

Eric Steven Lander

TITLE

President & Founding Director, The Eli and Edythe L. Broad Institute of MIT and Harvard
Professor, Department of Biology, Massachusetts Institute of Technology
Professor, Department of Systems Biology, Harvard Medical School

OFFICE

Broad Institute
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HOME

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DATE OF BIRTH

February 3, 1957
Brooklyn, New York

CITIZENSHIP

United States

EDUCATION

Princeton University, Princeton, New Jersey, 1974–1978
A.B. with highest honors in Mathematics, June 1978
Oxford University, Oxford, England, 1978–1981
D. Phil. in Mathematics, January 1981

FACULTY APPOINTMENTS (CURRENT)

The Eli and Edythe L. Broad Institute of MIT and Harvard
President and Founding Director, 2003–present

Massachusetts Institute of Technology, Department of Biology
Professor, 1993–present
Associate Professor (with tenure), 1989–1993
Visiting Scientist, 1984–1989

Harvard Medical School, Department of Systems Biology
Professor, 2004–present

FACULTY APPOINTMENTS (PAST)

Whitehead Institute for Biomedical Research

Director, Whitehead/MIT Center for Genome Research, 1990–2003

Member, 1989–2008

Whitehead Fellow, 1986–1989

Harvard University, Graduate School of Business

Associate Professor, 1987–1990

Assistant Professor, 1981–1986

- Taught courses on mathematics, statistics and economics; developed new courses on bidding and bargaining; artificial intelligence; and science-based businesses.
- During this period learned molecular biology and genetics in laboratories of Peter Cherbas and William Gelbart at Harvard, and H. Robert Horvitz, David Botstein and David Page at MIT.

SUMMER COURSES

The Jackson Laboratory, Bar Harbor, Maine

Short Course in Medical and Mammalian Genetics,

Lecturer, Summer 1987, 1989, 1990

Cold Spring Harbor Laboratory, Cold Spring Harbor, New York

Genetic Approaches to Human Disease Using DNA Markers

Course Co-organizer, Summer 1989, 1990, 1991

Hampshire College Summer Studies in Mathematics, Amherst, Massachusetts

National Science Foundation program for exceptional high school students,

Faculty, Summer 1975, 1976, 1979

MENTORING

Mentored more than 100 scientists, many who have gone on to become faculty at leading universities, research centers, and hospitals (including Harvard, Caltech, Princeton, Massachusetts General Hospital, Brigham and Women's Hospital, Dana-Farber Cancer Institute, Boston Children's Hospital, Fred Hutchinson Cancer Institute, Baylor College of Medicine, Weizmann Institute, Hebrew University of Jerusalem, US National Institutes of Health) and biotechnology and pharmaceutical companies.

HONORARY DOCTORATES

Ben-Gurion University of the Negev, Israel, Honorary Doctorate, 2017

Université catholique de Louvain, Belgium, Honorary Doctorate, 2017

Brandeis University, Honorary Doctorate, 2014

Worcester Polytechnic Institute, Honorary Doctorate and Commencement Speaker, 2013

Columbia University, Honorary Doctorate, 2008

Lund University, Sweden, Honorary Doctorate, 2007

Northeastern University, Honorary Doctorate and Commencement Speaker, 2005

University of Massachusetts at Lowell, Honorary Doctorate, 2005

Williams College, Honorary Doctorate and Commencement Speaker, 2003

Mount Sinai School of Medicine, Honorary Doctorate, 2001

Medical College of Wisconsin, Honorary Doctorate, 2001

Tel Aviv University, Honorary Doctorate, 2000

ELECTED ACADEMIES

Council on Foreign Relations, 2014

Royal Swedish Academy of Sciences, Class of Biosciences, 2013

European Molecular Biology Organization, 2012

Academy of Athens, 2009

U.S. Institute of Medicine, 1999

American Academy of Arts and Sciences, 1999

American Academy of Achievement, 1999

U.S. National Academy of Sciences, 1997

AWARDS AND PRIZES (SELECTED)

