

**INSTITUTE ON BIOTECHNOLOGY
AND
THE HUMAN FUTURE
IBHF**

**PROJECT REPORT
FALL, 2008**

INSTITUTE ON BIOTECHNOLOGY AND THE HUMAN FUTURE

FELLOWS AND SCHOLARS

FELLOWS:

Nigel M. de S. Cameron, Ph.D.

Nigel Cameron, President of IBHF, is a Research Professor at Chicago Kent College of Law in the Illinois Institute of Technology, and President and CEO of the Center for Policy on Emerging Technologies in Washington, DC.

Adrienne Asch, Ph.D.

Adrienne Asch is the Edward and Robin Milstein Professor of Bioethics at Wurzweiler School of Social Work, and Professor of Epidemiology and Population Health at Albert Einstein College of Medicine at Yeshiva University.

Brent Blackwelder, Ph.D.

Brent Blackwelder is President of Friends of the Earth, and also founded the Environmental Policy Institute, which merged with Friends of the Earth in 1989.

Paige Comstock Cunningham, J.D.

Paige Comstock Cunningham, an attorney and educator, is a member of the Board of Directors of Americans United for Life (AUL) and was chairman for five years.

Marsha Tyson Darling, Ph.D.

Marsha Darling is Professor of History and Interdisciplinary Studies, and the Director of the Center for African American & Ethnic Studies Program at Adelphi University.

Jean Bethke Elshtain, Ph.D.

Jean Bethke Elshtain is the Laura Spelman Rockefeller Professor of Social and Political Ethics at the University of Chicago.

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Kevin FitzGerald is the Dr. David P. Lauer Chair in Catholic Health Care Ethics and Associate Professor of Oncology at Georgetown University.

Debra Greenfield, J.D.

Debra Greenfield is an attorney in Malibu, California, working in the area of bioethics. She is an advisor to Dr. Leon Morgenstern and the Bioethics Program at Cedars-Sinai Medical Center in Los Angeles, and serves on the bioethics committee.

Amy Laura Hall, Ph.D.

Amy Laura Hall is Assistant Professor of Theological Ethics at Duke University Divinity School.

Jaydee Hanson, M.A.

Jaydee Hanson is director of human genetics policy for the International Center for Technology Assessment in Washington, D.C. Previously, he served as Assistant General Secretary for Public Witness and Advocacy of the United Methodist Church (UMC) General Board for Church and Society

C. Christopher Hook, M.D.

C. Christopher Hook is a Consultant in Hematology in the Comprehensive Hemophilia Center and Assistant Professor of Medicine at the Mayo Clinic in Rochester, Minnesota, and Director of Ethics Education at the Mayo Clinic Graduate School of Medicine.

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Douglas Hunt is engaged in independent research and writing on a variety of topics related to ethics and technology. Previously, he served as the Director of New Technologies for the International Center for Technology Assessment, Biotechnology Program Director, and also part of the World Council of Churches working group on genetic modification

William B. Hurlbut, M.D.

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Andrew Kimbrell, a public interest attorney, activist and author, established the International Center for Technology Assessment (ICTA) and the Center for Food Safety (CFS).

Abby Lippman, Ph.D.

Abby Lippman is Professor in the Department of Epidemiology, Biostatistics and Occupational Health, with cross appointments in Family Medicine and Social Studies of Medicine, all at McGill University in Montreal.

Michele Mekel, J.D., M.H.A., M.B.A.

Michele Mekel, former Executive Director and Legal Fellow at IBHF, is Visiting Associate Professor of Law in Southern Illinois University.

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C. Ben Mitchell is Associate Professor of Bioethics and Contemporary Culture at Trinity International University in Deerfield, Illinois.

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M. Ellen Mitchell is Director of the Institute of Psychology and Deputy Director of the Institute for Science, Law, and Technology (ISLAT) at Illinois Institute of Technology.

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Stuart A. Newman is Professor of Cell Biology and Anatomy at New York Medical College

Judy Norsigian

Judy Norsigian, Executive Director and co-founder of the Boston Women's Health Book Collective, is a co-author of *Our Bodies, Ourselves* (BT Bound, 1974; 25th Anniversary Edition, 1999) and *Our Bodies, Ourselves for the New Century* (Touchstone Books: Carmichael, CA, 1998).

David A. Prentice, Ph.D.

David A. Prentice is a Senior Fellow for Life Sciences with the Family Research Council. He is also an Affiliated Scholar with the Center for Clinical Bioethics at Georgetown University Medical Center

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Charles T. Rubin is an Associate Professor of Political Science and Graduate Faculty at Duquesne University Graduate Center for Social and Public Policy.

SCHOLARS:

Sheri Alpert, Ph.D.

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Diane Beeson, Ph.D.

Diane Beeson is chair of the Department of Sociology and Social Services at California State University, East Bay.

Nanette Elster, J.D.

Nanette Elster is Director of the Health Law Institute at DePaul University, and a partner at Spence & Elster, P.C., a Chicago-area law firm working in the area of fertility law.

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Brent Waters is Director of the Jerre L. and Mary Joy Stead Center for Ethics and Values, and Associate Professor of Christian Social Ethics at Garrett-Evangelical Theological Seminary in Evanston, Illinois

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1. The IBHF Story

Questions raised by developments in emerging technologies lie at the forefront of the challenges faced by the human race in the twenty-first century. The same technologies that may cure cancer and give the world's poor clean water could also be used to create weapons, destroy privacy, exacerbate the divide between rich and poor, and give parents the power to make children by design. They could also, by accident or design, pollute the environment on a wholly new scale. At the same time, societies that have long seen technology as a friend have begun to grow skeptical. Much of Europe has repudiated "genetically-modified" foods, to the astonishment of businesses that had invested huge sums in what they believed the consumer would want. In many countries, anguished debates about cloning and embryonic stem cell research have become key political drivers, as well as divisive cultural indicators. In the United States, which has long been the world leader in science and technology, a recent poll suggests that more than half the population now thinks that science raises more problems than it solves.¹

There is, therefore, no more strategic set of issues than those raised at the interface of science, technology, ethics, and law. The "ELSI" questions (ethical, legal and social issues), once sidebars to technological advance, are front and center. The significance of science for society will be a central theme through the culture and politics of the "biotech century," and in certain aspects its most strategic. There is a heavy premium on the development of an informed grasp of the significance of these issues, and responsible policies to ensure that advancements in science and technology serve the human good.

Varied national, cultural, and religious contexts have led to diverse approaches to these questions, and it is common to differentiate between Europe and the United States, and to contrast cultural conservatives (who tend to be more positive about technologies and their business applications) and progressives (who are more skeptical). Yet divisions over broad political questions and controversial social issues, such as abortion, have often obscured deep-seated agreement. New technology questions have generated responses that do not fit these molds. As biotechnology issues ascend the policy agenda, it has become clear that some conventional analysis of culture and values is deficient. So, while there has been much focus on research cloning as a political issue in the United States, several European nations, such as Germany and France, have made it a criminal offense. Concerns about the prospect of genetic discrimination have brought bipartisan support for legislation, but it has not yet passed. Issues raised by biotechnology have tended to be viewed in the United States as subsidiary to the abortion debate, and the deeply held pro-choice/pro-life positions that, for a generation, have divided American culture. Yet on what many commentators believe to be the issues that will define the 21st

¹ Virginia Commonwealth University, *2005 VCU LIFE SCIENCES SURVEY* (2005), available at <http://www.vcu.edu/uns/Releases/2005/oct/102405a.html> (last visited Dec. 9, 2005).

century, there are substantial commonalities among persons of conscience from across the conventional cultural-political spectrum.

There has been growing collaboration between diverse groups on issues affecting human dignity. A recent front-page story in *USA Today* (June 15, 2005) highlighted collaboration between “progressives” and “religious conservatives” on issues as diverse as international human rights, religious freedom, prison reform, and sex trafficking. But there has yet to be widespread recognition of the growing alignment on questions of emerging technologies.

The Institute on Biotechnology and the Human Future (IBHF) was developed as an unincorporated network of scholars and civil society leaders through a series of private meetings initiated in 2000 by Nigel M. de S. Cameron, bioethics scholar with a focus on human dignity and human rights, and Lori B. Andrews, distinguished professor of law at Chicago-Kent and a leading commentator on the legal and social issues raised by biotechnology. The goal was to address developing common approaches to the implications biotechnology and other emerging technologies across diverse social and religious traditions and groups. In 2004, IBHF entered an affiliation with Chicago-Kent College of Law in the Illinois Institute of Technology, and through a series of congressional appropriations was enabled to engage in a wide range of research and educational activities, both in Chicago and also in Washington, DC, drawing on the expertise of its growing network of Fellows and Scholars as well as business, labor, and policy leaders. In 2007 a further affiliation was established with the Center for Policy on Emerging Technologies in Washington, DC.

