

HETEROCYCLES, Vol. 103, No. 1, 2021, pp. 11 - 14. © 2021 The Japan Institute of Heterocyclic Chemistry
DOI: 10.3987/COM-20-S(K)_Foreword_3

PREFACE TO HETEROCYCLES ISSUE

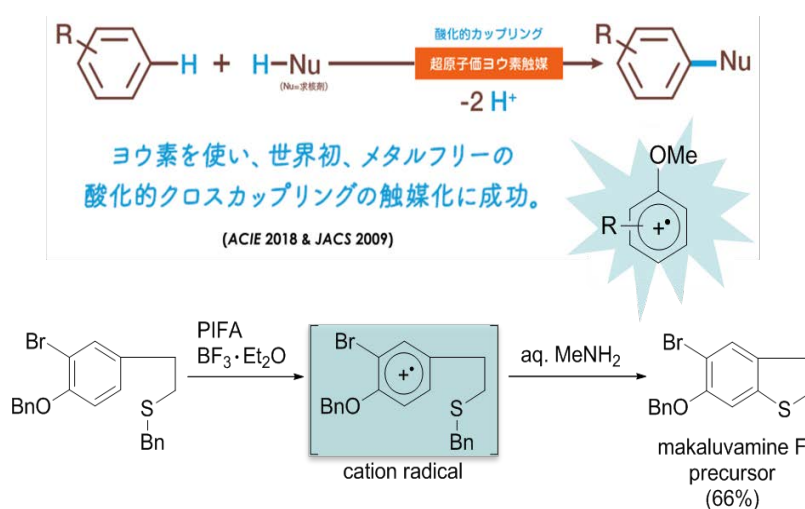
HONORING THE 77TH BIRTHDAY OF PROFESSOR DR. YASUYUKI KITA

Professor Yasuyuki Kita, an Emeritus Professor in Osaka University and currently an Invited Research Professor and Director of the Research Center for Drug Discovery and Pharmaceutical Development Science of Ritsumeikan University, has turned 76 years on March 2, 2021. It is my great pleasure and honor to celebrate his *Kiju*¹ by contributing to this special issue of HETEROCYCLES.

In 2008, Professor Kita retired from Osaka University and accepted the position as the first Dean of the Faculty of Pharmaceutical Sciences, Ritsumeikan University, in the same year. From 2011 to 2015, he was the Vice-President of the Research Organization of Science and Technology. He is in his current position at Ritsumeikan University since April 2015.

He has broad research interests in synthetic organic chemistry, including the development of new asymmetric syntheses, new reagents, and total syntheses of biologically active natural products. In 2008, he set up a new lab at Ritsumeikan University and began his research there with selected PhD candidates and few undergraduate students. I was extremely fortunate for getting the opportunity to continuously develop my research career as an Assistant Professor under his supervision. Prof. Kita is an enthusiastic researcher, and he took up new challenges based on the unique hypervalent iodine chemistry at Ritsumeikan University. Indeed, he was appointed as a project leader of the Ritsumeikan Global Innovation Research Organization (R-GIRO) Project (<http://www.ritsumei.ac.jp/research/r-giro/projects/medical/iodine.html/>). He has continuously developed important concepts and published high-impact papers in his field; he has an h-index of

68. According to me, the most impressive development by him in the field of organic synthesis is the pioneering metal-free cross-coupling between the C–H bonds of valuable aromatic compounds using hypervalent iodine reagents; these are now known as the “Kita coupling.”



¹*Kiju* in Japanese is celebrated at the age of 77 in “Kazoedoshi.” “Kazoedoshi” is a Japanese tradition of counting ones age, and newborns are considered one-year old when they are born. Currently, both the traditional Japanese style and Western style age systems are applicable for celebrating the event of *Kiju*.

The Negishi and Suzuki cross-coupling reactions to form carbon-carbon bonds became well known after the two Japanese chemists received the Nobel Prize in Chemistry in 2010. However, pre-functionalized compounds with metal or halogen or the use transition metal catalysts are necessary for these coupling reactions. Using hypervalent iodine reagents, Prof. Kita developed a strategy in which these pre-functionalization steps could be eliminated. His method, considered as a revolutionary cross-coupling reaction, has captured attention globally because it allows not only the conventional carbon-carbon cross coupling reactions but also the cross-coupling reactions of heterocyclic compounds that are otherwise difficult to realize using traditional methods. Since the coupling strategy developed by Prof. Kita does not require the use of rare or heavy metals, it has been acclaimed as a safe, sustainable, and green method. He began his research on hypervalent iodine in the mid-1980s. His early discovery on the single-electron-transfer (SET) oxidation ability of hypervalent iodine reagents, specifically, phenyliodine(III) bis(trifluoroacetate) (PIFA), toward aromatic rings of phenyl ethers for the formation of aromatic cation radicals, about 30 years ago, was an important key for the historic development of this metal-free cross-coupling reaction. Prof. Kita often tells me that this new cation radical chemistry reported in 1991 is one of the exciting and unexpected findings in his research career so far,



which also paved the way to success in this next challenge. Many congratulations to you!