Association for Molecular Pathology (AMP) Award for Excellence in Molecular Diagnostics, 2016

Friends of Cancer Research Leadership Award, 2016

“for pioneering research unlocking the molecular origins of cancer, leadership guiding our nation’s scientific priorities, and dedication to empowering a new generation of researchers to accelerate biomedical advancements”

James R. Killian, Jr. Faculty Achievement Award, MIT, 2016

“for extraordinary professional achievements by an MIT faculty member”

Fellow, American Association for Cancer Research Academy, 2016

AAAS Philip Hauge Abelson Prize, 2015

“for signal contributions to the advancement of science in the United States”

Han-Mo Koo Memorial Award, Van Andel Institute, 2015

Time Magazine’s 10 years of Influence, 2013

Block Memorial Award for Distinguished Achievement in Cancer Research, Ohio State University, 2013

Breakthrough Prize in Life Sciences, 2013

“For the discovery of general principles for identifying human disease genes, and enabling their application to medicine through the creation and analysis of genetic, physical and sequence maps of the human genome.”

Harvey Prize for Human Health, Technion University, Israel, 2012

“In recognition of his significant contributions to the field of genomics, as the driving force behind most of the major advances in this field.”

Dan David Prize, Genome Research, Tel Aviv University, Israel, 2012

“For the Future Dimension - Genome Research”

Dart/NYU Biotechnology Achievement Award, 2012

Albany Prize in Medicine and Biomedical Research, Albany Medical College, 2010

New York Academy of Medicine Medal for Distinguished Contribution in Biomedical Sciences, 2009

A. Clifford Barger Excellence in Mentoring Award, Harvard Medical School, 2008-2009

US News & World Report "America's Best Leaders," 2006

Reenpaa Medal, Finnish Cultural Foundation, 2006

AAAS Award for Public Understanding of Science and Technology, 2004

"for his excellence in communicating complex scientific ideas, and their implications for society, to the general public and policy-makers, while actively engaged in a demanding and aggressive research program."

Research!America Award for Sustained Leadership at the National Level, 2004

Lila Gruber Cancer Award, American Academy of Dermatology, 2004

Time Magazine, List of "100 Most Influential People in the World Today," 2004

Josiah Willard Gibbs Prize Lecturer, American Mathematical Society, 2004

American Scientist of the Year Award, R&D Magazine, 2003

Scientist of the Year Award, National Disease Research Interchange, 2003

Alfred Benzon Foundation Prize, Denmark, 2002

Gairdner Foundation International Award, Canada, 2002

"for his major seminal contribution to the sequencing of the human and other genomes"

John von Neumann Award, Society for Industrial and Applied Mathematics, Philadelphia, 2002

Special Achievement Award, Miami Nature Biotechnology Winter Symposium, 2002

City of Medicine Award, 2001, with John Sulston and Robert Waterston

Max Delbruck Medal, Berlin, 2001

J. Allyn Taylor Prize, Canada, 2001

Novartis Drew Award in Biomedical Research, 2001

Distinguished Service Award, American College of Neuropsychopharmacology, 2001

Allen Award, American Society of Human Genetics, 2000

"to the community of scientists that carried out the Human Genome Project", accepted on behalf of community, together with Francis Collins and Craig Venter

Beckman Prize, American Association for Lab Automation, 2000

Millennium Lecturer, The White House, October 1999

Pasarow Prize in Cancer, Robert J. and Claire Pasarow Foundation, 1998

Chiron Prize for Biotechnology, American Society for Microbiology, 1998

Phi Beta Kappa Associates Award, 1998

"for outstanding work as a scientist"

Woodrow Wilson Award for Public Service, Princeton University, 1998

“the university's highest award to an alumnus of the undergraduate college”

American Academy of Microbiology, elected 1997

Dickson Prize in Medicine, University of Pittsburgh, 1997

Class of 1960 Fellows Award, Massachusetts Institute of Technology, 1996

“for outstanding teaching”