A unique feature of IBHF lies in its capacity to draw on the perspectives of diverse cultural groups in civil society. More than twenty fellows from other institutions represent traditions and approaches often viewed as at odds with one another. They include environmentalists, religious conservatives and liberals, feminists, and others – all of whom share a deep commitment to human values and all of whom know the importance of framing developments in emergent technologies in a manner consistent with the good of individuals and society.

While IBHF has been enabled by external funding to develop research and events, its core activity lies in connecting its exceedingly productive network of Fellows and Scholars. A highlight of such collaboration was the participation of Nigel Cameron and two of our Fellows – Adrienne Asch and Judy Norsigian – in a panel presentation hosted by the U.S. Department of State at the United Nations General Assembly in the fall of 2006 on new threats to women’s health posed by the growing market in human oocytes. Also in 2006, IBHF was appointed by the Secretary of State as NGO members of the U.S. National Commission for UNESCO. Nigel Cameron has been appointed to the Commission’s Social and Human Sciences Committee and the Emerging Issues Subcommittee.

2. IBHF Core Areas

IBHF has focused its efforts on six core areas:

1. Assisted Reproductive Technologies (ART);
2. Cloning;
3. Germline (Inheritable) Genetic Interventions;
4. Nanotechnology;
5. Genetic Discrimination; and
6. Gene Patents.

ART

Assisted reproductive technologies (ART) have enabled the birth of more than 1 million babies. The ethical, social and political controversies surrounding ART have evolved as quickly as the technologies. These issues include the ethical concerns, the introduction of techniques that have undergone only limited testing, and a lack of adequate information for consumers and patients regarding the risks and costs.

Cloning

Cloning is an experimental technology that recently sprung upon the scientific scene and immediately began grabbing headlines. “Somatic cell nuclear transfer” technology can be used to bring about the birth of an offspring that is a replica of an existing, or previously existing, human or animal. It can also be used to create embryos for experimentation, including the use of embryonic stem cells.

Germline Genetic Interventions

The phrase “genetic engineering” can be used to refer to two very different things. One is somatic genetic engineering, which targets somatic (body) cells and can be called genomic medicine, because it is, in effect, traditional medicine at the level of genes and impacts only the treated individual. The other is germline genetic engineering, which makes possible changes that will spread to every subsequent generation; this form of genetic engineering can also be called inheritable genetic modification and has the potential to change the human species along eugenic lines.

Nanotechnology

The term nanotechnology refers to the field of science and technology pertaining to the creation and use of materials or devices at the nanometer scale, which is one billionth of a meter. Proponents of nanotechnology claim that it will enhance our lives by curing disease, prolonging our life span, and solving environmental problems, among other things. The fundamental questions raised by nanotechnology are focused on environmental and health safety, as well as on the ethical, legal and societal implications,

such as the technology's potential to blur the distinction between humans and machines through the "enhancement" of human nature. In response, IBHF initiated the IIT Center on Nanotechnology and Society as the first university-based center in the United States focused on the societal implications of nanotechnology.

Genetic Discrimination

The recent sequencing of the human genome has enabled us to identify genetic markers for a wide variety of genetic diseases and health conditions. However, along with the advantages of being able to identify this genetic information in order to take precautions, treat disease, or plan a family, come issues regarding the effect on the willingness of individuals to partake in genetic testing for personal knowledge or biomedical research and/or having that information made available to third parties. Specifically, while the rapid advances in genetic technologies offer great promise for the diagnosis and treatment of inheritable diseases, they also raise serious concerns about the potential for the use of this genetic information to discriminate against certain individuals – especially in the areas of insurance and employment.

Gene Patents

Thousands of patent applications have been filed with the United States Patent and Trademark Office for human genetic material. Such patents, however, are controversial for several reasons, including their grant of exclusivity over naturally-occurring sequences of human genes and their effect on research and diagnosis. Because many gene patents either directly claim or include genes and/or the corresponding proteins that are essential to genetic diagnosis, a grant of exclusivity may hinder both health care and the advancement of scientific technology.

The Website: a Clearinghouse for Resources

The IBHF website serves as a publicly accessible, web-based clearinghouse of ethical, legal and social issues materials relating to IBHF's six core areas of focus, including a focus on selected themes such as art and eugenics.

3. IBHF Key Events

Private meetings/consultations involving Fellows, Scholars and invited participants have included the following:

- Illinois Institute of Technology (IIT) Nano Colloquium

The IIT Nano Colloquium is an interprofessional university-wide initiative, coordinated by the Center on Nanotechnology and Society and targeting those engaged in nanoscience and nanotechnology research. Initiated in 2005, it has included presentations on technical and social issues related to the research of university faculty.

- Consultation on Art and Biotechnologies at the Salk Institute

This private meeting discussed the role of the arts in generating understanding of the impact of emerging technologies on humans and the human community, and included in addition to certain IBHF fellows distinguished scientists from Salk, novelists, and other leading figures from the arts. It was co-sponsored by the IIT Institute for Science, Law and Technology (ISLAT).

- Consultation on Human Egg Harvesting

In February 2006, a group representing all viewpoints, religions, and political affiliations gathered in a civil society roundtable to discuss the dangers posed to women's health and rights by the increasing practice of human egg harvesting. Discussions were led by Judy Norsigan, executive director of Our Bodies Ourselves and IBHF Fellow, and a draft consensus statement produced.

Public events fall into three categories: Chicago Nano Forum symposia at Chicago-Kent College of Law and the IIT main campus; and events in Washington, DC – both Capitol Hill briefings and conferences at the National Press Club. Video from most of these events is available on thehumanfuture.org or nano-and-society.org.

- July 9, 2004: Capitol Hill Briefing and National Press Club Symposium, entitled *Toward a Consensus on Cloning? U.S. Policy and the Global Debate*

A far-reaching overview of international and state legislative landscape regarding human cloning was presented during this symposium. Expert presenters included: Lori Andrews, J.D., who introduced the work of IBHF; Abby Lippman, Ph.D., professor in the Department of Epidemiology and Biostatistics at McGill University (Canada) and former member of the Canadian Federal Advisory Committee on new Reproductive and Genetic Technologies, who addressed the recent Canadian ban on all human cloning; Rosario Isasi, J.D., Postdoctoral Fellow for the Centre de Recherche de Droit Public, University of Montreal (Canada), who provided an overview of cloning policies in developing nations; Henk Jochemsen, Ph.D., a geneticist who holds the Lindeboom Chair of Medical Ethics in the Free University of Amsterdam (Netherlands), who addressed cloning

prohibitions in Europe; and David Prentice, Ph.D., former Professor of Life Sciences at Indiana State University, and Senior Fellow at the Family Research Council, Washington, DC, who surveyed the United Nations cloning debate.

- October 6, 2004: Capitol Hill Briefing on *Gene Patents and Embryo Patents: Policies and Impacts*, co-sponsored with the American Association for the Advancement of Science (AAAS) project on Science in the Public Interest

The legal, medical, scientific and policy issues raised by gene patenting were addressed during this congressional briefing. Nigel M. de S. Cameron, Ph.D., introduced the briefing with a statement on recent debate on embryo patents and a review of the work of IBHF. Lori B. Andrews, J.D., set the scene for the questions raised by gene patents for science and law. Christopher Janson, M.D., Assistant Professor of Neurosurgery and Adjunct Assistant Professor of Molecular Genetics at Robert Wood Johnson Medical School, presented on the impact of gene patents on gene therapy, and Debra Leonard, M.D., Ph.D., spoke about the implications of gene patents on diagnostics. In addition, Audrey Chapman, Ph.D., Director of AAAS' Science and Human Rights Program, discussed AAAS' projects addressing human rights policy issues associated with gene patents.

