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OBITUARY

Atsushi Komamine, PhD (1929–2011)

Hiroaki Kodama: a former student of Professor Komamine

Hiroaki Kodama

Atsushi Komamine, PhD, Director of the Research Institute of Evolutionary Biology, Japan, and Professor Emeritus at Tohoku University and Yokohama City University, passed away on July 6, 2011, at the age of 82 years. His passing marks the loss of a great leader in plant physiology and plant molecular biology, a co-founding president of the Asia Pacific Association of Plant Tissue Culture and Agribiotechnology, and an individual who was a source of strong emotional support for young scientists in our field.

Professor Atsushi Komamine was born in 1929 in Tokyo. His research career started at the University of Tokyo. He earned a PhD in plant chemistry in Shizuo Hattori's lab, where he studied new amino acids in *Stizolobium hassjoo* (Hattori and Komamine, *Nature* 183, 1116–1117, 1959). In 1959, he joined Nobel laureate Artturi Virtanen's laboratory in Helsinki as a visiting scientist. After returning, he was appointed assistant professor in the University of Tokyo, Department of Botany in 1961 and associate professor in 1971. He was appointed professor at Tohoku University in 1984.

His scientific work focused on plant cellular and molecular biology. He had a firm belief in the importance of plant science for the maintenance of the food supply and for the protection of the environment. To achieve these purposes, he considered that it was important to draw out the latent ability of the plant cell. He believed that an ideal experimental model should consist of a synchronized system in which responses occur at high frequencies. In addition, the plant cells used in a system should, if possible, be homogeneous. He also repeatedly claimed that the environment should be completely controllable. Based on these convictions, he established several very sophisticated and valuable experimental systems using plant tissue culture. The plant cell shows a totipotency. He established an in vitro somatic embryogenesis system in which single carrot (*Daucus carota*) cells differentiated to embryos at a high frequency. He observed that the duration of the cell cycle was variable during embryogenesis. In fact, a very short cell cycle was observed during the early phase of embryogenesis. To investigate the mechanism of the plant cell cycle, he established a system of synchronous cell division in *Cathranthus roseus* cells. He also established an experimental system of in vitro direct transdifferentiation of mesophyll cells isolated from *Zinnia elegans* leaves into tracheary elements. He established a tissue culture system for organogenesis with *Arabidopsis thaliana* root explants. He studied plant pigment biosynthesis in *D. carota* cells and *Phytolacca americana* cells as examples of the metabolic differentiation of plant cells. His philosophy regarding experimental design is still valuable to many researchers and especially to young plant scientists.

Professor Komamine retired from Tohoku University in 1993 and was appointed emeritus professor. After retirement, he served as professor at Japan Women's University (1993–1998), Director of the Research Institute of Evolutionary Biology, Tokyo University of Agriculture (1998–2011), and Director of the Kihara Institute for Biological Research, Yokohama City University (2006–2010). He was appointed emeritus professor at Yokohama City University at 2010. As he wished, he remained an active scientist throughout his life.

Professor Komamine's leadership positions included his service as the editor of numerous scientific journals, including *Journal of Plant Research*, *Plant Cell and*

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Physiology, *Plant Cell Tissue and Organ Culture*, *Oxford Survey of Plant Molecular Biology*, *Development Growth and Differentiation*, *The Plant Journal*, *Plant Cell Reports*, In Vitro *Plant Cell and Development Biology*, and *Plant Biotechnology Reports*. He also organized many academic meetings. His honors included the Lifetime Distinguished Achievement Award from the Society of In Vitro Biology, North America, in 2000 and the Grand Prix of Botany from the Japanese Society of Botany in 2006.

Professor Komamine's legacy includes not only his own science but also the scientists whom he identified and mentored. These individuals play an active role in academic fields worldwide and in biotechnology-based business. His students number over 300, and they all respect him. Professor Komamine was a gentle man and his hospitality was incomparable. He held a New Year party every year, at which his many former or current students were warmly welcomed. Professor Komamine loved to share good times with them. Young scientists often sought his advice to obtain his perspective on their lives as researchers. He always had a long and thoughtful talk with these young investigators about the topic, and he frequently told the young scientists with emphasis, sometimes tapping on the desk with the index finger of his right hand, "First, do the best you can at this time." These simple words still support us.

Acknowledgment I thank Dr. Sakuta (Ochanomizu University) for his kind advice.