Kroc Distinguished Lecturer, University of Washington, Seattle, 1996

Rhoads Memorial Award, American Association for Cancer Research, 1995

“for excellence in cancer research”

Herman Beerman Lecturer, Society for Investigative Dermatology, 1995

Herbert Boyer Lecturer in Genetics, University of California at San Francisco, 1995

Gladstone Distinguished Lecturer, Gladstone Institute, 1994

Ralph R. Braund Distinguished Visiting Professor, University of Tennessee, 1994

Herbert W. Dickerman Award, New York Department of Health, 1993

Christian A. Herter Distinguished Lecturer, New York University, 1993

Baker Memorial Prize for Excellence in Undergraduate Teaching, MIT, 1992

Fellow, American Association for the Advancement of Science, 1990

“for research on the application of mathematical and statistical approaches to molecular genetics”

MacArthur Prize Fellow, *for research in human genetics and mathematics*, 1987–1992

Rhodes Scholar, 1978–1981

Johnson Memorial Bequest, Oxford University, *for best thesis in mathematics*, June 1981

Senior Prize, Oxford University, June 1981

Valedictorian, Princeton University, June 1978

Pyne Prize, Princeton University, February 1978

“the highest award the university confers upon an undergraduate”

Phi Beta Kappa Award, Princeton University, June 1978

“for highest academic achievement”

Class of 1863 Prize and Andrew Brown Prize in Mathematics, Princeton University, 1976, 1977

U.S. Mathematical Olympiad Team, Silver Medal, 16th International Mathematical Olympiad, Erfurt, East Germany, 1974

First Place, Westinghouse Science Talent Search, 1974

GOVERNMENT SERVICE (SELECTED)

Defense Innovation Board, Office of the Secretary of Defense: Member, 2016-present

President's Council on Jobs and Competitiveness (President's Jobs Council), Executive Office of the President: Member, 2011-2012

President's Council of Advisors on Science and Technology (PCAST), Executive Office of the President: Co-Chair, 2009-2017

Presidential Commission on the National Medal of Science: Member, 1995–2000

National Institutes of Health: Member, Advisory Committee to the Director, 1995–2000

National Cancer Advisory Board: Member, 2003–2006

National Institute of Mental Health: Member, Genetics Working Group, 1997–1998

National Center for Human Genome Research (NIH): Chair, Genome Research Review Committee, 1990–1994

National Science Foundation: Member, Advisory Committee, Biological and Behavioral Sciences, 1989–1994

National Center for Human Genome Research (NIH): Chair, Ad Hoc Study Section on New Technologies for Genome Analysis, 1989

National Library of Medicine (NIH): Chair, Ad Hoc Study Section on Analysis of Molecular Biology Data, 1988

National Institutes of Health: Chair, Subcommittee on Genetic Information, Advisory Committee on Human Genome Project, 1988

National Heart Lung and Blood Institute (NIH): Member, Special Panel on Applications of Molecular Genetics to Hypertension and Atherosclerosis, 1988

Congressional Office of Technology Assessment: Member, Panel on DNA Forensics, 1989

NON-PROFIT AND ACADEMIC BOARDS (SELECTED)

Parker Institute for Cancer Immunotherapy: Member, Scientific Advisory Board, 2015-present

Global Alliance for Genomics and Health: Member, Strategic Advisory Board, 2014-present

Innocence Project: Member, Board of Directors, 2004-present

Ontario Institute for Cancer Research: Co-Chair, Scientific Advisory Board, 2009-present

Salk Institute for Biological Studies: Non-Resident Fellow, 2010-2016

Ragon Institute: Member, Scientific Advisory Board, 2009-present

Massachusetts General Hospital: Member, Research Advisory Council, 2009-2012

Boston University: Board of Trustees, 2008-2013

International Cancer Genomics Consortium: Member, Scientific Planning Committee, 2007-2008

Institute for Molecular Medicine, Finland: Member, Scientific Advisory Board, 2007–2015