- October 28,29, 2004: *The Face of the Future: Technosapiens? Phase II*, a conference on emerging technologies and human nature in Washington, D.C., co-sponsored with the Center for Bioethics and Culture (CBC), and the International Center for Technology Assessment (ICTA)

Key players in emerging technologies from all parts of spectrum participated in this two-day conference that addressed the impact of nanotechnology, cybernetics, artificial intelligence and other technologies that will impact the future of the human race. Presenters included: Nick Bostrom, Ph.D., Co-founder of the World Transhumanist Association; Christine Peterson, Vice President of the Foresight Nanotechnology Institute; Leon Kass, M.D., Ph.D., then Chairman of the President's Council on Bioethics; John Garcia, Chairman of the Venture Alliance; William Hurlbut, M.D., Stanford University, member of the President's Council on Bioethics; Wrye Sententia, Ph.D., Co-director of the Center for Cognitive Liberty and Ethics; Jennifer Lahl, Founder and National Director of the Center for Bioethics and Culture; Andrew Kimbrell, J.D., Executive Director of the International Center for Technology Assessment; C. Ben Mitchell, Ph.D., Associate Professor of bioethics and contemporary culture at Trinity International University; C. Christopher Hook, M.D., Director of ethics education at Mayo Clinic; Brent Blackwelder, Ph.D., President of Friends of the Earth; Lori Andrews, J.D., Distinguished Professor at Chicago-Kent College of Law; and M. Ellen Mitchell, Ph.D., Director of the IIT Institute of Psychology. Nigel M. de S. Cameron, Ph.D., Associate Dean and Research Professor of Bioethics at Chicago-Kent College of Law, chaired the conference.

- *Proposition 71: A Roundtable on Politics, Ethics, and Science*, co-sponsored with the Center for Bioethics and Culture and the International Center for Technology Assessment (held in Palo Alto, Calif.)

This roundtable event on California Proposition 71 covered the spectrum of perspectives, and included: arguments for proposition 71, legal challenges to it, the business community stance, the media viewpoint, a progressive critique, its relation to embryonic stem-cell research, and the President's Council on Bioethics position. Speakers included: Thomas Budinger, M.D., Ph.D., Professor of bioengineering at Berkeley; Dana Cody, Esq., Executive Director of Life Legal Defense Fund; Francine Coeytaux, M.P.H., Founder of the Pacific Institute for Women's Health; John Garcia, a venture capitalist; Bruce Goldman a biotechnology writer and analyst; Hank Greely, a professor of law specializing in genetics at Stanford University; Debra Greenfield, J.D., an attorney specializing in bioethics, and Fellow of IBHF; William Hurlbut, M.D., a professor at Stanford University, member of the President's Council on Bioethics, and Fellow of IBHF; and Lisa Krieger, a journalist who has written extensively on Proposition 71 and its aftermath. The roundtable was moderated by Nigel M. de S. Cameron, Ph.D., of IBHF.

- October 7, 2005: Chicago Nano Forum – *Hype or Hope: Exploring Nano, Risk and Ethics*, co-sponsored by the Chicago Microtechnology and Nanotechnology Community (CMNT)

Diverse viewpoints on nanotechnology's impact on society were presented by nanotechnology experts from business, science, law, and the social sciences during the inaugural event of the Chicago Nano Forum, entitled *Hype or Hope: Exploring Nano, Risk and Ethics*. The event, held at Chicago-Kent College of Law in early October 2005, focused on the intersection of nanotechnology, risk and ethics, and featured Brent Blackwelder, one of Washington's leading environmental lobbyists and President of Friends of the Earth; Nik Rokop, leader of the Chicago Microtechnology and Nanotechnology Community and CEO of nLake Technology Partners, LLC; Vivian Weil, Director, Center for the Study of Ethics in the Professions at Illinois Institute of Technology; and Joan Lebow, a partner with Lebow & Malecki, LLC, who specializes in health law, and a Chicago-Kent College of Law adjunct faculty member. Nigel M. de S. Cameron opened the program by sharing the Center's goal of catalyzing the national discussion on the ethical, legal and societal implications of nanotechnology, which has been billed as "the killer app" of the 21st century. M. Ellen Mitchell, Senior Fellow at the Center, moderated the panel discussions. Following their formal presentations, panelists took questions from the audience on the nascent status of regulatory and ethical issues related to nanotechnology.

- January 30, 2006: "*Brave New*" *Nano: Regulating the Future*, co-sponsored by CMNC and Converging Technologies Bar Association (CTBA)

Nanotechnology's legal and regulatory landscape was explored during the second event in the Chicago Nano Forum series, entitled "*Brave New*" *Nano: Regulating the Future*. The event, held at Chicago-Kent College of Law in late January 2006, was co-sponsored

by the CMNC and the CTBA, and featured: Sonia E. Miller, a leading attorney in the emerging technologies arena, founder and global president of the CTBA, and Nano & Society Advisory Panel member; Kristen Kulinowski, executive director for education and public policy at the Center for Biological and Environmental Nanotechnology and the International Council on Nanotechnology; Michael Bremer, president of the Cumberland Group—Chicago; and Dawn Willow, Nano & Society legal fellow. Nigel Cameron welcomed the speakers and audience by highlighting the importance of the responsible development of nanotechnology. Following their formal presentations, panelists took questions from the audience on the nascent status of legal, regulatory, and policy issues related to nanotechnology.

- March 9, 2006: *The Next Little Thing: Nano, Business and Society for the 21st Century*, co-sponsored by Consulate General of Canada in Chicago and The Global Law and Policy Institute at Chicago-Kent College of Law, and endorsed by CMNC

In early March 2006, business leaders, lawyers, scientists, and ethicists engaged in discussions about the promises and perils posed by nanotechnology during a joint Chicago Nano Forum program co-sponsored by the Consulate General of Canada in Chicago and The Global Law and Policy Institute at Chicago-Kent College of Law. The half-day program, entitled *The Next Little Thing: Nano, Business, and Society in the 21st Century*, featured a keynote by Aatish Salvi, vice president of the NanoBusiness Alliance, as well as panel presentations by nanobusiness people, attorneys, and ethicists from both sides of the border.

- April 28, 2006: First Annual Conference on Nanotechnology Policy: *NanoWorld: Toward a Policy for the Human Future*

The National Press Club was the venue for discussions among the nation's leading thinkers and policy makers in the nanotechnology area during Nano & Society's 1st Annual Nanopolicy Conference, entitled *NanoWorld: Toward a Policy for the Human Future*. The daylong event, held in late April 2006, featured keynotes by Mihail Roco, senior advisor on nanotechnology at the National Science Foundation, and Sean Murdock, executive director of the NanoBusiness Alliance. The program also featured a policy panel that included: U.S. Representative Mike Honda (D-Calif.); U.S. Representative Brad Sherman (D-Calif.); U.S. Representative Dave Weldon (R-Fla.); and Marty Spitzer, representing U.S. Representative Sherwood Boelher (R-NY). Nigel Cameron opened and closed the program by framing the issues. The panoply of other speakers included: David Guston, principal investigator and director of Arizona State University's Center for Nanotechnology in Society; Davis Baird, director of the University of South Carolina's nanoCenter; David Foreman, editor in chief of *Small Times*; John Sargent, senior policy analyst at the U.S. Department of Commerce's Office of Technology Policy; Richard Denison, senior scientist at Environmental Defense; Sonia E. Miller, president of the Converging Technologies Bar Association; Brent Blackwelder, president of Friends of the Earth and IBHF Fellow; Andrew Kimbrell, executive director of the International Center for Technology Assessment and IBHF Fellow; Ellen Mitchell,

director of IIT's Institute of Psychology an IBHF Fellow; David Prentice, senior fellow for life sciences at the Family Research Council; Charles Rubin, associate professor at Duquesne University and IBHF Fellow; and Christine Peterson, vice president of public policy at the Foresight Nanotech Institute.

- June 2006: Congressional Briefing: *Who Owns Your Body?* (Co-sponsored by the AAAS project on Science in the Public Interest)

A panel of experts addressed policy makers on Capitol Hill, focusing on three pending legal challenges that address gene patents, genetic privacy, and the commoditization of human tissue. Presenters included: Dan Greenberg, an attorney who spearheaded an effort to collect tissue samples from patients suffering from a rare genetic disease that led to the deaths of two of his children and who is a litigant fighting the unauthorized patenting of the gene that causes the disease; James Ellis, general counsel for AT&T and a prostate cancer survivor who is engaged in a legal battle over tissue samples donated for study of the disease; Carletta Tilousi, who is president of the Red Rock Foundation, leader of the Havasupai, and one of many Havasupai who donated blood for diabetes research but whose blood was then used for unauthorized research without consent; Joan Abrahamson, president of the Jefferson Institute and former assistant chief of staff to Vice President George Bush, who argued for legislative changes disallowing gene patents and protecting genetic privacy; and Lori Andrews, IBHF co-founder, who submitted an *amicus* brief in the *Lab Corp. v. Metabolite, Inc.*, case on the patentability of abstract ideas, which was ultimately dismissed by the U.S. Supreme Court.

