

## Brief Biography of Hirokazu Kobayashi on the Occasion of His Retirement

Professor Hirokazu Kobayashi, belonging to the Graduate School of Nutritional and Environmental Sciences and engaged in the Graduate School of Integrated Pharmaceutical and Nutritional Sciences and the School of Food and Nutritional Sciences, will retire from the University of Shizuoka on the 31st of March, 2020.

Here is his brief academic history. He received a Ph.D. degree for revealing the mechanism of expression of genes for photosynthesis in higher plants and photosynthetic bacteria from the Department of Agricultural Chemistry at Nagoya University in 1982, when it was the dawn of the molecular biology of DNA and the study of genetic information contained within DNA. He continued to work on the mechanism of gene regulation in chloroplasts in maize at the Biological Laboratories of Harvard University with the support of an Overseas Research Fellowship from the Japan Society for the Promotion of Science (JSPS). He was one of only ten recipients among all scientific fields in the first year the fellowship was established in the fiscal year 1982. He went back to Nagoya University in September 1984 as a research professor in the Radioisotope Research Center. There, he continued his research, working on the epigenetic regulation of gene expression in chloroplasts, which was the cutting edge of DNA research at the time ([PNAS, 1988](#); [EMBO J., 1990](#)).

He moved to the University of Shizuoka in April, 1991, and gave everything to his research, education, and improvements of the departments, graduate schools, and university over 29 years. He presided over the Laboratory of Plant Cell Technology, which was renamed the Laboratory of Plant Molecular Improvement in the academic year 2008. He dealt with the model plant, *Arabidopsis thaliana*, and succeeded in pioneering research in cloning and determining nucleotide sequences of cDNAs for sigma factors engaged in gene expression in chloroplasts ([PNAS, 1997](#)). This success led to the discovery of the mechanism of avoidance of light damage through the phosphorylation of sigma factors ([PNAS, 2010](#)), which was patented as “light switch” for the production of biologics and other valuable molecules in plants, which he is working on commercializing with his new venture company. The mechanism of detoxifying active oxygen species generated by salt stress in plants was revealed for the first time in the world ([Plant Cell, 1999](#)). An artificial gene for green fluorescent protein (GFP) was newly synthesized and applied with the optimization of expression and detection in animals and plants ([Curr. Biol., 1996](#)). This article has been cited more than 1,500 times, and it has become one of the most cited papers from the University of Shizuoka.

Under his supervision, 10 students received their Ph.D. and 40 students received their Masters’ degree. He began the lecture series “Japanology” and “Civic Activities in Shizuoka” to encourage students to contribute overseas and to society, respectively, in the academic year 2016. He served in various roles as department chair, dean, and vice-president after the academic year 2005. Meanwhile, he was involved in establishing of the first graduate school of its kind in Japan, the Graduate School of Integrated Pharmaceutical and Nutritional Sciences in the academic year 2012. He also established and promoted inter-university partnerships with the University of Nebraska, Lincoln, the University of California, Davis and Berkley, and The Ohio State University in the United States as well as Mahidol University in Thailand. Enlightenment the public about the contribution of this university was also achieved via his lecture series, “[Super-Seminar of Creating Shizuoka 10-Years Later](#),” which consisted of 7 parts for the 30th anniversary of the University of Shizuoka, as well as by the ongoing column “[DNA of Shizuoka Presented as Manga by the Prefectural University](#),” published every Monday in Shizuoka Newspaper, which started in November 2019.

He is ready to establish [Green Insight Japan, Inc.](#) (a University-Based Company) to commercialize his patents and to educate audiences with Japan-related experiences such as “Japanology.”

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The Organizers of Hirokazu Kobayashi’s Retirement Party

Keiichi Goto  
Master’s course completed in 1993  
Professor, Tokai University

Masanori Shimizu  
Doctoral course completed 1998  
Professor, Tokoha University

Shingo Goto  
Doctoral course completed 2006  
Senior Researcher, National Agriculture and Food Research Organization