Memorial Sloan Kettering Cancer Center: Member, Board of Scientific Consultants, 2001-2008

American Society of Human Genetics: Member, Board of Directors, 2001–2003

Finnish Genome Center: Member, Scientific Advisory Board, 2000–2006

The Jackson Laboratory: Member, Corporation, 1999–2004

Massachusetts General Hospital: Member, Scientific Advisory Board, 1997–2001

Task Force on Science, Health Care and the Economy: Member, 1997–present
National Heart Lung and Blood Institute: Co-chair, Panel on Genetic Resources, 1996–1997
National Cancer Institute: Co-chair, Developmental Diagnostics Working Group, 1996–1997
Dana-Farber Cancer Institute: Member, Scientific Advisory Board, 1996–2001
Joint Steering Committee for Public Policy: Chair, 1996–2001; Member, 1994–2001
Genetics Society of America: Member, Board of Directors, 1992–1997
The Jackson Laboratory: Member, Scientific Advisory Board, 1992–1997
Human Genome Organization: Governing Council, 1992–1997
National Academy of Sciences: Co-chair, Symposium on Molecular Biology and Computer Science, 1990
National Academy of Sciences: Chair, Committee on Mathematics and Molecular Biology, 1989–1990
National Academy of Sciences: Member, Committee on DNA Technology in Forensic Science, 1990–1993
National Academy of Sciences: Member, Organizing Committee for Symposium on the Frontiers of Science 1990
Princeton University: Member, Board of Trustees, 1987–1991
Princeton University: Member, Advisory Council, Department of Mathematics, 1981–1985

EDITORIAL BOARDS (SELECTED)

Functional and Integrative Genomics, Editorial Board, 1999–2009
Annual Review of Genomics and Human Genetics, Editor, 1999–2005
Physiological Genomics, Editorial Board, 1999–2003
Computational Biology, Editorial Board, 1994–2009
Genetic Analysis: Techniques and Applications, Editorial Board, 1994–1995
Human Mutation, Editorial Board, 1993–1995
Advances in Applied Mathematics, Editorial Board, 1993–1995
Genetic Epidemiology, Editorial Board, 1991–1996
PCR Methods and Applications, Editorial Board, 1991–1995
Current Opinion in Genetics and Development, Editorial Board, 1991–1995
Human Molecular Genetics, Editorial Board, 1991–1995
Mammalian Genome, Editorial Board, 1991–2009
Genomics, Editorial Board, 1986–1999
Theoretical Population Biology, Editorial Board, 1987–1991

CORPORATE BOARDS, CONSULTING AND OTHER (SELECTED)

Codiak Biosciences: Board of Directors, 2015-present

NEON Therapeutics: Board of Directors, 2015-present
F-Prime Capital (formerly Fidelity Biosciences): Scientific Advisory Board, 2010-present
Infinity Pharmaceuticals: Board of Directors, 2001-2016
Third Rock Ventures: Scientific Advisory Board, 2007-present
Foundation Medicine, Founding Advisor, 2010-2014
Millennium Pharmaceuticals: Board of Directors, 1993–2007
Affymetrix: Scientific Advisory Board, 1995–2000
Healthcare Ventures: Member, Scientific Advisory Board, 1990–1995
Arris Pharmaceutical: Scientific Advisory Board, 1990–1997
Medigene: Chair, Scientific Advisory Board, 1990–1994
E. Dupont de Nemours: Consultant, 1988
Thinking Machines Corporation: Consultant, 1990–1994
Collaborative Research: Consultant, 1985–1987
National Broadcasting Company: Consultant on statistics and economics, 1985
Attorney General, State of Hawaii: Consultant on law and economics, 1985
Wyche, Burgess, Freeman & Parham, Atlanta, Georgia: Consultant on bidding and law, 1982
Bell Laboratories: Consultant on mathematics and statistics, 1981
Naeole Associates: Private and public opinion polling and analysis for New Jersey candidates, 1977–1978
Business Week Magazine: Staff reporter (AAAS Mass Media Intern Fellowship for science journalism), 1977