- September, 2006: Congressional Briefing on Gene Patenting featuring the late Michael Crichton

Jurassic Park author Michael Crichton spoke about science policy and the future of biotechnology during an IBHF Congressional Briefing on Capitol Hill and a luncheon for Senators and chiefs of staff. He focused on gene patents, arguing that genetic and biological materials should not be patentable as products of nature and that gene patents provide an undeserved monopoly and inhibit medical research. Crichton urged policy makers to revise existing legislation in a manner that clarifies the use and patentability of human tissue, and to bolster informed consent provisions for human subjects.

- November 10, 2006: *Eugenics & Emerging Technologies: Biotechnology in the Shadow of Auschwitz?*, co-sponsored by Family Research Council and International Center for Technology Assessment

Emerging technologies promise to correct all that ails humankind and even boast the possibility of enhancing human abilities. But such “enhancements,” even with the best of intentions, have the potential to be eugenic. This concern served as the basis for discussion during the daylong event held at the National Press Club in Washington, D.C., which featured presentations by: Paul Lombardo, professor at Georgia State University and author; Charles Rubin, associate professor at Duquesne University and IBHF Fellow; George Khushf, associate professor at the University of South Carolina; William Saletan,

national correspondent and columnist for Slate.com; Ron Bailey, science correspondent at *Reason Magazine*; Andrew Imparato, president and CEO of the American Association of People with Disabilities; Cynthia Schneider, professor at Georgetown University and former U.S. Ambassador to the Netherlands; Judy Norsigian, executive director of Our Bodies Ourselves and IBHF Fellow; Marsha Darling, professor at Adelphi University and IBHF Fellow; Kevin FitzGerald, professor at Georgetown University and IBHF Fellow; David Prentice, senior fellow of life sciences at Family Research Council; Ullica Segerstrale, professor at IIT and Nano & Society Senior Fellow; Jaydee Hanson, director for human genetics policy at the International Center for Technology Assessment; Abby Lippman, professor at McGill University; Sujatha Byravan, president of the Council for responsible Genetics; and Ann Parson, author and science journalist. A webcast of the event is available on the IBHF website – www.thehumanfuture.org.

- October, 2006: *Big Issues & Small Science: Addressing the Socially Responsible Development of Nanotechnology*, co-sponsored by Northwestern's Kellogg School of Management and IIT's Stuart Graduate School of Business, and endorsed by CMNC

The socially responsible development of nanotechnology was the topic of discussion during the fourth Chicago Nano Forum event, at Chicago-Kent College of Law and entitled *Big Issues & Small Science: Addressing the Socially Responsible Development of Nanotechnology*. The program featured panel presentations by: Warren Layne of the Environmental Protection Agency; Erik Flom, principal and patent specialist at Welsh & Katz, Ltd.; Michael Radnor, professor of management and organization at Northwestern University's Kellogg School of Management; and George Nassos, professor in and director of the M.S. in Environmental Management Program at IIT's Stuart Graduate School of Business. Nigel Cameron opened the program, which was co-sponsored by Northwestern's Kellogg School of Management and IIT's Stuart Graduate School of Business. Michele Mekel, Nano & Society associate director, moderated. Following their formal presentations, panelists took questions from the audience on the nascent status of legal, regulatory, and policy issues related to nanotechnology. A webcast of the event is available on the Center's website – www.nano-and-society.org.

January 24, 2007: Humanism in the Age of "Enhancement":
A Critical Response to "Body Worlds"
A Community Forum
5:30 p.m., Chicago-Kent College of Law Auditorium

The *Body Worlds* exhibitions, hailed by some as a towering achievement in anatomical science, have been surrounded by controversy, as Dr. von Hagens' creations are seen by others as denigrating the deceased. Still others raise concerns about the commoditization of the human body and issues related to how the corpses used in the exhibits were obtained. *Humanism in the Age of "Enhancement": A Critical Response to "Body Worlds,"* hosted by the Institute on Biotechnology and the Human Future (IBHF), seeks to engage a critical discussion about: the *Body Worlds* exhibits; the effects of art and

science on the human form; the use and acquisition of human bodies and biological materials; and the implications of von Hagen's project on human dignity. Speakers included:

Liz Lerman, founding artistic director of the Liz Lerman Dance Exchange, and 2002 recipient of the MacArthur Fellowship "Genius Award"; Hannah Higgins, Ph.D., associate dean at the University of Illinois at Chicago and author of *Fluxus Experience*; Lindsey Thieman, program coordinator at International Museum of Surgical Science; Christina Bieber Lake, Ph.D., IBHF affiliated scholar, associate professor at Wheaton College, and author of *The Incarnational Art of Flannery O'Conner*; and Katrina Sifferd, J.D., Ph.D., IBHF affiliated scholar, attorney, adjunct faculty member at Elmhurst College, and expert in the philosophy of psychology.

Moderated by Nigel M. de S. Cameron, president of IBHF. The exhibition of art is curated by Jonathan Rhodes, executive director of ThreeWalls, J.D. candidate at Chicago-Kent College of Law, and IBHF research assistant.

- February 16, 2007: *The Spotless Mind? Policy, Ethics & the Future of Human Intelligence*
8:30 a.m. - 5:00 p.m., National Press Club, 529 14th Street N.W., Washington, D.C.

Is a machine-dominated society *à la The Matrix* or a *Borg*-esque collective intelligence looming in humanity's future? Emerging technologies in the areas of neuro-enhancement and artificial intelligence promise to drastically alter: our ability to augment human intellectual and sensory capacity; the role of machines; and how we connect, communicate, and share information. But, will such changes bring about the panacea promised by their proponents, or will they be akin to opening Pandora's Box? Even before such interventions become possible, their exploration should not be left to the realm of science fiction writers and pop-culture movie moguls. Rather, society, as a whole, must engage both science fact and science fiction in confronting the issues presented by these technologies - from who gets them to how they should be used.

Speakers included:

U.S. Representative Brad Sherman, J.D., CPA, (D-CA), member of the House Committee on Science; Carl Mitcham, Ph.D., professor of liberal arts and international studies at the Colorado School of Mines, and editor-in-chief of the four-volume *Encyclopedia of Science, Technology, and Ethics*; Patricia Smith Churchland, Ph.D., professor of philosophy at the University of California San Diego and author of *Neurophilosophy: Toward a Unified Science of the Mind-Brain*; and Charles T. Rubin, Ph.D., IBHF fellow, associate professor of political science at Duquesne University, IBHF fellow, and author of the forthcoming book *Why Be Human? Defending Progress Against Its Friends*; Ronald Bailey, science correspondent at *Reason Magazine*; William P. Cheshire, Jr., M.D., neurology consultant at Mayo Clinic, associate professor of Mayo Clinic College of Medicine, and Center on Nanotechnology and

Society fellow; Jim Davies, Ph.D., assistant professor at Carleton University's Institute of Cognitive Science; Linda MacDonald Glenn, J.D., L.L.M., faculty member in the Alden March Bioethics Institute at Albany Medical Center and in the University of Vermont's College of Nursing and Health Sciences; Sigrid Fry-Revere, Ph.D., J.D., director of bioethics studies at the Cato Institute; Andrew Imparato, J.D., president and CEO of the American Association of People with Disabilities; Monica Metzler, J.D., M.A., founder and president of the Illinois Science Council, and vice president of Conlon Public Strategies; C. Ben Mitchell, Ph.D., IBHF fellow and associate professor of bioethics and contemporary culture at Trinity International University; Katrina Sifferd, J.D., Ph.D., IBHF affiliated scholar and adjunct faculty member at Elmhurst College; and Lee Zwanziger, Ph.D., visiting assistant professor in Science and Technology Studies at Virginia Tech, and science policy analyst with the U.S. Food and Drug Administration. Chaired by Nigel M. de S. Cameron, Ph.D., president of IBHF.

