

The 20th KONA Award

Dr. Hirofumi Takeuchi, Professor of Gifu Pharmaceutical University (GPU), was selected as the winner of the 20th KONA Award, which is sponsored by Hosokawa Powder Technology Foundation and given to the scientist(s) or group(s) who have achieved distinguished research works in the field of particle science and technology.

He received his B.S. (1979), M.S. (1981) and Ph.D. (1984) in pharmaceutical sciences from Kyoto University. He joined GPU as a faculty member in 1984, and became Lecturer in 1988 and associate professor in 1991. He spent 1 year as a visiting scientist at Faculty of Pharmacy and Pharmaceutical Sciences, University of Alberta, in 1989–1990. He is now Professor of GPU (2005–present). He served as the director of department of pharmaceutical sciences (2008–2010) and the dean of graduate school in GPU (2010–2012), and now he is the dean of GPU responsible for all students (2012–present).

He is now keeping a board member in several scientific societies such as the vice president of The Society of Powder Technology, Japan, and a member of the board of directors of The Academy of Pharmaceutical Science and Technology, Japan, and so on. He was also a member of Board of Scientific Advisors in Controlled Release Society (CRS) (2010–2012).

Dr. Takeuchi has made a great scientific contribution in the field of pharmaceutical technology based on powder and particle technology. His works are concerned with preparing new dosage forms of drugs in several administration routes such as oral, parenteral, pulmonary and ophthalmic. The common research concept in his research for dosage form development is “particle design”, which means preparations of functional particles for highly effective drug delivery.

He has reported several types of surface modified liposomes having pharmaceutical functions for drug delivery. It has been demonstrated that mucoadhesive liposomes can facilitate absorption of peptide drugs in oral or pulmonary administration by prolonging the retention time of the device at the objective part in the body. Recently the liposomal systems with optimally designed were found to deliver drugs into the posterior part of the eye with a simple eye drop administration. The research for developing these drug carriers has been highly evaluated because they are promising tools to develop the non-invasive drug therapy as an alternative method to an invasive method, injection.

Particle design research is also applied to oral solid dosage form design and its preparation process. These investigations contributed to development of a novel preparation method of rapidly oral disintegration tablet, which is one of the most interesting patient oriented dosage forms, by controlling the particle size of binder or preparing composite particles of excipient with fine silica particle for the tablet formulation. To complete these technologies, several basic researches regarding to granulation, tableting and grinding have been conducted.

So far, the number of published original papers in these research fields is 245 and that of reviewed papers, book chapters and related articles is totally 100.

On March 6th, 2013, Mr. Yoshio Hosokawa, President of the Foundation, handed the 20th KONA Award to Dr. Takeuchi at the presentation ceremony held at Hosokawa Micron Corporation in Hirakata.