PUBLICATIONS

Web of Science (as of 2019):

Total publications: 572

Citations: 272,560

H-index: 223

Google Scholar (as of 2018):

Citations: 413,175

H-index: 264

BOOK

1. Lander, E.S. (1983). Symmetric designs: an algebraic approach (Vol. 74). New York, NY: Cambridge University Press.

EDITED BOOK

2. Lander, E.S., & Waterman, M.S. (Eds.). (1995). Calculating the secrets of life: Contributions of the mathematical sciences to molecular biology. Washington, DC: National Academy Press.

ARTICLES

Mathematics

3. Lander, E.S. (1981). Symmetric designs and self-dual codes. *Journal of the London Mathematical Society*, 2(2), 193-204.
4. Lander, E.S. (1981). Characterization of biplanes by their automorphism groups. In M. Aigner & D. Jungnickel. (Eds.), *Geometries and groups* (pp. 204-218). Berlin Heidelberg, Germany: Springer-Verlag.
5. Lander, E.S. (1988). Characterizing symmetric designs by their symmetries. *Journal of Algebra*, 113(1), 1-18.
6. Lander, E.S. (1988). Restrictions upon multipliers of an abelian difference set. *Archiv der Mathematik*, 50(3), 241-242.
7. Arratia, R., & Lander, E.S. (1990). The distribution of clusters in random graphs. *Advances in Applied Mathematics*, 11(1), 36-48.
8. Chernoff, H., & Lander, E.S. (1995). Asymptotic distribution of the likelihood ratio test that a mixture of two binomials is a single binomial. *Journal of Statistical Planning and Inference*, 43(1), 19-40.

Economics

9. Farrell, J., & Lander, E.S. (1989). Competition between and within teams: The lifeboat principle. *Economics Letters*, 29(3), 205-208.

Biology

10. Lander, E.S., & Botstein, D. (1986). Consanguinity and heterogeneity: Cystic fibrosis need not be homogeneous in Italy. *American Journal of Human Genetics*, 39(2), 282-283. PMID: 3752091; PMCID: PMC1683934.
11. Lander, E.S., & Botstein, D. (1986). Strategies for studying heterogeneous genetic traits in humans by using a linkage map of restriction fragment length polymorphisms. *Proceedings of the National Academy of Sciences*, 83(19), 7353-7357. PMID: 2876423; PMCID: PMC386715.