- March 21, 2007: Chicago Nano Forum *Risky Business? Risk Perception & Nano Business* A Community Forum Hosted by IIT's Center on Nanotechnology and Society; 5:30 p.m., University Technology Park at IIT, 3440 S. Dearborn Street Chicago, IL

While concerns about nanotoxicity are the risk-management priority among those in the nano-know, the general public is only vaguely aware of nanotechnology. This lack of public awareness could, however, be transformed overnight - and for the worst - by the marketing machinery's hijacking of "nano" as promotional buzzword *du jour*, and by the techno-fringe's adoption of nano as the vehicle for realizing their sci-fi visions of molecular manufacturing and transhumanism. *Risky Business? Risk Perception & Nano Business*, hosted by the Center on Nanotechnology and Society (Nano & Society), seeks to engage a critical discussion about nanotechnology business risk - real and perceived.

Speakers include: Patti Glaza, vice president and publisher of *Small Times*; Dietram Scheufele, professor of life sciences, communication, and journalism and mass communication at the university of Wisconsin, Madison, and the Wisconsin principal investigator for the NSF-funded Center for Nanotechnology in Society; Aatish Salvi, vice president of the NanoBusiness Alliance; Jo Mackiewicz, Ph.D., assistant professor in the IIT department of humanities.

David Baker, executive director of the University Technology Park at IIT, will open the program. Nigel M. de S. Cameron, Ph.D., Director of the Center on Nanotechnology and Society, and associate dean and research professor at Chicago-Kent College of Law, will frame the discussion by offering opening and closing remarks.

Cosponsored by: University Technology Park at IIT; Illinois Science Council; Chicago Microtechnology and Nanotechnology Community

- October 18, 2007: *Virtual Reality, Real Issues*
5:30 PM, Chicago-Kent College of Law Auditorium

A symposium on Second Life and other virtual reality options; their legal, policy and ethical implications.

- Second Annual Conference on Nanotechnology Policy
Faces of Risk: Nanopolicy and the Agenda for Safety and Society
November 30, 2007, National Press Club, Washington, D.C.

The second in our National Press Club conference focused specifically on risk, including safety issues and their regulatory implications, potential threats to human dignity and integrity, risk to investors and the business community. We have invited a wide range of expert participants to join us on November 30, and we hope you will join us too.

Speakers included: Shaun Clancy of the Evonik Degussa Corporation speaking for the American Chemistry Council; David Rejeski of the Project on Emerging Nanotechnologies at the Woodrow Wilson Center for International Scholars; Charles Rubin of Duquesne University and frequent contributor to *The New Atlantis*; Jonathan Moreno of University of Pennsylvania and senior fellow at the Center for American Progress; Margaret Glass of the National Science Foundation-funded Nanoscale Informal Science Education Network (NISE Net); Dietram Scheufele of the University of Wisconsin, Madison; Bill Kojola of the AFL-CIO; Colin McCormick of the House Science Committee professional staff.

Co-sponsored by The Center for Policy on Emerging Technologies

4. Commissioned Papers

IBHF has commissioned a series of papers addressing its six core areas by scholars who are expert in their respective fields. These papers include the following:

- An Analysis of Empirical Studies on the Impact of Gene Patents on Diagnostics and Research
Overview: This commissioned paper reviews the impact of gene patents on diagnosis and research.
- Human Gene Patenting and Jewish Bioethics
Overview: This commissioned paper analyzes Jewish law and bioethics, and finds that the patenting of genes runs contrary to Jewish principles.

- An International Survey of Comparative Legislation on Cloning
Overview: This commissioned paper focuses on cloning legislation in developing nations. It also delves into the social and political factors that contribute to these policy decisions.
- The History of and Policies Related to California's Proposition 71
Overview: This commissioned paper traces the history of and policies behind California's Proposition 71, which was passed in 2004. It also addresses the proposition's legacy, which includes the California Stem Cell Research and Cures Bond Act of 2004, the California Institute of Regenerative Medicine, and substantial governmental funding for somatic cell nuclear transfer – also known as therapeutic cloning.
- Artificial Reproductive Technologies (ART) and Appropriate Legal Policies
Overview: This commissioned paper reviews ART procedures and the issues they raise from the physician's perspective. It will also propose legal policies that should be instituted to govern these procedures.
- Nanoregulation
Overview: This commissioned paper offers a comprehensive review of the present state of law and regulation in respect to nanotechnology. It examines the role of the FDA, the EPA, and other relevant federal agencies, and makes recommendations.
- Nano and Safety
Overview: This commissioned reviews the latest studies on environmental and other hazards associated with nanotechnology.
- Nano and Risk
Overview: This commissioned paper surveys the risk issues involved in the development of nanotechnology, with a focus on the difficulties or quantifying risk in emerging technology areas and the need for risk to be controlled in order for products to be taken to the marketplace.
- Genetics, Nanotechnology, Art and Activism
Overview: This commissioned paper explores the genre of "bioart," which is at the intersection of art and emerging technologies, including genetics and nanotechnology. It also considers the role of activism in this realm.
- A History of the Linkages Between the U.S. and German Eugenics Movements
Overview: This commissioned paper summarizes the linkages between the U.S. and German eugenics movements. It traces eugenics to its roots in the United States – especially in California – decades before Hitler came to power

5. Bios

President :

Nigel M. de S. Cameron, Ph.D.

Nigel Cameron is a Research Professor at Chicago-Kent College of Law in the Illinois Institute of Technology, and President of the Center for Policy on Emerging Technologies in Washington, DC.. Founding Editor of the journal *Ethics and Medicine*, he has published widely at the interface of bioethics and public policy. In 2000, he was the Randall Distinguished Lecturer in Biomedical Ethics at the American Physiological Society, and in both 2003 and 2008 he was invited to engage Swiss bankers and biotechnology leaders on policy, ethics and business issues in bioscience as Scholar-in-residence at the United Bank of Switzerland (UBS), Wolfsberg; in 2004, he was a panelist on nanotechnology at the Biotech and Health Business Forum (Zurich). Cameron was co-chair of the 2005 International Congress of Nanotechnology in San Francisco and is on the advisory board for *Nanotechnology, Law & Business*. He has testified several times before the U.S. Congress on issues of technology policy and ethics, and has represented the United States as bioethics advisor on delegations to the United Nations. Cameron studied at Cambridge University, the University of Edinburgh and Edinburgh Business School.

Fellows:

Adrienne Asch, Ph.D.

Adrienne Asch is the Edward and Robin Milstein Professor of Bioethics at Wurzweiler School of Social Work, and Professor of Epidemiology and Population Health at Albert Einstein College of Medicine at Yeshiva University. Prior to her position at Yeshiva University, she was the Henry R. Luce Professor in Biology, Ethics, and the Politics of Human Reproduction and Professor of Women's Studies at Wellesley College.

At Wellesley, she taught such courses as: Multidisciplinary Approaches to Abortion; Ethical and Social Issues in Genetics; Women and Motherhood; Ethical and Policy Issues in Reproduction; Disability in Society: Politics, Policy, and Law; and Literature and Medicine. Asch has authored, co-authored, and co-edited numerous articles, books, and book chapters, including: "Reproductive Rights and Disability" for the *Encyclopedia of Disability* (2005); "Recognizing Death while Affirming Life," in the *Hastings Center Report* (2005); and "Disability Equality and Prenatal Testing: Contradictory of Compatible?" in the *Florida State University Law Review* (2003). Presently, she is on the editorial boards of *Ethics & Behavior* and *Microbial & Comparative Genetics*.

In addition to her teaching and research, Asch has considerable experience with local, state, and national policy-making groups. During 2001-2002, she was a member of the ELSI Policy and Planning Group of the National Human Genome Research Institute. In 1999-2000, she was a consultant to the Secretary's Advisory Committee on Genetic Testing for the Department of Health and Human Services. In 1995, Asch was a member

of the Social Security Administration's National Commission on Childhood Disability, and in 1993, she was a member of the Bioethics Working Group of the Clinton Task Force on Health Care Reform. From 1987 to 1990, she was an Associate in Social Science and Policy with the New Jersey Commission on Legal and Ethical Problems in the Delivery of Health Care. Asch received a B.A. in philosophy from Swarthmore College; an M.S. in social work, community organization, and planning from Columbia University School of Social Work; and a Ph.D. in social psychology from Columbia University

Brent Blackwelder, Ph.D.

