# TAB D

### ROBERT SAMUEL LANGER

Curriculum Vitae

### DATE & PLACE OF BIRTH August 29, 1948, Albany, New York

### **EDUCATION**

1974 Sc.D., Chemical Engineering, MIT

1970 B.S. (with distinction) Chemical Engineering, Cornell University

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AWARD	
2015	Queen Elizabeth Prize for Engineering
2015	Scheele Award (Swedish Pharmaceutical Society)
2015	Honorary Degree, Hanyang University (South Korea)
2015	Honorary Degree, University of New South Wales (Australia)
2014	Kyoto Prize in Advanced Technology
2014	Breakthrough Prize in Life Sciences
2014	Biotechnology Heritage Award (Chemical Heritage Foundation)
2014	Chemical Pioneer Award (American Institute of Chemists)
2014	Honorary Degree, Drexel University
2014	Honorary Degree, University of Western Ontario (Canada)
2014	ETH Zurich Chemical Engineering Medal
2014	Elected a Foreign Corresponding Member of the Austrian Academy of Sciences
2014	Mack Memorial Award (Ohio State University)
2013	Wolf Prize in Chemistry
2013	United States National Medal of Technology and Innovation (for 2011)
2013	RUSNANOPRIZE International Prize in Nanotechnology
2013	Fellow, American Association for the Advancement of Science
2013	Distinguished Investigator Award (American College of Clinical Pharmacology)
2013	Honorary Fellow Award (American College of Clinical Pharmacology)
2013	Honorary Degree (Boston University)
2013	Honorary Degree (Tel Aviv University)
2013	Honorary Degree (Ben Gurion University)
2013	Julio Palmaz Award for Innovation in Healthcare and the Biosciences (BioMed SA)
2013	Industrial Research Institute Medal
2013	IEEE Medal for Innovations in Healthcare Technology
2013	Founders Award (Society of Biomaterials)
2013	MDEA Lifetime Achievement Award
2012	Scientist of the Year (R&D Magazine)
2012	Elected to National Academy of Inventors (Charter Fellow)
2012	Priestley Medal (American Chemical Society)
2012	Perkin Medal (Chemical Heritage Foundation)
2012	Terumo International Prize (Japan)
2012	Wilhelm Exner Medal (Austria)
2012	Fellow, American Institute of Chemical Engineers
2012	Feodor Lynen Award (Nature Biotechnology)
2011	Economist Innovation Award for Bioscience
2011	Warren Alpert Foundation Prize (Warren Alpert Foundation/Harvard Medical School)
2011	Walker Prize (Boston Museum of Science)
2011	Apple Award (American Spinal Injury Association/Shepherd Center/Thomas Land Publishers
2011	Honorary Degree (Bates College)
2011	

Frontier of Science Award (Society of Cosmetic Chemists)

Elected International Fellow (Royal Academy of Engineering)

Fellow (American Chemical Society)



2011

2011

2010

Inc.)