12. Lander, E.S., & Botstein, D. (1986). Mapping complex genetic traits in humans: new methods using a complete RFLP linkage map. *Cold Spring Harbor Symposia on Quantitative Biology*, 51(Pt 1), 49-62. PMID: 2884068.
13. Lander, E.S., & Green, P. (1987). Construction of multilocus genetic linkage maps in humans. *Proceedings of the National Academy of Sciences USA*, 84(8), 2363-2367. PMID: 3470801; PMCID: PMC304651.
14. Lander, E.S., & Botstein, D. (1987). Homozygosity mapping: a way to map human recessive traits with the DNA of inbred children. *Science*, 236(4808), 1567-1570. PMID: 2884728.
15. Green, P., Barker, D., Knowlton, R., Schumm, J., Lander, E.S., Oliphant, A., Willard, H., Akots, G., Brown, V., Gravius, T., Helms, C., Nelson, C., Parker, C., Rediker, K., Watt, D., Weiffenbach, B., & Donis-Keller, H. (1987). A genetic linkage map of chromosome 7 including the cystic fibrosis region. In: G. Mastella & P.M. Quinton (Eds.), *Cellular and Molecular Basis of Cystic Fibrosis*. San Francisco, CA: San Francisco Press.
16. Barker, D., Green, P., Knowlton, R., Schumm, J., Lander, E.S., Oliphant, A., Willard, H., Akots, G., Brown, V., Gravius, T., Helms, C., Nelson, C., Parker, C., Rediker, K., Rising, M., Watt, D., Weiffenbach, B., & Donis-Keller, H. (1987). Genetic linkage map of human chromosome 7 with 63 DNA markers. *Proceedings of the National Academy of Sciences USA*, 84(22), 8006-8010. PMID: 2891136; PMCID: PMC299465.
17. Lander, E.S., Green, P., Abrahamson, J., Barlow, A., Daly, M.J., Lincoln, S.E., & Newburg, L. (1987). MAPMAKER: an interactive computer package for constructing primary genetic linkage maps of experimental and natural populations. *Genomics*, 1(2), 174-181. PMID: 3692487.
18. Donis-Keller, H., Green, P., Helms, C., Cartinhour, S., Weiffenbach, B., Stephens, K., Keith, T.P., Bowden, D.W., Smith, D.R., Lander, E.S., Botstein, D., Akots, G., Rediker, K.S., Gravius, T., Brown, V.A., Rising, M.B., Parker, C., Powers, J.A., Watt, D.E., Kauffman, E.R., Bricker, A., Phipps, P., Muller-Kahle, H., Fulton, T.R., Ng, S., Schumm, J.W., Braman, J.C., Knowlton, R.G., Barker, D.F., Crooks, S.M., Lincoln, S., Daly, M.J., & Abrahamson, J. (1987). A genetic linkage map of the human genome. *Cell*, 51(2), 319-337. PMID: 3664638.
19. Lincoln, S.E., & Lander, E.S. (1987). Constructing genetic linkage maps with MAPMAKER: A tutorial and reference manual. *Whitehead Institute Technical Report*, 107.
20. Lander, E.S. (1987). The new human genetics: Mapping inherited diseases. *Princeton Alumni Weekly*, (March 25), 10-16.
21. Lander, E.S., & Waterman, M.S. (1988). Genomic mapping by fingerprinting random clones: a mathematical analysis. *Genomics*, 2(3), 231-239. PMID: 3294162.
22. Chang, C., Bowman, J.L., DeJohn, A.W., Lander, E.S., & Meyerowitz, E.M. (1988). Restriction fragment length polymorphism linkage map for *Arabidopsis thaliana*. *Proceedings of the National Academy of Sciences USA*, 85(18), 6856-6860. PMID: 2901107; PMCID: PMC282077.
23. Dracopoli, N.C., Stanger, B.Z., Ito, C.Y., Call, K.M., Lincoln, S.E., Lander, E.S., Housman, D.E. (1988). A genetic linkage map of 27 loci from PND to FY on the short arm of human chromosome I. *American Journal of Human Genetics*, 43(4), 462-470. PMID: 2902785; PMCID: PMC1715484.
24. Lander, E.S., & Lincoln, S.E. (1988). The appropriate threshold for declaring linkage when allowing sex-specific recombination rates. *American Journal of Human Genetics*, 43(4), 396-400. PMID: 3177382; PMCID: PMC1715500.
25. Paterson, A.H., Lander, E.S., Hewitt, J.D., Peterson, S., Lincoln, S.E., & Tanksley, S.D. (1988). Resolution of quantitative traits into Mendelian factors by using a complete linkage map of restriction fragment length polymorphisms. *Nature*, 335(6192), 721-726. PMID: 2902517.
26. Lander, E.S. (1988). Splitting schizophrenia. *Nature*, 336(6195), 105-106. PMID: 2903447.
27. Lander, E.S. (1988). Mapping complex genetic traits in humans. In: K. Davies (Ed.), *Genome analysis: A practical approach* (pp. 171-188). Oxford: IRL Press.
28. Lander, E.S. (1988). Restriction fragments: Their properties and uses. In: M. Waterman (Ed.), *Mathematical methods for DNA sequences* (pp. 35-52). Boca Raton, FL: CRC Press.