Brent Blackwelder has served as an environmental advocate in the nation's capital for more than 30 years and is presently the most senior environmental lobbyist in the nation's capital. In 1994, he became president of Friends of the Earth and has testified in front of Congress on pressing environmental issues more than 100 times. Previously, Blackwelder was founder and first chairman of the Board of American Rivers, leading river-saving organization in the United States, and he also founded the Environmental Policy Institute, which merged with Friends of the Earth in 1989. He graduated *summa cum laude* from Duke University, received an M.A. in mathematics from Yale, and earned a Ph.D. in philosophy from The University of Maryland.

Paige Comstock Cunningham, J.D.

Paige Comstock Cunningham, an attorney and educator, is a member of the Board of Directors of Americans United for Life (AUL) and was chairman for five years. She is a Senior Fellow of The Center for Bioethics and Human Dignity, and a Fellow with the Wilberforce Forum's Council on Biotechnology Policy. Cunningham also serves on the Board of Trustees of Taylor University and the National Advisory Council of Wheaton College's Center for Applied Christian Ethics. She has served at AUL in various other capacities, including president, associate general counsel for legislation, and executive director/general counsel. Cunningham currently serves as adjunct faculty at Trinity Law School in Santa Ana, California. She is also co-editor of *The Reproduction Revolution: A Christian Appraisal of Sexuality, Reproductive Technologies, and the Family* (Erdmann, 2000) and *Abortion and the Constitution* (Georgetown University Press, 1999); in addition, she co-authored four booklets in the *Biogases* Series (Kernel, 1998) and has written numerous other articles on abortion, the law, and bioethics. Cunningham co-authored the amicus brief that Justice O'Connor cited in her discussion of viability in *Webster v. Reproductive Health Services*. Cunningham received her bachelor of arts *summa cum laude* from Taylor University and is a graduate of Northwestern University School of Law, where she served on the editorial board of the *Northwestern University Law Review*.

Marsha Tyson Darling, Ph.D.

Marsha Darling is Professor of History and Interdisciplinary Studies, and the Director of the Center for African American & Ethnic Studies Program at Adelphi University. She is a recognized scholar focused on the areas of race, gender, and justice with relation to genetics and biotechnology, among other areas. In addition, Darling has chaired a UN

expert group on gender and racial discrimination, which was responsible for preparing a working paper, entitled "Distributive Justice Issues and the Construction of State Interests re: Women of Color," and a report, entitled "Gender and Racial Discrimination." She is also involved in several organizations, including the Association for Women's Rights in Development and the Global Network for Women's Reproductive Rights.

Jean Bethke Elshtain, Ph.D.

Jean Bethke Elshtain is the Laura Spelman Rockefeller Professor of Social and Political Ethics at the University of Chicago. Previously, she taught at the University of Massachusetts and at Vanderbilt University. She has also been a Visiting Professor at Harvard and Yale. Elshtain has authored and/or edited 20 books, written some 500 essays, and is a contributing editor for *The New Republic*. She has been: a Fellow at the Institute for Advanced Study at Princeton; a Scholar in Residence at Beluga Conference and Study Center in Como, Italy; a Guggenheim Fellow; and a Fellow of the National Humanities Center; in 2003-2004, she held the Maguire Chair in Ethics at the Library of Congress. She also serves on the: Scholars Council of The Library of Congress; Board of Trustees of the James Madison Program in American Constitutional Ideals at Princeton University; Board of Trustees of the National Humanities Center; and Board of the National Endowment for Democracy. In 1996, she was elected a Fellow of the American Academy of Arts and Sciences. In addition, Elshtain was a Phi Beta Kappa Scholar and served as Vice President of the American Political Science Association. In 2002, she received the Goode now Award of the American Political Science Association, the Association's highest award for Distinguished Service to the Profession.

Kevin FitzGerald, Ph.D., S.J.

Kevin FitzGerald is the Dr. David P. Lauer Chair in Catholic Health Care Ethics and Associate Professor of Oncology at Georgetown University. Previously at Loyola University in Chicago, his research focused on the investigation of abnormal gene regulation in cancer and ethical issues in human genetics. FitzGerald frequently testifies before Congress and has served as an ethics consultant for the National Society of Genetic Counselors. He is a consultant to the March of Dimes Ethics Committee, the United States Catholic Conference, and is a member of the American Association for the Advancement on Science Program of Dialogue on Science. FitzGerald received dual Ph.D.s in philosophy and in molecular genetics from Georgetown University.

Debra Greenfield, J.D.

Debra Greenfield is an attorney in Malibu, California, working in the area of bioethics. She is an advisor to Dr. Leon Morgenstern and the Bioethics Program at Cedars-Sinai Medical Center in Los Angeles, and serves on the bioethics committee. She also serves as a member of the American Bar Association Committee on Assisted Reproduction and Genetic Technologies where she is involved in work pertaining to a proposed Model Act on Assisted Reproductive Technologies. Previously, Greenfield worked in the television and motion picture industries, having served as a literary agent, studio executive, and independent producer.

Amy Laura Hall, Ph.D.

Amy Laura Hall is Assistant Professor of Theological Ethics at Duke University Divinity School and author of *Kierkegaard and the Treachery of Love* (Cambridge University Press: New York, 2002). A recipient of the Henry Luce Fellowship in Theology, Hall is completing a second book, entitled *Conceiving Parenthood: The Protestant Spirit of Biotechnological Reproduction*, which documents the rise of medical-technological consumerism in the last century. She serves on the Steering Committee of the Genome Ethics, Law, and Policy Center at Duke University, and she has been on the Duke Medical Center's Institutional Review Board and an Ethics Consultant to the V.A. Center in Durham. Hall has participated in bioethics projects at the Hastings Center and the Genetics and Public Policy Center of Johns Hopkins. As a member of the Bioethics Task Force of the United Methodist Church, Hall has presented on reproductive ethics to the World Council of Churches in Geneva, and to academic audiences in Switzerland, Denmark, and England.

Jaydee Hanson, M.A.

Jaydee Hanson is director of human genetics policy for the International Center for Technology Assessment in Washington, D.C. Previously, he served as Assistant General Secretary for Public Witness and Advocacy of the United Methodist Church (UMC) General Board for Church and Society, which included responsibility for Ump's Bioethics Task Force. Hanson has testified before Congress on human cloning, animal and gene patenting, and related issues. In addition, Hanson chaired the National Council of Churches' Exploratory Commission on the New Human Genetics and the National Council of Churches' Eco-justice Working Group Biotechnology Taskforce. He is a member of the World Council of Churches' Genetics Committee, and has served on the American Association for the Advancement of Science's Science and Religion Advisory Committee and the Ecumenical Roundtable on Science and Religion.

C. Christopher Hook, M.D.

C. Christopher Hook is a Consultant in Hematology in the Comprehensive Hemophilia Center and Assistant Professor of Medicine at the Mayo Clinic in Rochester, Minnesota, and Director of Ethics Education at the Mayo Clinic Graduate School of Medicine. He created and chairs the Mayo Reproductive Medicine Advisory Board, the DNA Research Committee, the Ethics Consultation Service, and the Mayo Clinical Ethics Council; he also co-founded the Psycho genomic Ethics Advisory Board. Hook is Director for Biotechnology Ethics of the Center for Bioethics and Human Dignity and also leads "The Theology of Technology Project" and "The Human Enhancement Project." He is a Fellow of the Wilberforce Forum and the Council for Biotechnology Policy in Washington, D.C. Hook is a member of the Senate Health and Human Services' Advisory Committee on Genetics, Health and Society.

Douglas Hunt, Ph.D.

Douglas Hunt is engaged in independent research and writing on a variety of topics related to ethics and technology. Previously, he served as the Director of New Technologies for the International Center for Technology Assessment, Biotechnology Program Director, and as staff for the United Methodist Bioethics Task Force and as East

Coast Program Director for the Exploratory Initiative on the New Genetic Technologies (now the Center for Genetics and Society). Hunt is also part of the World Council of Churches working group on genetic modification and the Governance of Biotechnology Study Group at the Johns Hopkins School of Advanced International Study.

William B. Hurlbut, M.D.

William B. Hurlbut is a physician and Consulting Professor in the Program in Human Biology at Stanford University, where he received his undergraduate degree and medical training. In addition to teaching, he has been a member of the President's Council on Bioethics since 2002. Dr. Hurlbut grew up in Bronxville, New York, and after attending Stanford completed postdoctoral studies in theology and medical ethics, studying with Robert Hammertoe-Kelly, the Dean of the Chapel at Stanford and the Rev. Louis Buyer of the Institute Catholique de Paris.

