

## The Current of Life Sciences

Tadashi Fujii

Faculty of Life sciences, Toyo University

1-1-1, Izumino, Itakura-machi, Ora-gun, Gunma 374-0193

### Summary

*Bioscience* has emerged as the basic discipline for exploring the true nature of organisms functions. As a discipline aimed at analyzing the phenomena of life in a more detailed and clear manner, it has progressed based on groundbreaking advancements in molecular-biological techniques in recent years. On the other hand, there has been a growing need to understand life in a comprehensive manner, for the purpose of achieving the well-being of the human race, with respect for life. Accordingly, there has been a strong demand for the development of a new *life science* that seamlessly accommodates bioscience and other fields of science.

Put differently, it is fair to say that bioscience has evolved from a discipline that unravels the progress of life from the beginning of life to present day, into *life science*, which looks into, clarifies and suggests how organisms, especially human beings, ought to live in this global environment and also the space environment. Amid such disciplinary changes and social demands, each and every one of us must correctly understand the global environment and *life*, and endeavor to participate in social activities.

Organisms live dependently on the global environment, and affect the global environment in many ways. In other words, the survival of the human race is possible only if there is a healthy relationship between the global environment and the human race. Progress based on the understanding of this healthy relationship may be a requisite for *true science*. From such a standpoint, cutting-edge bioscience and life science must be established based on environmental improvement and environmental protection, and are expected to progress in that direction.

Agriculture in Japan is characterized by the excessive use of pesticides.

Ideally, new farming techniques that involve no or limited crop-dusting should be developed. In the future, the development of environmental improvement measures based on bioremediation and phytoremediation techniques will have to play a significant part in this area, as a field of life science.

The problem of global warming might also become a big issue in life science in the years ahead. Needless to say, it will be absolutely necessary to cut carbon dioxide emissions to prevent global warming. In addition to that, the development of new crops that are unaffected by or resistant to high temperature will be an unavoidable task. From this perspective, research aimed at enhancing the inherent functions and vitality of crops and adding new functions to them will become one of

the important issues in life science, as well as the development of techniques that make them possible.

Ultimately, life science might head towards the development of *food*, especially *highly functional food*. Consider the expected increase in the world pollution, and the reduction of arable land due to the pollution of the environment on a global scale. Although we may just have a vague idea about these issues, we must recognize that they are pressing problems.

At present, many people think that the field centering on genetic engineering is at the forefront of life science. However, its challenge may be how much it can accomplish in the field of food with the environment in mind.