29. Hulbert, S.H., Ilott, T.W., Legg, E.J., Lincoln, S.E., Lander, E.S., & Michelmore, R.W. (1988). Genetic analysis of the fungus, *Bremia lactucae*, using restriction fragment length polymorphisms. *Genetics*, 120(4), 947-958. PMID: 2906309; PMCID: PMC1203586.
30. Lander, E.S., Mesirov, J.P., & Taylor, W.J. (1988). Protein sequence comparison on a data parallel computer. *Proceedings of the 1988 International Conference on Parallel Processing, August 15-19, 1988 / sponsored by Department of Electrical Engineering, Penn State University.*
31. Lander, E.S., & Botstein, D. (1989). Mapping mendelian factors underlying quantitative traits using RFLP linkage maps. *Genetics*, 121(1), 185-199. PMID: 2563713; PMCID: PMC1203601.
32. Pato, C.N., Lander, E.S., & Schulz, S.C. (1989). Prospects for the genetic analysis of schizophrenia. *Schizophrenia Bulletin*, 15(3), 365-372. PMID: 2683037.
33. Lander, E.S. (1989). DNA fingerprinting on trial. *Nature*, 339(6225), 501-505. PMID: 2567496.
34. Lander, E.S. (1989). Population genetic considerations in the forensic use of DNA typing. *Banbury Report*, 32, 143-156.
35. Lander, E.S., & Daly, M.J. (1989). Genetic mapping of the cystic fibrosis region: Multipoint linkage analysis in two-generation pedigrees. In: R.C. Elston, M.A. Spence, S.E. Hodge, & J.W. MacCluer (Eds.), *Genetic Analysis Workshop 6: Multipoint Mapping and Linkage Based upon Affected Pedigree Members*. New York: Alan R. Liss.
36. Lander, E.S., Mesirov, J.P., & Taylor, W.J. (1989). Study of protein sequence comparison metrics on the Connection Machine CM-2. *The Journal of Supercomputing*, 3(4), 255-269.
37. Lander, E.S. (1989). Genetic mapping of polygenic factors causing diabetes in inbred rodent strains. In: *Nordisk Insulin Symposium No. 3: Genes and Gene Products in the Development of Diabetes Mellitus – Basic and Clinical Aspects, Oslo, Norway*. Amsterdam: Elsevier Publishers.
38. Accili, D., Frapier, C., Mosthaf, L., McKeon, C., Elbein, S.C., Permutt, M.A., Ramon, E., Lander, E.S., Ullrich, A., & Taylor, S.I. (1989). A mutation in the insulin receptor gene that impairs transport of the receptor to the plasma membrane and causes insulin-resistant diabetes. *The EMBO Journal*, 8(9), 2509-2517. PMID: 2573522; PMCID: PMC401244.
39. Lander E.S., & Botstein, D. (1989). Accurate and efficient mapping of quantitative trait loci. In: T. Helentjaris & B. Burr (Eds.), *Development and Application of Molecular Markers in Problems in Plant Genetics; Current Communications in Molecular Biology* (pp. 89-96). Cold Spring Harbor, NY: Cold Spring Harbor Press.
40. Jones, R., Taylor, W.J., Zhang, X., Mesirov, J.P., & Lander, E.S. (1990). Protein sequence comparison on the Connection Machine CM-2. In *Computers and DNA: Proceedings of the Interface Between Computation Science and Nucleic Acid Sequencing Workshop, Dec 12-16, 1988*. Redwood City, Calif.: Addison-Wesley Pub. Co.
41. Lander, E.S., & Lodish, H. (1990). Mitochondrial diseases: gene mapping and gene therapy. *Cell*, 61(6), 925-926. PMID: 2190693.
42. Chakravarti, A., & Lander, E.S. (1990). Genetic approaches to the dissection of complex diseases. *Banbury Report*, 33, 307-315.
43. Immerman, N., & Lander, E.S. (1990). Describing graphs: A first-order approach to graph canonization. In A.L. Selman (Ed.), *Complexity Theory Retrospective* (pp. 59-81). New York, NY: Springer-Verlag.
44. Paterson A.H., Lander, E.S., & Tanksley, S.D. (1990). Mapping QTLs affecting agriculturally important traits: Some examples from the tomato. In: J.E. Womack (Ed.), *Mapping the Genomes of Agriculturally Important Animals*. Cold Spring Harbor, NY: Cold Spring Harbor Press.
45. MacMurray, A.J., Weaver, A., Shin, H.S., & Lander, E.S. (1991). An automated method for DNA preparation from thousands of YAC clones. *Nucleic Acids Research*, 19(2), 385-390. PMID: 2014175; PMCID: PMC333606.

