

PREFACE

Human body consists of many organs where many cells work together to perform their functions. Although massive molecular data are averages over ensembles of cells, the question is whether all the cells in an organ work in the same way. In a cancer tissue, it has been pointed out that a small amount of cancer stem cells play important roles to reconstruct a cancer tissue again even after destroying the cancer tissue by anti-cancer drugs. However, the details have not been clarified because of the difficulty of analyzing very small number of cancer stem cells. It has been also pointed out that the heterogeneity of ES cells might be important for keeping their totipotency. For understanding a real life system, we need new tools to analyze individual cells besides the averaged biological data. We are at a new frontier where we understand functions of organs based on the information on individual cells using new tools.

Seven years ago, we started IFPT to promote the interdisciplinary and international collaborations in the post genome era. Beijing is the capital of China and has many beautiful places. I hope all the participants will relax and enjoy the meeting in Beijing and hopefully have chances for collaborations.

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Dr. Kambara Hideki, the founder of IFPT, is the Fellow of Hitachi Ltd., the visiting professor of Tokyo University of Agriculture and Technology. He graduated from the University of Tokyo in 1967, and received his doctorate degree in 1972 from the University of Tokyo. He honored The Asahi Prize for "development of a high performance DNA sequencer" in 2004, the National Medal of Honor with Purple Ribbon in 2003, "Star of Asia" by BusinessWeek's in 2002, the 48th Okochi Memorial Grand Technology Prize for "development of the capillary array DNA sequencer" in 2002, and Commendation by the Minister of Education, Culture, Sports, Science & Technology to Persons of Scientific &

Technological Research Merits, for "research on fluorescence detection method DNA base sequencing device" in 2001. Dr. Kambara has published over 80 papers on mass spectrometry and DNA analysis, and holds more than 100 patents in Japan and U. S. A. His research interests includes atmospheric pressure ionization mass spectrometry; field desorption ionization and collision induced decomposition mass spectrometer for biological molecules; molecular secondary ion mass spectrometry; combined system of liquid chromatograph and mass spectrometer; fluorescent DNA sequencer; capillary array DNA sequencer; DNA expression profile analysis; and instruments for DNA diagnostics.