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- 2010 Honorary Degree (Rensselaer Polytechnic Institute)
- 2010 Honorary Degree (Willamette University)
- 2010 Robert Flectcher Award (Thayer School of Engineering, Dartmouth College)
- 2010 EMBS Academic Career Achievement Award (IEEE Engineering in Medicine and Biology Society)
- Elected to the Controlled Release Society College of Fellows
- Founding POLY Fellow (Division of Polymer Chemistry, American Chemical Society)
- 2009 Honorary Degree (Harvard University)
- 2009 University of California at San Francisco (UCSF) Medal
- 2009 Honorary Degree (Mount Sinai School of Medicine)
- 2009 Distinguished Chemist Award (New England Institute of Chemists)
- 2009 Biomedical Research Leaders Award (Massachusetts Society for Medical Research)
- 2008 Millennium Technology Prize
- 2008 Max Planck Research Award
- 2008 Prince of Asturias Award for Technical and Scientific Research
- 2008 Elected Foreign Academic Member (Royal Academy of Pharmacy of Spain)
- 2008 Founders Award (American Institute for Chemical Engineers)
- 2008 Innovation in Health and Technology Award (Boston History and Innovation Collaborative)
- 2008 Acta Biomaterialia Gold Medal (Acta Materialia)
- Named one of the 100 Top Chemical Engineers of the 20<sup>th</sup> Century (AIChE)
- 2007 United States National Medal of Science (for 2006)
- 2007 Chemistry of Materials Award (American Chemical Society)
- 2007 Herman F. Mark Award (American Chemical Society, Polymer Chemistry Division)
- 2007 Honorary Doctorate (Yale University)
- Wenig Memorial Award for Outstanding Achievement in Drug Delivery
- First Prize of Scientific Award (BMW Group)
- 2007 Elected to the Biotechnology Hall of Fame
- 2006 Elected to the National Inventors Hall of Fame
- 2006 Honorary Doctorate (Northwestern University)
- 2006 Honorary Doctorate/Commencement Address (Albany Medical College)
- 2006 Bailey Award (American Institute of Chemical Engineers)
- 2005 Von Hippel Award (Materials Research Society)
- 2005 Albany Medical Center Prize in Medicine and Biomedical Research
- 2005 Dan David Prize (Materials Science)
- 2005 Honorary Doctorate (Uppsala University)
- 2005 Honorary Doctorate/Commencement Address (Pennsylvania State University)
- 2005 Honorary Doctorate (University of Nottingham)
- 2005 Lifetime Achievement Award (Society for *In Vitro* Biology)
- 2005 Rainer Hoffmann Product through Science Award (Controlled Release Society)
- 2005 Technology Innovation and Development Award (Society of Biomaterials)
- 2005 Washington Award (Western Society of Engineers)
- 2004 Charles F. Kettering Prize (General Motors Cancer Research Foundation)
- Nelson Taylor Award (Pennsylvania State University)
- 2003 Heinz Award for Technology, Economy and Employment
- 2003 Harvey Prize in Science and Technology and Human Health
- John Fritz Medal (American Association of Engineering Societies)
- 2003 Elected to the Academy of Achievement (Golden Plate Award)
- 2003 Honorary Doctorate (University of Liverpool, England)
- 2002 Dickson Prize for Science (Carnegie Mellon University)
- 2002 Charles Stark Draper Award (National Academy of Engineering)
- 2002 Othmer Gold Medal (Chemical Heritage Foundation)
- Nagai Innovation Award (Controlled Release Society)
- 2002 Honorary Doctorate (Hebrew University of Jerusalem)
- Herman Schwan Award (University of Pennsylvania)
- 2001 Harrison Howe Award (American Chemical Society)



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- 2000 Honorary Doctorate (The Catholic University of Louvain, Belgium)
- 2000 Glaxo Wellcome International Achievement Award (Royal Pharmaceutical Society of Great Britain)
- 2000 Millennial Pharmaceutical Scientist Award (Millennial World Congress of Pharmaceutical Sciences)
- 2000 First Pierre Galletti Award (American Institute of Medicine & Biological Engineering)
- 2000 Wallace Carothers Award (American Chemical Society, Delaware Section)
- 1999 American Chemical Society Award in Polymer Chemistry
- 1999 Esselen Award (American Chemical Society, Northeast Section)
- 1999 Ebert Prize (American Pharmaceutical Association)
- 1999 G.N. Lewis Medal (University of California at Berkeley)
- 1998 Outstanding Pharmaceutical Paper Award (Controlled Release Society)
- 1998 Lemelson-MIT Prize for Invention and Innovation
- 1998 The Nagai Foundation Tokyo International Prize
- 1997 Killian Faculty Achievement Award (MIT)
- 1997 Wiley Medal (U.S. Food and Drug Administration)
- 1997 Honorary Doctorate (The Technion Israel)
- 1996 Gairdner Foundation International Award
- 1996 Honorary Doctorate (Eidgenossische Technische Hochschule-ETH, Switzerland)
- 1996 William Walker Award (American Institute of Chemical Engineers)
- 1996 Society of Plastics Engineers International Award
- 1996 Ebert Prize (American Pharmaceutical Association)
- 1996 Elected a Fellow of Biomaterials Science and Engineering
- 1996 Avis Distinguished Visiting Professor (University of Tennessee)
- 1995 International John W. Hyatt Service to Mankind Award (Society of Plastics Engineers)
- 1995 Ebert Prize (American Pharmaceutical Association)
- 1995 Elected a Fellow (American Association of Pharmaceutical Scientists)
- 1995 PEL Associates Award (PEL Associates, Groton, Connecticut)
- 1994 Elected to the American Academy of Arts and Sciences
- 1994 Elected a Fellow, Society of Biomaterials
- 1993 Distinguished Pharmac. Scientist Award (Highest Honor of the Amer. Assoc. of Pharm. Scient.)
- 1992 Elected to the National Academy of Sciences
- 1992 Elected to the National Academy of Engineering
- American Chemical Society Award for Applied Polymer Science (Phillips Award)
- 1992 Elected a Founding Fellow, American Institute of Medical and Biological Engineering
- Outstanding Pharmaceutical Paper Award (Controlled Release Society)
- 1992 Perlman Memorial Award (American Chemical Society, Biochemical Technology Division)
- 1991 Organon Teknika Award (European Society for Artificial Organs)
- 1991 Charles M.A. Stine Award in Materials Science and Eng. (American Institute of Chemical Engineers)
- 1990 Professional Progress Award (American Institute of Chemical Engineers)
- 1990 Clemson Award for Basic Research (Society for Biomaterials)
- Outstanding Pharmaceutical Paper Award (Controlled Release Society)
- 1989 Elected to the Institute of Medicine of the National Academy of Sciences
- 1989 Creative Polymer Chemistry Award (American Chemical Society, Polymer Division)
- Outstanding patent in Massachusetts and one of the twenty outstanding patents in the U.S. (Intellectual Property Owners, Inc.)
- 1989 Founders Award for Outstanding Research (Controlled Release Society)
- 1988 Elected to the Gordon Conference Research Council
- 1988 Elected Chairman, Gordon Conference on Drug Carriers in Biology and Medicine
- Food, Pharmaceutical and Bioengineering Award (American Institute of Chemical Engineers)
- 1983 Outstanding Paper, Institute of Electrical and Electronic Engineering
- Paper Listed as One of the Outstanding Papers of the Year, CHEMTECH
- 1982 Recipient of the first Dorothy W. Poitras Chair, MIT
- 1982 Outstanding Teacher Award, MIT Graduate Student Council