46. Paterson, A.H., Damon, S., Hewitt, J.D., Zamir, D., Rabinowitch, H.D., Lincoln, S.E., Lander, E.S., & Tanksley, S.D. (1991). Mendelian factors underlying quantitative traits in tomato: comparison across species, generations, and environments. *Genetics*, 127(1), 181-197. PMID: 1673106; PMCID: PMC1204303.
47. Lander, E.S., & Green, P. (1991). Counting algorithms for linkage: correction to Morton and Collins. *Annals of Human Genetics*, 55(Pt. 1), 33-38. PMID: 2042933.
48. Lander, E.S. (1991). Molecular Biology: The new frontier for computational science. *Very Large Scale Computation in the 21st Century*, 25, 138.
49. Green, P., & Lander, E.S. (1991). Forensic DNA tests and Hardy-Weinberg equilibrium. *Science*, 253(5023), 1038-1039. PMID: 17775346.
50. Lander, E.S. (1991). Research on DNA typing catching up with courtroom application. *American Journal of Human Genetics*, 48(5), 819-823. PMID: 1760000; PMCID: PMC1683053.
51. Lander, E.S. (1991). Research on DNA typing validated in the literature [Reply]. *American Journal of Human Genetics* 49, 899-903.
52. Jacob, H.J., Lindpaintner, K., Lincoln, S.E., Kusumi, K., Bunker, R.K., Mao, Y.P., Ganten, D., Dzau, V.J., & Lander, E.S. (1991). Genetic mapping of a gene causing hypertension in the stroke-prone spontaneously hypertensive rat. *Cell*, 67(1), 213-224. PMID: 1655275.
53. Arratia, R., Lander, E.S., Tavaré, S., & Waterman, M.S. (1991). Genomic mapping by anchoring random clones: A mathematical analysis. *Genomics*, 11(4), 806-827. PMID: 1783390.
54. Lander, E.S., Langridge, R., & Saccocio, D.M. (1991). Computing in molecular biology: mapping and interpreting biological information. *Computer*, 24(11), 6-13.
55. Dietrich, W., Katz, H., Lincoln, S.E., Shin, H.S., Friedman, J., Dracopoli, N.C., & Lander, E.S. (1992). A genetic map of the mouse suitable for typing intraspecific crosses. *Genetics*, 131(2), 423-447. PMID: 1353738; PMCID: PMC1205016.
56. Stuber, C.W., Lincoln, S.E., Wolff, D.W., Helentjaris, T., & Lander, E.S. (1992). Identification of genetic factors contributing to heterosis in a hybrid from two elite maize inbred lines using molecular markers. *Genetics*, 132(3), 823-839. PMID: 1468633; PMCID: PMC1205218.
57. Jacob, H.J., Pettersson, A., Wilson, D., Mao, Y., Lernmark, A., & Lander, E.S. (1992). Genetic dissection of autoimmune type I diabetes in the BB rat. *Nature Genetics*, 2(1), 56-60. PMID: 1303251.
58. Lander, E.S. (1992). DNA fingerprinting: Science, law, and the ultimate identifier. In: D.J. Kevles & L. Hood (Eds.), *The Code of Codes: Scientific and Social Issues in the Human Genome Project* (pp. 191-210). Cambridge, MA: Harvard University Press.
59. Waterman, M.S., Eggert, M., & Lander, E.S. (1992). Parametric sequence comparisons. *Proceedings of the National Academy of Sciences USA*, 89(13), 6090-6093. PMID: 1631095; PMCID: PMC49443.
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