Preface

Animal cell technology is a newly growing discipline of cell biology which aims not only to understand the structure, function and behavior of differentiated animal cells, but also to uncover their useful ability for industrial and medical purpose. The goal of animal cell technology includes clonal expansion of differentiated cells with useful ability, optimization of their culturing in industrial scale, modulation of their ability for production of pharmaceutical proteins and monoclonal antibodies. When we regard the genetic information expressed during differentiation of fertilized eggs into over 200 different cell types of adult animal bodies as our natural resources, there is vast region to be explored by animal cell technologist. Most of the genetic information is expressed during limited period of animal development, and we might have many opportunity of utilizing such genetic information by cell technology. The subjects of animal cell technology are physical, physiological and genetic modulation of animal cells for full expression of their activity of our interest.

The last Ninth Annual Meeting of the Japanese Association for Animal Cell Technology (JAACT'96) had attracted an increasing number of participants. At the Tenth Meeting (JAACT'97) held in Nagoya from November 5 through November 8, 1997, we had more than 60 participants from outside Japan and 140 from Japan. Three plenary lectures included 'Tissue engineering with use of cells', by Prof. Yoshito Ikada (Kyoto University), 'Genetic analysis of activin receptor function in gastrulation, patterning formation, and organogenesis in mice', by Prof. En Li (Massachusetts General Hospital East, U.S.A.) and 'Toward a solution to poverty and hunger through mariculture on coastal deserts', by Dr. Gordon Sato (Upstate Biotechnology Inc., U.S.A.). Seven symposia including 52 symposists' oral presentations, 29 oral and 63 poster presentations were performed. The meeting was a good opportunity for the international exchange of the latest results in both the basic and applied aspects of animal cell technology.

This special volume of Cytotechnology, published in association with JAACT, comprises many valuable articles elucidating the control and modulation of in vitro cellular functions with genetic, physiological approaches, which will help researches to envisage the present status and future trends in animal cell technology. The contributed papers in this special volume have been mainly classified by following subjects:

- A. Cell culture for assessment of physiologically functional substances.
- B. Expression of recombinant animal genes in cultured animal cells.
- C. Cell culture engineering.
- D. Cost performance for producing biochemicals.
- E. Establishment of functional cell lines for production of biologicals.
- F. Application of monoclonal antibodies.
- G. Cell characterization and validation.

All papers selected in this volume were critically reviewed by international reviewers and revised. We hope that this special volume of JAACT'97 in Cytotechnology will help worldwide researchers to envisage the present status and future trends in animal cell technology.

February, 1999

Editors:

Shinji Iijima, Nagoya University
Yasuo Kitagawa, Nagoya University
Shuichi Kaminogawa, University of Tokyo
Sanetaka Shirahata, Kyushu University