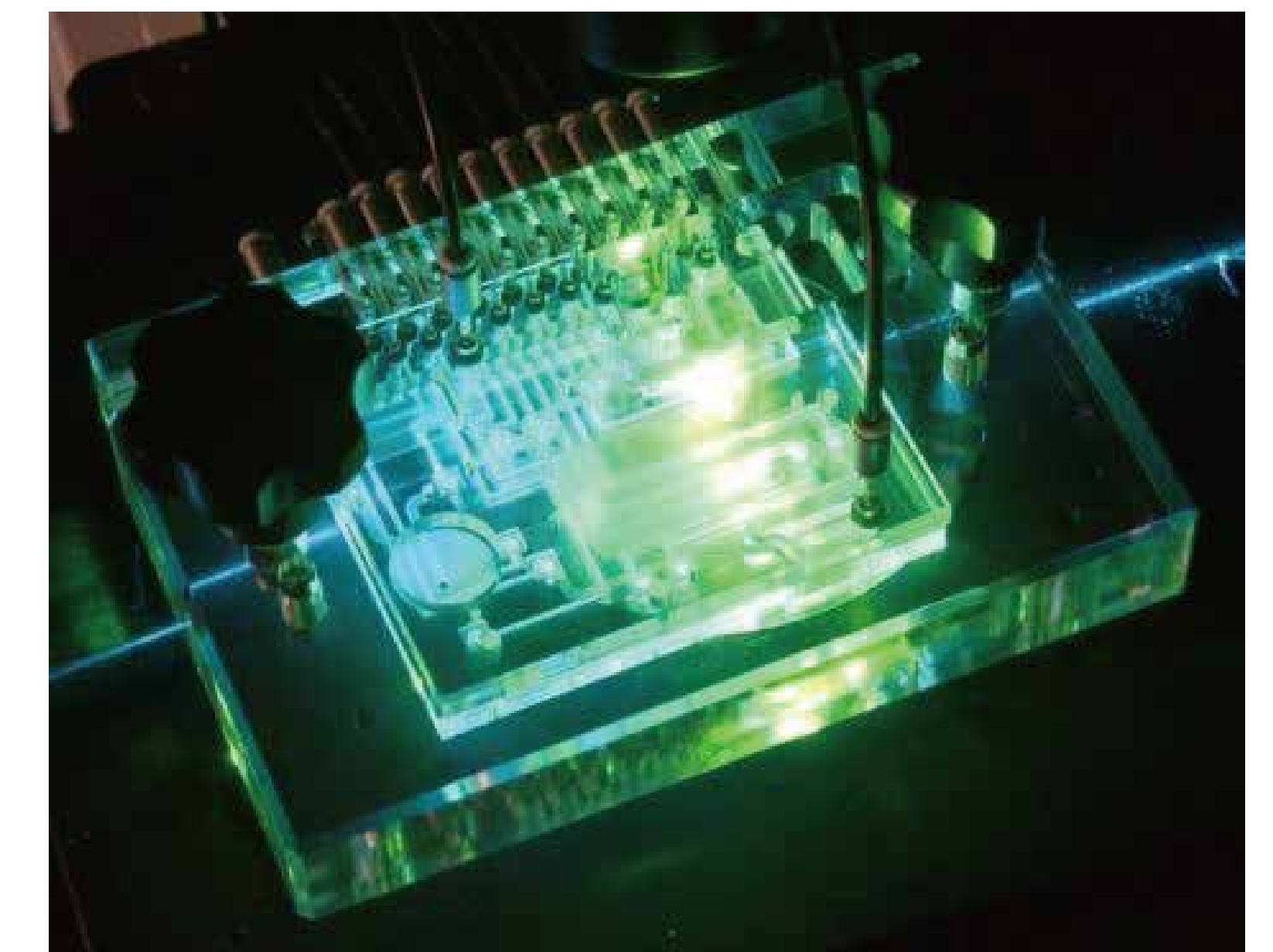


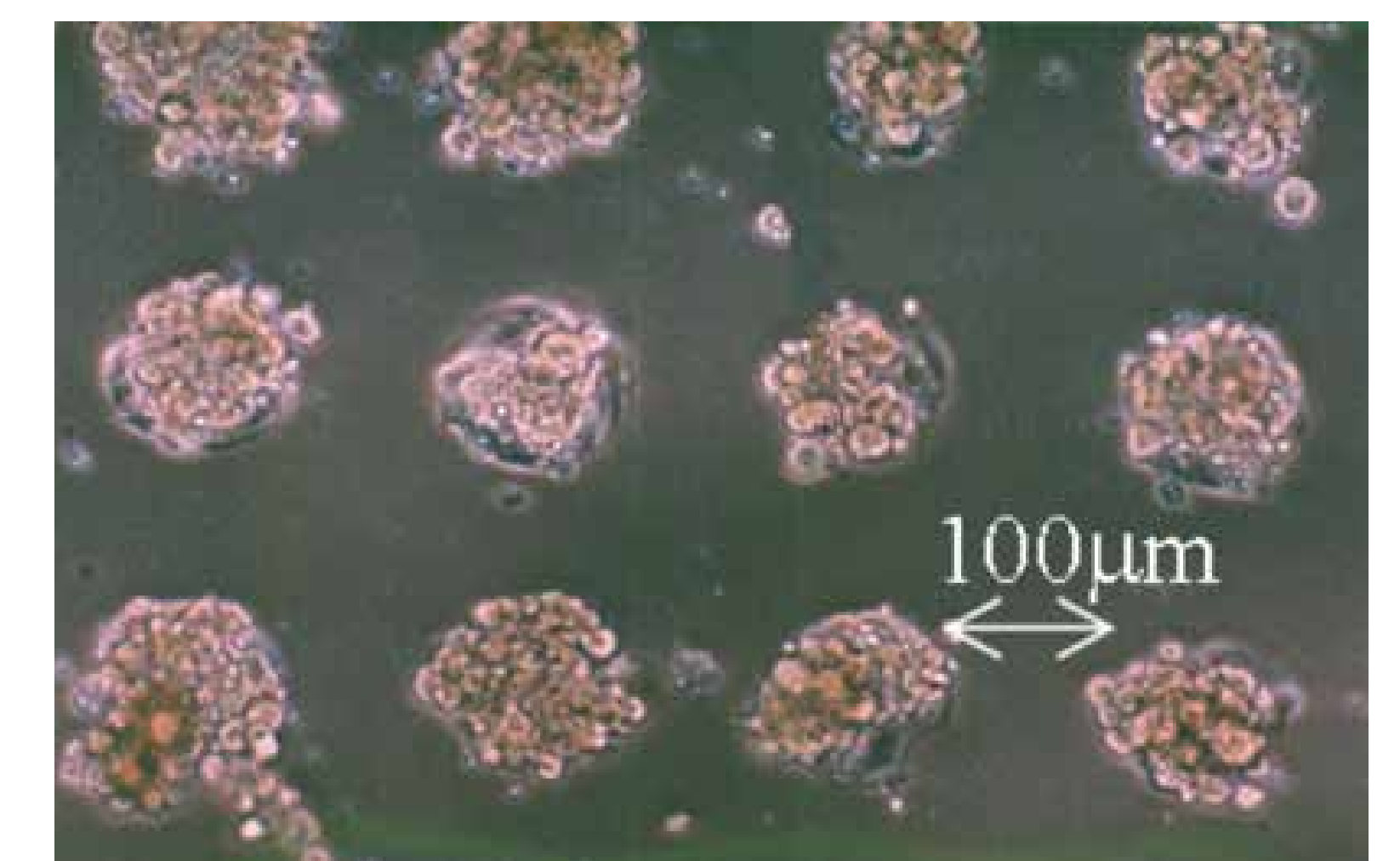
Bioelectronics and Biotechnology

Hidenori Otsuka (Tokyo Univ. Sci.)
 Masaru Tanaka (Yamagata Univ.)
 Takanori Ichiki (Univ. Tokyo)
 Osam Mazda (Kyoto Pref. Univ. Medicine)
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In the field of bioelectronics and biotechnology, extensive studies as well as its development related to artificial organs, biocompatible materials, energy conversion systems, and drug delivery systems, utilizing the inherent, unique, and original functionalities of biomolecules and organisms, have been performed. The desire of human being for a long and healthy life has motivated the development of robots for nursing and advanced medical systems. We predict that studies in this field will contribute to a sustainable society, a long and healthy life, personalized medicine, and so forth.



MicroRNA diagnostic device
 (Prof. T. Ichiki, Univ. Tokyo)



Cell Chip Device
 (Prof. H. Otsuka, Tokyo Univ. Sci.)

