Bioethics and the Future of Stem Cell Research

Despite years of heated social controversy over the use of human embryos in embryonic stem cell research, the caravan of stem cell science continues to proceed at an unrelenting pace all around the world. *Bioethics and the Future of Stem Cell Research* urges readers to look beyond the embryo debate to a much wider array of ethical issues in basic stem cell science and clinical translational research, including research involving adult and induced pluripotent stem cells. Insoo Hyun offers valuable insights into complex ethical issues ranging from preclinical animal studies to clinical trials and stem cell tourism, all presented through a unique blend of philosophy, literature, and the history of science, as well as with Dr. Hyun’s extensive practical experiences in international stem cell policy formation. This thoughtful book is an indispensable resource for anyone interested in the science of stem cells and the practical and philosophical elements of research ethics.

Insoo Hyun is Associate Professor of Bioethics and Philosophy at Case Western Reserve University School of Medicine. He is an internationally recognized authority on stem cell research ethics. In 2006, he chaired the Subcommittee on Human Biological Materials Procurement for the International Embryonic Stem Cell Guidelines Task Force, a multinational, multidisciplinary working group for the International Society for Stem Cell Research (ISSCR). In 2007, he served as Co-Chairperson of the ISSCR Task Force on International Guidelines for the Clinical Translation of Stem Cells. He is also the past Chairperson of the ISSCR Ethics and Public Policy Committee. His bioethics articles have appeared in *Science, Nature, Cell Stem Cell*, the *Journal of Clinical Investigation*, the *Hastings Center Report*, and the *Cambridge Quarterly of Healthcare Ethics*, among many other publications.
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Case Western Reserve University
For my parents,

Nak Young Hyun and Moonja Hyun,

who supported my study of Philosophy in every way imaginable.
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List of Acronyms

ACT  Advanced Cell Technology
ASL  American Sign Language
CNS  central nervous system
DBS  deep brain stimulation
DNA  deoxyribonucleic acid
EpiSCs  epiblast stem cells
ESCRo  Embryonic Stem Cell Research Oversight (Committee)
FDA  Food and Drug Administration
FGF  fibroblast growth factor
GFP  green fluorescent protein
GMP  good manufacturing practice
GRNOPC1  Geron’s oligodendroglial progenitor cells
hES cells  human embryonic stem cells
HFEA  Human Fertilisation and Embryology Authority
HTA  Human Tissue Authority
IACUC  Institutional Animal Care and Use Committee
ICU  intensive care unit
IND  investigational new drug
IOM  Institute of Medicine
iPS cells  induced pluripotent stem cells
IRB  Institutional Review Board
ISSCR  International Society for Stem Cell Research
IVF  *in vitro* fertilization
JAK  Janus kinase
LIF  leukemia inhibitory factor
MTA  material transfer agreement
NAS  National Academy of Sciences
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
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<tbody>
<tr>
<td>NIH</td>
<td>National Institutes of Health</td>
</tr>
<tr>
<td>RAC</td>
<td>Recombinant DNA Advisory Committee</td>
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<tr>
<td>RNA</td>
<td>ribonucleic acid</td>
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<tr>
<td>SCNT</td>
<td>somatic cell nuclear transfer</td>
</tr>
<tr>
<td>SCRO</td>
<td>Stem Cell Research Oversight (Committee)</td>
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<tr>
<td>STAT</td>
<td>Signal Transducer and Activator of Transcription</td>
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