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978-0-521-76869-6 - Bioethics and the Future of Stem Cell Research

Insoo Hyun

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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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*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
GRNOPC ₁	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	<i>in vitro</i> fertilization
JAK	Janus kinase
LIF	leukemia inhibitory factor
MTA	material transfer agreement
NAS	National Academy of Sciences

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List of Acronyms

NIH	National Institutes of Health
RAC	Recombinant DNA Advisory Committee
RNA	ribonucleic acid
SCNT	somatic cell nuclear transfer
SCRO	Stem Cell Research Oversight (Committee)
STAT	Signal Transducer and Activator of Transcription

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My exploration of the science and ethics of stem cell research began with a faculty research award given to me in 2005 by the Korean-American Educational (Fulbright) Commission and the Fulbright Scholarship Board in Washington, D.C. Their generous financial support allowed me to bridge my interests in philosophy and science in a very concrete manner. My interest in stem cell research ethics was further developed through my service on various committees for the International Society for Stem Cell Research (ISSCR). I thank the ISSCR leadership for giving me the opportunity to work in the area of international stem cell policy formation. This acknowledgment does not imply, however, that the ISSCR leadership necessarily agrees with all of my ideas espoused in this book.

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Cleveland, Ohio