Dr. Hurlbut's primary areas of interest involve the ethical issues associated with advancing biomedical technology, the biological basis of moral awareness, and studies in the integration of theology and philosophy of biology. In the last several years, he has given academic presentations around the world on these subjects. Since 1998, Dr. Hurlbut has been a member of the Chemical and Biological Warfare working group at the Center for International Security and Cooperation, and has worked with NASA on projects in Astrobiology.

Andrew Kimbrell, J.D.

Andrew Kimbrell, a public interest attorney, activist and author, established the International Center for Technology Assessment (ICTA) and the Center for Food Safety (CFS). Previously, he was the Policy Director at the Foundation for Economic Trends. Kimbrell has testified before congressional and regulatory hearings, and is the author of *101 Ways to Help Save the Earth* (1990); *The Human Body Shop: The Engineering and Marketing of Life* (Harper Collins, 1991; 3rd Edition, 1998); *The Masculine Mystique* (Ballantine Books, New York, NY, 1995); and most recently, *Fatal Harvest: The Tragedy of Industrial Agriculture* (Island Press, Washington, D.C., 2002). Kimbrell also edited *The Green Lifestyle* handbook (Henry Holt & Company, Inc., New York, NY, 1991). In 1994, *Utne Reader* named Kimbrell as one of the 100 leading visionaries.

Abby Lippman, Ph.D.

Abby Lippman is Professor in the Department of Epidemiology, Biostatistics and Occupational Health, with cross appointments in Family Medicine and Social Studies of Medicine, all at McGill University in Montreal. She is also President of the Canadian Women's Health Network. Lippman got her B.A. from Cornell University and her Ph.D. from McGill University.

Michele Mekel, J.D., M.H.A., M.B.A.

Michele Mekel, former Executive Director and Legal Fellow of the Institute on Biotechnology and the Human Future, is Visiting Associate Professor of Law at Southern Illinois University. She is also an associate editor for *Nanotechnology Law & Business*. Previously, she was a Fulbright Scholar at Queen's University in Canada, where she

conducted a comparative study of Canadian and U.S. academic-affiliated health policy research centers. Prior to that, Mekel clerked for the Missouri Supreme Court. She also has experience as: the compliance officer and corporate planner for a health maintenance organization; the director of publications and promotions at the Missouri Hospital Association; and a summer fellow with the U.S. Department of Health and Human Services Health Resources and Services Administration. Mekel earned her J.D. from the University of Missouri-Columbia (UMC), where she was Editor-in-Chief of the *Missouri Law Review* and graduated order of the coif; she also earned master's of health administration and business administration, and a bachelor of journalism from UMC.

C. Ben Mitchell, Ph.D.

C. Ben Mitchell is Associate Professor of Bioethics and Contemporary Culture at Trinity International University in Deerfield, Illinois. He also: serves as Senior Fellow with The Center for Bioethics and Human Dignity in Bannockburn, Illinois; is a consultant with the Center for Genetics & Public Policy at Johns Hopkins University; is a Fellow of the Council for Biotechnology Policy in Washington, D.C.; and is a member of the Templeton Oxford Summer Symposium on Religion and Science for which he is working on a volume on the emerging biotechnologies and their impact on our understanding of what it means to be human. Mitchell is editor of the journal *Ethics & Medicine: An International Journal of Bioethics*. In addition, he has given testimony before the U.S. House of Representatives, the Institute of Medicine, and the Illinois Senate. He received his doctorate in philosophy with a concentration in medical ethics (with honors) from the University of Tennessee in Knoxville.

M. Ellen Mitchell, Ph.D.

M. Ellen Mitchell is Director of the Institute of Psychology and Deputy Director of the Institute for Science, Law, and Technology (ISLAT) at Illinois Institute of Technology. She worked in community mental health settings at the practice and administrative levels before joining the faculty in 1987. Mitchell was the 1990-91 Recipient of Lewis College Junior Faculty Teaching Award and a former consulting editor to the American Psychology Association journal, *Psychological Assessment*. She is on the Executive Board of the Council of Graduate Programs of Psychology, a national psychology organization. In 2002, in partnership with Lori Andrews, Mitchell organized an interdisciplinary conference on *The Humanity of Technology*, which brought together a diverse group of individuals to address myriad human issues associated with emerging technologies. She completed her Ph.D. in clinical psychology at the University of Tennessee and her internship training at Yale School of Medicine.

Stuart A. Newman, Ph.D.

Stuart A. Newman is Professor of Cell Biology and Anatomy at New York Medical College, where he directs a research program in developmental biology. Newman was a founding member of the Council for Responsible Genetics and has testified before congressional committees on issues ranging from patenting of organisms to human stem cells and cloning. He has also been a consultant to the National Institutes of Health on policy regarding the use of human fetal tissue for research. In response to the growth in patenting of life forms and the emergence of technologies that threaten to blur the

boundary between human and nonhuman organisms, Newman applied for a patent on human-chimp chimeras (mixed species organisms) as a challenge to existing patent policy, and a way to prevent inappropriate uses of the technology.

Judy Norsigian

Judy Norsigian, Executive Director and co-founder of the Boston Women's Health Book Collective, is a co-author of *Our Bodies, Ourselves* (BT Bound, 1974; 25th Anniversary Edition, 1999) and *Our Bodies, Ourselves for the New Century* (Touchstone Books: Carmichael, CA, 1998). She served on the board of the National Women's Health Network for more than 14 years and is a member of the Board of Public Responsibility in Medicine and Research (PRIM&R). Norsigian has served on several Institute of Medicine committees related to contraceptive research, planning committees for the Office of Research on Women's Health at the National Institutes of Health, and the advisory board of the Council for Responsible Genetics. In 2002, she received the Massachusetts Health Council annual award.

David A. Prentice, Ph.D.

David A. Prentice is a Senior Fellow for Life Sciences with the Family Research Council. He is also: an Affiliated Scholar with the Center for Clinical Bioethics at Georgetown University Medical Center; a Founding Member of *Do No Harm: The Coalition of Americans for Research Ethics*; a Fellow of the Council for Biotechnology Policy of the Wilberforce Forum; and an Advisory Board Member for the Center for Bioethics and Human Dignity. Previously, he served as Professor of Life Sciences at Indiana State University, and Adjunct Professor of Medical and Molecular Genetics for the Indiana University School of Medicine. Prentice has provided scientific advice for: U.S. Senator Sam Brownback (R-KS), U.S. Representative Dave Weldon (R-FL), other members of Congress, the administration, and international legislators and organizations. In addition, he has testified on cloning, stem cells and bioethics before the U.S. Senate and House, the U.S. National Academy of Sciences, the U.S. President's Council on Bioethics, European Parliament, British Parliament, Canadian Parliament, Australian Parliament, German Bundestag, French Senate, and the United Nations. He has served as Acting Associate Dean of Arts and Sciences, Assistant Chair of Life Sciences, and has been recognized with The Distinguished Teaching Award and Distinguished Service Award at Indiana State University.

Charles T. Rubin, Ph.D.

Charles T. Rubin is an Associate Professor of Political Science and Graduate Faculty at Duquesne University Graduate Center for Social and Public Policy. He serves on the Board of Trustees of the National Association of Scholars and the Board of Advisors of the Allegheny Institute for Public Policy Research. Rubin is also a founding member of the Civic Environmentalism Working Group. Author of *The Green Crusade: Rethinking the Roots of Environmentalism*, he is currently at work writing *Why Be Human? Defending Progress Against Its Friends*, a critical look at cutting-edge science and technologies that promise transcending the human condition.

Scholars:

Sheri Alpert, Ph.D.

Sheri Alpert is currently a Research Associate for the Novel Tech Ethics research team at Dalhousie University in Halifax, Nova Scotia, Canada. Her current research focuses on ethical issues in emerging and converging neuro-technologies (particularly implantable devices), medical device regulations in Canada and the U.S., and human subjects protections in both countries. Prior to her work at Dalhousie, she was the Director of the Science, Technology, and Values Program at the University of Notre Dame for several years. For 14 years before leaving for Notre Dame, she worked in various policy-related positions for the U.S. federal government in Washington, D.C. One of the highlights of her federal career was her brief work with the National Bioethics Advisory Commission. Until coming to Halifax, her research focus had been (and a deep interest continues to be) medical and genetic privacy. She has spoken nationally and internationally on issues of medical and genetic privacy, as well as on ethical issues in implantable brain-computer interface devices and has written articles on each of these topics.

