

SPECIAL ISSUE ON MICRO-/NANO-SENSING PLATFORMS EXPLORING BIOMEDICAL INNOVATION

PREFACE



Research and development of various micro-/nano-sensing platforms has been actively conducted to produce innovative tools in the fields of biochemistry, medicine, and drug discovery. Biosensing technology based on this new concept has made remarkable advances in, for example, highly sensitive measurements utilizing nanomaterials and nanotechnology; sample control in microfluidics, micropumps, and microvalves among others; and integration of analytical steps and electronics. With these advances, it has become possible to detect biomolecules with high precision, sensitivity, and spatiotemporal resolution, which has never been achieved before. This special issue focuses on the cutting-edge micro-/nano-biosensors that will contribute to next-generation biomedical applications.

This issue contains 12 papers in the wide academic fields of chemistry, biology, and engineering. Research and development of conventional biosensors has been conducted from the viewpoint of their diagnostic applications, as represented by the electrochemical blood glucose sensor. In recent years, attention has been focused on not only replacing conventional analytical techniques but also developing advanced tools for obtaining basic knowledge of life phenomena. Many of the techniques described in this special issue are related to basic cutting-edge knowledge; not all of them are directly connected to industry. However, I believe that the accumulation of knowledge from these basic research studies will eventually lead to innovative technologies that will be further industrialized. I hope this special issue will lead to biomedical innovations that will in turn lead to the improvement of the welfare of humanity in the future.

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Ryoji Kurita
National Institute of Advanced Industrial Science and Technology (AIST)
Japan