

**Mini-Symposium:
Cryobiology in Mammalian Reproduction**

Preface

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The technologies for deriving live animals from cryopreserved genetic resources, including embryos, germ cells or even somatic cells, represent important practical aspects of mammalian reproductive biology. These technologies are expected to contribute greatly to the conservation of wild and domestic animal species as well as to treatments for human reproductive failure. To develop efficient cryopreservation techniques for such genetic resources, it is necessary to have adequate knowledge of the biological characteristics of germ cells and embryonic development in each species and of cellular cryobiology in general. Fortunately, in Japan, many reproductive biologists have devoted themselves enthusiastically to these cryopreservation technologies and have played important roles in developing practical solutions.

This mini-review, "Cryobiology in Mammalian Reproduction", looked very successful at its initial planning stage because of the list of contributors, who are acknowledged experts in the cryopreservation of genetic resources and their use for human and animal reproduction. Most importantly, they are all actively involved in reporting excellent new techniques based on original theories of biochemistry and biophysics. The intention of this mini-review is not to present a history of mammalian cryobiology, but to document recent technical progress in this field. As expected from the recent high-impact activities of the contributors, this minireview now covers all the important inventions related to cryobiology in reproductive biology.

I hope that readers of this minireview will gain understanding not only of the recent progress in this field, but also the issues raised by the authors. These may include the genetic and epigenetic effects of the technologies and their potential for the safety and health of subsequent generations. As progress will accelerate in this field, these issues will need to be addressed in the coming years by the authors themselves or by the readers of this special issue. That is the goal of this mini-review.