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#### NAMED LECTURES Ørsted Lecturer (University of Copenhagen) 2015 Eli Ruckenstein Lecturer (University at Buffalo, State University of New York) 2015 2015 Lerner Lecturer (Cleveland Clinic) Barre Lecturer (University of Montreal) 2015 Amundson Lecturer (University of Houston) 2015 2015 Irving Shain Lecturer (University of Wisconsin – Madison) 2014 Lindahl Lecturer (Napa Pain Institute) 2014 Pittcon Lecturer/Analytical Seminar Series (University of Pittsburgh) Novartis/Drug Discovery Institute Lecturer (University of California – San Diego) 2014 2014 Commencement Address (University of Western Ontario) Commencement Address (Drexel University) 2014 Darsh Wasan Lecturer (Illinois Institute of Technology) 2014 52<sup>nd</sup> Robbins Lecture Series Lecturer (Pomona College) 2014 George S. Hammond Lecturer (Bates College) 2014 2014 Edward Mack, J. Memorial Award Lecturer (Ohio State University) Axalta Lecturer (University of Pennsylvania) 2013 2013 Inaugural Thomas H. Chilton Lecturer (DuPont Central Research and Development) BC<sup>2</sup> Annual Lecturer (Wellesley College) 2013 2013 Warren L. McCabe Lecturer (North Carolina State University) 2013 Commencement Address (Boston University School of Engineering) 2013 Lucas Lecturer (Colorado School of Mines) Reed Izatt and James Christensen Lecturer (Brigham Young University) 2013 Prof. Dame Julia Polak Inaugural Lecturer (Imperial College) 2013 Gladstone Distinguished Lecturer (Gladstone Institutes/University of California-San Francisco) 2012 Eliahu Caspi Memorial Lecturer (University of Massachusetts Medical School) 2012 2012 Kavli Foundation Innovation in Chemistry Lecturer (American Chemical Society) Commencement Address (Johns Hopkins Business School) 2011 2011 Commencement Address (University of California Berkeley School of Chemistry) 2011 Commencement Address (Bates College) 2011 Class Day Speech (EPFL, Switzerland) 2011 Kroc Lectureship (Joslin Diabetes Center) 2011 Knight Lectureships (University of Akron) Bullard Lectureship (Uniformed Services University) 2011 2011 Dean's Lecturer (University of Maryland) Herman S. Bloch Memorial Lecture (University of Chicago) 2010 Investiture Lecturer (Thayer School of Engineering, Dartmouth College) 2010 Judah M. Folkman Lecturer (Children's Hospital, Boston) 2010 Allan S. Hoffman Lecturer (University of Washington) 2010 2010 Storer Life Sciences Lecturer (University of California, Davis) Dohlman Visiting Professorship Lecturer (Massachusetts Eye and Ear Institute) 2010 2009 Cecil Brown Lecturer (American Chemical Society) Melvin L. Samuels Lecturer (University of Texas MD Anderson Cancer Center) 2009 2008 Isadore Rosenberg Lecturer (Metrowest Medical Center) Invitrogen Lecturer (University of California, San Diego) 2008 2008 Rohm and Hass Lecturer (University of California Berkeley) Findling Lecturer (Mayo Clinic) 2007 W.M. Keck Distinguished Lecturer (Lehigh University) 2007 Alexander Rich Lecturer (Massachusetts Institute of Technology) 2007 William Shucart Lecturer (Tufts University) 2007 Ford Lecturer (Case Western University) 2007 2006 Commencement Address (Albany Medical College)

Distinguished Lecturer (University of Pennsylvania School of Medicine)

Weiss Lecturer (Northeastern University)

2006

2006

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