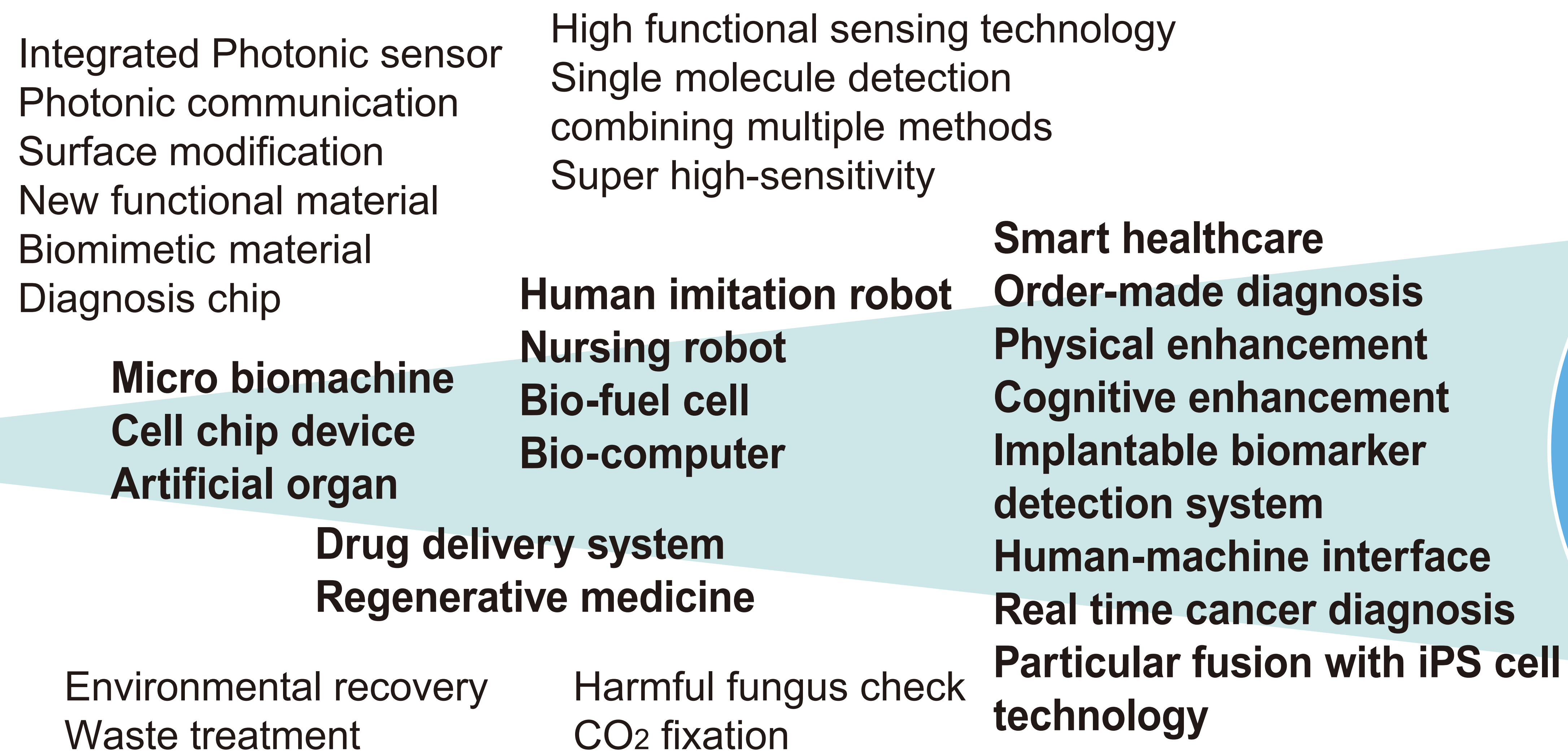
Fundamental Research and Development

- 1) New materials : biomimetic and biocompatible materials, functional biomolecules
- 2) Precise interfacial control : surface modification, molecular interaction explication
- 3) Analysis : localized nano-structural and functional observation, kinetic interpretation
- 4) Fabrication : ubiquitous system, chip device
- 5) Novel devices : bio-computer, nerve circuit, smart sensor
- 6) Medicine : regenerative medicine, drug delivery system, nursing robot
- 7) Energy : photosynthesis, biomass, bio-fuel cell

Fusion between bio- and other technologies

New Devices

Progress toward novel systems



Final Goal

Food self-support
 New energy supply
 Taylor-made medicine
 Long and healthy life
 Sustainable society

2010

2015

2020

2025

2030

2035

2040

2045