Special Issue on Bio-sensing and Its Applications

Preface

The ability of biomarkers to rapidly quantify the concentration of fluidics has direct relevance to biosensors used for analytical biochemistry and clinical diagnostics. Most biosensors have three essential components: a molecular recognition element interacting with the target analyte, a transducer element, and a microfluidic control mechanism translating the biorecognition event into a useful electrical signal. The key technologies for realizing diagnosis of diseases are rapid, low-cost, high-sensitivity analytical technologies for biomarkers. Moreover, P4 medicine has recently been proposed in the field of clinical diagnostics. P4 medicine enables effective predictive, personalized, preventive, and participatory models for the treatment of patients.

The purpose of this issue is to highlight recent progress on bio-sensing, and its applications. We have invited six researchers to review technologies such as aptamer-based biosensors, chemical imaging sensors, optical techniques for bio-sensing, and centrifugal microfluidics for biosensors. Additionally, bioreactors used in the regeneration of articular cartilage are introduced because tissue engineering has also been shown to have great potential in this field. Finally, P5 medicine is presented in this issue as the state of the art strategy of mobile health technologies. The fifth P represents the psycho-cognitive aspects to be considered in order to empower the patient.

Masaki Yamaguchi
Graduate School of Science & Technology
Shinshu University
Japan