

*The National Academies of*  
SCIENCES • ENGINEERING • MEDICINE

**Research and Innovation in an Age of Regulation:  
The Case of Xenotransplantation**

**The Second Annual CSTL Science and Law Lecture**

**March 23, 2022**

**AGENDA**

12:30 PM*	<b>Welcome</b>
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CSTL Co-Chairs: **David Baltimore,\*\*** California Institute of Technology  
**David S. Tatel,\*\*** U.S. Court of Appeals for the District of Columbia  
Circuit

12:35 PM	<b>Second Annual CSTL Science and Law Lecture</b>  <b>Research and Innovation in an Age of Regulation: The Case of Xenotransplantation</b>
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Moderator: **David S. Tatel,\*\*** U.S. Court of Appeals for the District of Columbia  
Circuit

Speaker: **Martine Rothblatt,** United Therapeutics

Commentator: **Alta Charo,** University of Wisconsin at Madison

12:55 PM	<b>Discussion</b>
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1:30 PM	<b>Adjourn</b>
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**PANELIST BIOGRAPHIES**

**David Baltimore** (NAS/NAM), Ph.D. is President Emeritus and Distinguished Professor of Biology at the California Institute of Technology (1997-2006), is President Emeritus and the Robert Andrews Millikan Professor of Biology and is one of the world's most influential biologists. He has contributed widely to the understanding of cancer, AIDS and the molecular basis of the human body's immune response and has profoundly influenced national science policy on such issues as the AIDS epidemic and research in genetic engineering. In 1975 he was awarded the Nobel Prize in Physiology or Medicine for his research into viral replication that provided the key to understanding the life cycle of retroviruses. His present research focuses on control of

inflammatory and immune responses as well as on the use of gene therapy methods to treat HIV and cancer in a program called "Engineering Immunity". In addition, he co-directs the Joint Center for Translational Medicine, an activity that joins Caltech and UCLA in a program to translate basic science discoveries into clinical realities.

Dr. Baltimore has played an important role in the development of American biotechnology since his involvement in the 1970's in the formation of Collaborative Genetics. He helped found other companies, most recently Calimmune and Immune Design and presently serves on the Board of Directors at several companies and non-profits including the Broad Foundation and the Broad Institute, and Amgen and Regulus Therapeutics. He is a scientific advisor to the Ragon Institute and the biotech company Pacific Biosciences. He is a Science Partner to the venture capital firm The Column Group and until recently, was a Director of the Swiss investment company BB Biotech. He is past-Chair of the American Association of the Advancement of Science and was most recently named Riken Honorary Fellow. He is the 1999 recipient of the National Medal of Science and he has published more than 650 peer-reviewed articles.

**Alta Charo, J.D., (NAM)** is Professor Emerita of Law and Bioethics at the University of Wisconsin at Madison and a freelance consultant to biotech companies.

Professor Charo (B.A. biology, Harvard 1979; J.D. Columbia, 1982) is an elected member (2004) of the World Technology Network and (2005) the Wisconsin Academy of Sciences, Arts and Letters. And in 2006 she was elected to membership in the National Academy of Medicine.

An alumna of CSTL (2014-2019), Professor Charo has served on several expert advisory boards of organizations with an interest in stem cell research, including CuresNow, the Juvenile Diabetes Research Foundation, the International Society for Stem Cell Research and WiCell, as well as on the advisory board to the Wisconsin Stem Cell Research Program. From 2005-2009 she was a member of the ethics standards working group of the California Institute for Regenerative Medicine. Also in 2005, she helped to draft the National Academies' Guidelines for Embryonic Stem Cell Research, and in 2006 she was appointed to co-chair the National Academies' Human Embryonic Stem Cell Research Advisory Committee. In 2020 and 2021 she served on the National Academies' Committee on Ethical, Legal, and Regulatory Issues Associated with Neural Chimeras and Organoids.

**Martine Rothblatt, Ph.D.** is Chairman and Chief Executive Officer of United Therapeutics. Dr. Rothblatt founded United Therapeutics in 1996 and has served as Chairman and Chief Executive Officer since the inception of the company. Prior to creating United Therapeutics, Dr. Rothblatt founded and served as chairman and chief executive officer of Sirius Satellite Radio and was principally responsible for several other unique applications of satellite communications technology. She also represented the radio astronomy interests of the National Academy of Sciences' Committee on Radio Frequencies before the Federal Communications Commission. On behalf of the International Bar Association, she led efforts to present the United Nations with a draft Human Genome Treaty. She moved to biotechnology from satellite technology and started United Therapeutics to find a cure or better treatment for the pulmonary hypertension that affects one of her daughters. Dr. Rothblatt received a combined law and Master of Business Administration degree from the University of California, Los Angeles. She earned her Ph.D. in medical ethics from the Royal London School of Medicine and Dentistry, Queen Mary College, University of London. Her book, "Your Life or Mine: How Geoethics Can Resolve the Conflict Between Public and Private Interests in Xenotransplantation," was published by Ashgate in 2004. She was elected a member of the American Philosophical Society in 2008.

**David S. Tatel**, J.D., was appointed to the United States Court of Appeals for the District of Columbia Circuit in October 1994. Judge Tatel earned his undergraduate degree from the University of Michigan and his J.D. from the University of Chicago. Among other things, he has served as Director of the National Lawyers' Committee for Civil Rights Under Law and Director of the Office for Civil Rights of the U.S. Department of Health, Education and Welfare during the Carter Administration. Returning to private practice in 1979, Judge Tatel joined Hogan & Hartson, where he founded and headed the firm's education practice until his appointment by President Clinton to the D.C. Circuit. Judge Tatel currently co-chairs the National Academy of Sciences, Engineering, and Medicine's Committee on Science, Technology, and Law and serves on the board of Associated Universities, Inc. Judge Tatel is a member of the American Philosophical Society and the American Academy of Arts and Sciences.

**\*All times U.S. Eastern**

**\*\*Member of the Committee on Science, Technology, and Law**