto's career as well, though many Japanese chemists will already be familiar with these. Professor Fukumoto worked closely with the late Professor Kametani, founder of Heterocycles. The personalities of Professor Fukumoto and Professor Kametani, both precious mentors to me, are very interesting and quite different so far as I know. For example,

Professor Fukumoto is conscientious, while Professor Kametani was artistic. Professor Kametani loved socializing, while Professor Fukumoto had a quieter personality. However, I realized that socializing skills could be developed after long-term training, because Professor Fukumoto became more social by his own accord. As the proverb says, “He who touches pitch shall be defiled therewith”! My point here is Professor Fukumoto is very adaptable. This capacity for adaptation is essential for a chemist to create novel ideas and bring about innovation.

Professor Fukumoto never went abroad to attend conferences or to enjoy trips during my stay in the same lab at Tohoku University in Sendai, because he did not like to fly. Thus, most foreign chemists will not likely have had the chance to see him or listen to his lectures. In contrast, Professor Kametani often traveled abroad to attend and give lectures, as many chemists around the world will know.

Professor Fukumoto likes to watch all kinds of sports, and actually used to play table-tennis and baseball in games among laboratories at the pharmaceutical department and other departments of Tohoku University when he was young. He is especially crazy about baseball, because he had been a representative player in his high school days, and had experience playing baseball at “Kohsi-en”, the legendary baseball field many high school students aspire to play on. He was baseball director for our lab (the Kametani team) for a long time, and we won many games. On the other hand, I never saw Professor Kametani play any type of sport.

Professor Fukumoto is enthusiastic not only for sports, but also for games, such as puzzles. He had a fascination for crossword puzzles for a number of years in the 1970s. At that time, Professor Fukumoto and I lived in the same district in Sendai City, and we often took the same bus when returning home from university. The trip took about 30 minutes, and whenever I saw him in the bus, he was always engrossed with a crossword puzzle. He had the nature of a challenger!

Surprisingly, Professor Fukumoto also enjoyed gambling. No, not serious gambling, but just enough to enjoy playing mah-jongg. I had been carrying out research in Professor Kametani’s laboratory at the same time Professor Fukumoto worked in the same room during my graduate student days. At that time, we used a lot of chloroform for the extraction and purification of a polar phenolic base, synthetic intermediates, or final products of targeted isoquinoline alkaloids. Thus, chloroform became very valuable for many people in Professor Kametani’s group – at that time more than 40 people including students and research workers from pharmaceutical companies. The “casino” was opened up to play mah-jongg using chloroform to bet with around 8:00 pm after Professor Kametani left the lab to spend time in a bar in “Kokubunnchou” (downtown Sendai city) on his way home. Professor Fukumoto acted as general manager for the gambling. Progress with experiments sometimes depended on one’s skill at mah-jongg at that time (from the latter half of the 1960s to the early 1970s).

Just after Professor Fukumoto was promoted to full professor at Tohoku University in the early 1980’s,

my physical condition suddenly became so poor I could not do ordinary work and had to repeatedly make stays at the hospital over a couple years. It is absolutely unforgettable to me that through all this, Dr. Masataka Ihara (Emeritus Professor of Tohoku University: Professor of Hoshi University), Dr. Kozou Shishido (Professor of Tokushima University), Dr. Mitsuo Nagai (Eisai Co., Ltd.) and the students in my lab encouraged me to continue research and earnestly supported research in my place. Thus, I am in their debt for my present position of being able to continue and enjoy research, as it could not have occurred without their warmhearted support.

I cannot find an appropriate remark to show my appreciation for this support, because my thanks to them is more than words. I know that their sympathy to me was somewhat stemming from Professor Fukumoto's careful consideration as director of the lab. I have thus become fully aware that Professor Fukumoto is really considerate for the feelings of others.

Through this, I believe I am qualified to say Professor Fukumoto is not just a world famous, outstanding chemist, as you can see from the above mentioned episode.

I hope that this preface reflects my deep respect for both Professor Fukumoto and Professor Kametani.

I give my warm thanks and best wishes to my precious mentor, "Fukumoto Sensei", in celebration of his 75<sup>th</sup> birthday!

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Hideo Nemoto is currently Professor of Organic Chemistry, Faculty of Pharmaceutical Sciences, University of Toyama. He was born in 1943 and graduated from Tohoku University in 1966. After obtaining his Ph.D. under the supervision of the late Professor T. Kametani in 1972, he spent postdoctoral years at the University of California, San Francisco from 1972 to 1973 and Santa Cruz from 1973 to 1974. He joined the Faculty of the Pharmaceutical Institute of Tohoku University as a research associate in 1974. He was subsequently appointed Associate Professor, Faculty of Pharmaceutical Institute of Tohoku University and promoted to Professor, Faculty of Pharmaceutical Sciences, University of Toyama. His research interests include the development of novel synthetic methodology and its application to the synthesis of biologically important compounds.