Sheri received her B.A. in history from Indiana University; an M.A. in Communications (film/video production) at the University of Texas at Austin; an M.P.A. from Indiana University's School of Public & Environmental Affairs; and her Ph.D. in public policy (science and technology policy) from George Mason University.

Diane Beeson, Ph.D.

Diane Beeson is chair of the Department of Sociology and Social Services at California State University, East Bay. She has also been affiliated with UC Berkeley's Institute for the Study of Social Change researching social implications of genetic testing. Previously, she was a visiting scholar at Stanford University's Center for Genomics, Ethics and Society, and she has served as a consultant on projects related to genetic testing for numerous organizations, including the National Society of Genetic Counselors, National Institutes of Health, and the U.S. Department of Energy. In addition, Beeson has served on peer review committees for the National Human Genome Research Institute, and has authored numerous articles in professional journals and anthologies. She received her B.A. in sociology from the University of California, Berkeley, and her M.A. and Ph.D. from the University of California, San Francisco, where she specialized in medical sociology. Beeson was also a Pew post-doctoral fellow at the University of California, San Francisco's Institute for Health Policy Studies.

Nanette Elster, J.D.

Nanette Elster is Director of the Health Law Institute at DePaul University, and a partner at Spence & Elster, P.C., a Chicago-area law firm working in the area of fertility law. Elster has extensive experience in legal, public health, and ethical issues related to women's and children's health, and has been on faculty at the Institute for Health, Law and Policy, University of Illinois at Chicago School of Medicine, and Chicago-Kent

College of Law.

Elster has spoken nationally and internationally, and she is the author of numerous articles on genetic and reproductive health with a particular focus on legal and ethical implications, including: "ARTistic License: Should Assisted Reproductive Technologies be Regulated?" in *ART: Today and Beyond*, edited by Christopher DeJonge and Christopher Barratt; "Stem Cell Research: Ethical Issues for Women in Donating Eggs and Embryos" in *Human Rights*; "HIV and ART: Reproductive Choices and Challenges" in *The Journal of Contemporary Health Law and Policy* (2003); "Assisted Reproductive Technologies: Contracts, Consents & Controversies" in the *American Journal of Family Law*; "Future Uses of Residual Newborn Blood Spots" in *Jurimetrics*; and "ART for the Masses? Racial and Ethnic Inequality in Assisted Reproductive Technologies" in *DePaul Health Law Journal*. Currently, Elster serves on the advisory board of the Chicago Center for Jewish Genetic Disorders. In addition, she served for three years as an ad hoc member of the ABA Coordinating Group on Bioethics and the Law. Elster holds a Bachelor of Arts degree from the University of Illinois at Urbana-Champaign, a law degree from Loyola University School of Law, and a Master of Public Health degree from Boston University School of Public Health.

Rosario Isasi, J.D.

Rosario Isasi, an attorney specializing in health and human rights, is a Postdoctoral Fellow for the Centre de Recherche en Droit Public (CRDP) at the Université de Montréal. Isasi is also a member of the Advisory Board of Global Lawyers and Physicians. She participated in NGO briefings to the United Nations Ad Hoc Committee on an International Convention Against the Reproductive Cloning of Human Beings, and has been an invited speaker and writer throughout North and South America on global policies on the new human genetic technologies. She holds her J.D. from the Pontifical Catholic University of Peru, where she served as a health law counselor, and she received her master's of public health from Boston University.

Henk Jochemsen, Ph.D.

Henk Jochemsen is the Lindeboom Chair for Medical Ethics at the Free University in Amsterdam and has coordinated research at the Institute for Culture Ethics at Amersfoort. He is: a member of the ethics commission of the Federation of Associations of Patients with Congenital Diseases; advisor to other organizations in health care in the Netherlands; an Advisory Board member of the Center for Bioethics and Human Dignity at Trinity International University in Bannockburn, Illinois; and a member of the European Editorial Board of *Ethics and Medicine*. Previously, Jochemsen held the chair in Molecular Biology at the National University in Asunción for five years. Jochemsen studied molecular biology at the Agricultural University in Wageningen, and earned his Ph.D. from State University in Leiden.

Christina Bieber Lake, Ph.D.

Christina Bieber Lake is Associate Professor of English at Wheaton College, in Wheaton, Illinois, and author of *The Incarnational Art of Flannery O'Connor*. Her primary interests lie in contemporary American literature, African American literature, and Southern literature. As a part of her research, she has been investigating fiction's response to posthumanism. She holds a Ph.D. in English from Emory University, a master's degree in English from Emory University, and a bachelor of arts in English from Princeton University.

Katrina Sifferd, J.D., Ph.D.

Katrina Sifferd is Pre-Law Director and Faculty at Elmhurst College, located in Elmhurst, Illinois. Previously, she was the Rockefeller Fellow in Law and Public Policy and Visiting Professor in philosophy at Dartmouth College. Her research examines the intersection of science and public policy, especially criminal justice policy. Prior to earning her Ph.D., she worked as a senior research analyst on projects for the National Institute of Justice. She holds a Ph.D. in philosophy and a master's degree in philosophy of psychology from the University of London. She also holds a J.D. from DePaul University, and a B.A. in psychology from Valparaiso University.

Tina Stevens, Ph.D.

Tina Stevens lectures in history at San Francisco State University, and is a visiting scholar at UC Berkeley's Center for the Study of Law and Society. Stevens has been: a visiting scholar at Anglia Polytechnic University, Cambridge, England; and a consultant for the Judicial Council of California/Administrative Office of the Courts, and the National Center for State Courts, both located in San Francisco. Her book, *Bioethics in America: Origins and Cultural Politics* (Johns Hopkins University Press, paperback, 2003) was nominated for both the Frederick Jackson Turner Book Prize in American History and the History of Science in America Book Prize. Stevens received her Ph.D. from the University of California at Berkeley where she was a Mellon Dissertation Fellow and received the Distinguished Teaching Assistant Award for outstanding teaching. In addition to her doctorate, she holds a master's degree in jurisprudence and social policy from UC Berkeley's Boalt Hall School of Law, where she specialized in law, medicine, and society. She earned her bachelor degree, *magna cum laude*, from the University of San Francisco.

Brent Waters, D.Phil.

Brent Waters is Director of the Jerre L. and Mary Joy Stead Center for Ethics and Values, and Associate Professor of Christian Social Ethics at Garrett-Evangelical Theological Seminary in Evanston, Illinois. He is also the author of *From Human to Posthuman: Christian Theology and Technology in a Postmodern World* (forthcoming), *Reproductive Technology: Towards a Theology of Procreative Stewardship*, *Dying and Death: A Resource for Christian Reflection*, and *Pastoral Genetics: Theology and Care at the Beginning of Life* (with co-author Ronald Cole-Turner), and editor of *God and the Embryo: Religious Voices on Stem Cells and Cloning* (with co-editor Ronald Cole-Turner). In addition, Waters has written numerous articles and lectured extensively on the relationship among theology, ethics and technology. Previously, Waters served as Director of the Center for Business, Religion and Public Life, Pittsburgh Theological

Seminary. He is a graduate of the University of Redlands (B.A.), School of Theology at Claremont (M.Div., D.Min.), and the University of Oxford (D.Phil.).

Co-founder:

Lori B. Andrews, J.D.

Lori B. Andrews is a distinguished professor of law at Chicago-Kent College of Law and Director of the Illinois Institute of Technology's Institute for Science, Law and Technology. She has been an advisor on genetic and reproductive technology to Congress, the World Health Organization, the National Institutes of Health, the Centers for Disease Control and Prevention, the U.S. Department of Health and Human Services, the Institute of Medicine of the National Academy of Sciences, and several foreign nations, including the Emirate of Dubai and the French National Assembly. She served as chair of the federal Working Group on the Ethical, Legal, and Social Implications of the Human Genome Project. In addition, she recently served as a consultant to the science ministers of 12 countries on the issues of embryonic stem cells, gene patents, and DNA banking. She is the author of ten books, including, *Genetics: Ethics, Law and Policy* (West Publishing, 2002) (with Mark Rothstein and Maxwell Mehlman); *The Clone Age* (2000); *The Body Bazaar: The Market for Human Tissue in the Biotechnology Age* (co-authored with Dorothy Nelkin, 2001); and *Future Perfect: Confronting Decisions About Genetics* (2001). Andrews has also authored more than 100 articles on genetics, alternative modes of reproduction, and biotechnology. She received her B.A. summa cum laude from Yale College and her J.D. from Yale Law School.