Prof. Kita has already published more than 500 original papers on his research and has received many awards for various research themes. In 2017, the International Society of Heterocyclic Chemistry (ISHC) awarded the E. C. Taylor Senior Award for his great contributions in heterocyclic chemistry. Only one person is chosen for the award every two years! Many professors and colleagues as well as his PhD students and apprentices at both Osaka University and Ritsumeikan University celebrated his honor with great pleasure (photo, commemorative ceremony). I am also especially delighted to share the good news that he received the ISHC award; I remember Prof. Kita recommending the ISHC congress every two years to us initially as an opportunity for our growth and exchange of knowledge with foreign researchers of the same generation. My first international conference abroad was the 20th ISHC congress in 2005 held at Palermo, Italy, where we spent a whole day in the congress tour, followed by dinner at Baglio Trinità, Selinunte till around 10 p.m. (it takes at least two hours to Palermo from Selinunte). We had a

very tough experience in an extremely hot day. I am still in touch with few of the young researchers, and they also kindly insist me to visit Rome and other places in Italy on a regular basis.



Prof. Kita is an excellent educator and has produced many talented graduates. They are actively working as researchers in the academia and industry. Even today, many past-students gather at lab reunions and memorial events to meet him. Nonetheless, he stands as the “Father in Chemistry” for me, and I sometimes feel that he is a “Lodestar.” Prof. Kita continued to contribute significantly to encourage young scientists through many academic activities and programs, such as the Banyu Chemist Award (BCA) and Merk-Banyu Lectureship Award (MBLA) programs. In Ritsumeikan University, he has contributed to R-GIRO as a member of the organizing committee and as a senior advisor supporting young scientists. I, along with many young researchers, genuinely respect his sincere attitude and continuous efforts in developing new chemistry and science.

I, Dr. Toshifumi Dohi, would finally express my personal thanks to Prof. Kita on his generous support for my enrollment into the doctoral course of the Graduate School of Pharmaceutical Sciences, Osaka University. I participated in his group in 2002 from Prof. Murai’s lab, and this recommendation has been the best turning point of my life. Twelve years have passed since we started to work at Ritsumeikan University. From 2015, I am successfully running the “Fine Synthetic Chemistry” lab without changing the name, which was decided by Prof. Kita and all the Ritsumeikan members including me. Owing to his support, the lab can welcome two postdocs and five doctoral course students as its members in 2021. I really appreciate Prof. Kita’s special concerns and care for me.

I, along with everyone, wish Prof. Kita good health, happiness, and prosperity (but please do not work so hard!)

Toshifumi Dohi, Professor

Ritsumeikan University

Shiga, Japan



Toshifumi Dohi, a Professor at Ritsumeikan University, received his MS degree in 2002 (under the supervision of Prof. S. Murai) from the Graduate School of Engineering of Osaka University, Japan, and PhD in 2005 (under the supervision of Prof. Y. Kita) from the Graduate School of Pharmaceutical Sciences of Osaka University, where he studied new reactions of transition metal catalysts and synthetic chemistry using hypervalent iodine reagents. After finishing his PhD, he subsequently became an Assistant Professor of Prof. Kita's lab at Osaka University, and then moved to Ritsumeikan University with Prof. Kita in 2008. He was promoted to Associate Professor (PI) in 2014 and to Full Professor in 2019 in the College of Pharmaceutical Sciences, Ritsumeikan University. T.D. received the

IUPAC-ICOS 15 Poster Award for most excellent presentation, the Pharmaceutical Society of Japan (PSJ) Award for Young Scientists (2009), Banyu Chemist Award (2013), Thieme Chemistry Journal Award (2014), GSC Encouragement Award (2015), and International Congress on Pure & Applied Chemistry (ICPAC) Lecture Award (2019) on his researches. For more details, see: <http://www.ritsumei.ac.jp/pharmacy/dohi/> at this homepage.