

CURRICULUM VITAE

NAME Leslie Anne Leinwand

DATE OF BIRTH November 18, 1950

CITIZENSHIP U.S.A.

BUS. ADDRESS Molecular, Cellular and Developmental Biology
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EDUCATION

1978 Ph.D. Yale University, New Haven, Connecticut
1970-1972 B.S. Cornell University, Ithaca, New York
1968-1970 Salem College, Winston-Salem, North Carolina

PROFESSIONAL EMPLOYMENT

1995- Professor and Chair, Department of Molecular, Cellular and Developmental Biology, University of Colorado, Boulder, CO

1989-1995 Professor, Departments of Microbiology & Immunology; Genetics; Medicine; Albert Einstein College of Medicine, Bronx, NY

1990- Adjunct Professor, Dept. of Pharmacology, Columbia University College of Physicians & Surgeons, New York, NY

1991-1995 Director, Cardiovascular Research, Albert Einstein and Montefiore Medical Center, Bronx, NY

1987-1989 Associate Professor, Department of Medicine, Albert Einstein College of Medicine, Bronx, NY

1987-1990 Director, Graduate School of the Albert Einstein College of Medicine, Bronx, NY

1987-1995 Scientific Director, Cardiovascular Center, Albert Einstein College of Medicine, Bronx, NY

1987-1995 Director, Section of Molecular Cardiology, Albert Einstein College of Medicine, Bronx, NY

1985-1989 Associate Professor, Depts. of Microbiology & Immunology and Genetics, Albert Einstein College of Medicine, Bronx, NY

1980-1985 Assistant Professor, Dept. of Microbiology & Immunology, Albert Einstein College of Medicine, Bronx, NY

RESEARCH EXPERIENCE

- 1978-1980 Postdoctoral Fellow, Rockefeller University. Research Advisor: Dr. James E. Darnell, Jr. Topic: Organization and expression of interspersed repetitive DNA sequences in the Chinese hamster genome.
- 1973-1977 Ph.D. thesis research, Yale University. Research Advisor: Dr. Frank H. Ruddle. Topic: Regulation of differentiated function in somatic cell hybrids; mouse gene mapping using somatic cell genetics.

TEACHING EXPERIENCE

- 1985, 1986, 1988 Instructor, Physiology course, Woods Hole Marine Biological Laboratory
- 1981-present Gene Expression in Animal Cells, Molecular Biology & Genetics
- 1986-present Molecular Genetics of Human Disease

PROFESSIONAL ACTIVITIES

- 1984-1986 Chairman, NIH Fellowship Study Section BI-3
- 1986-1991 New York Heart Association Research Council
- 1989-1991 Chairman, New York Heart Association Research Committee
- 1990-1994 NIH Molecular Cytology Study Section
- 1991-1992 Chairman, NIH Molecular Cytology Study Section
- 1990-1994 Editorial Board, *Gene Expression*
- 1991- Associate Editor, *Cell Motility and the Cytoskeleton*
- 1991-1999 Associate Editor, *Circulation Research*
- 1998- Editorial Board, *Journal of Cell Biology*
- 1998- Editorial Board, *Cardiovascular Pathology*
- 1999- Editorial Board, *Circulation*
- 1999- Editorial Board, *Circulation Research*
- 1999- Editorial Board, *Journal of Molecular and Cellular Biology*
- 1991-1993 Chairman, New York Heart Association Research Council
- 1992-1995 Board of Directors, New York Heart Association
- 1992 Chairman, Myogenesis Gordon Conference
- 1996- NIH Cell Development & Function Oversight Group
- 1996-1999 Scientific Advisory Committee, Muscular Dystrophy Association
- 1996-1998 Chair, Basic Science Council, American Heart Association
- 1997 Chair, Keystone Muscle Development Symposium
- 1997-2000 Recombinant DNA Advisory Committee (RAC), NIH
- 1999-2001 NIH, GM Advisory Council
- 1999-2002 External Advisory Board, Univ. of Cincinnati, MD-Ph.D. Program
- 1999- Keystone Symposia Board of Directors
- 1999- Basic Science Committee, American Heart Association

HONORS AND AWARDS

- 1993-2003 NHLBI MERIT Award
1989-1993 Irma T. Hirschl Scholar Award
1984-1989 American Heart Association Established Investigator
1978-1979 Damon Runyon-Walter Winchell Postdoctoral Fellow

PUBLICATIONS

1. **Leinwand, L.A.** and F.H. Ruddle. (1977) Stimulation of *in vitro* translation of messenger RNA by actinomycin D and cordycepin. *Science* 197:381-383.
2. **Leinwand, L.A.**, C.A. Kozak and F.H. Ruddle. (1978) Assignment of the gene for tripeptidase-1 to chromosome 10 and triose phosphate isomerase to chromosome 6 in *Mus musculus* by somatic cell hybridization. *Somatic Cell Genetics* 4:233-240.
3. **Leinwand, L.A.**, R.E.K. Fournier, E.A. Nichols and F.H. Ruddle. (1978) Assignment of the Gene for adenosin Kinase to mouse chromosome 14 by somatic cell hybridization. *Cytogenet. and Cell Genet.* 21:77-85.
4. **Leinwand, L.A.** and F.H. Ruddle. (1978) Assignment of the gene for dipeptidase-2 to *Mus musculus* chromosome 18 by somatic cell hybridization. *Biochemical Genetics* 16:447-452.
5. **Leinwand, L.A.**, E.A. Nichols and F.H. Ruddle. (1978) Assignment of the gene for glyoxalase I. to mouse chromosome 17 by somatic cell hybridization. *Biochemical Genetics* 16:659-666.
6. Ruddle, F.H., B. Conta, **L.A. Leinwand**, C. Kozak, N. Ruddle, P. Besmer and D. Baltimore. (1978) Assignment of the receptor for esotropic murine leukemia virus to mouse chromosome 5. *J. Exp. Medicine* 22:451-465.
7. Kozak, C., R.E.K. Fournier, **L.A. Leinwand** and F.H. Ruddle. (1979) Assignment of the gene for resistance to ouabain to mouse chromosome 3. *Biochemical Genetics* 17:23-34.
8. **Leinwand, L.A.**, R. Strair and F.H. Ruddle. (1978) Molecular and phenotypic expression of albumin in rat hepatoma x L cell hybrids. *Experimental Cell Res.* 115:261-268.
9. Jelinek, W. and **L.A. Leinwand** (1978) Low molecular weight RNAs hydrogen bonded to nuclear and cytoplasmic poly (A)-terminated RNA from cultured Chinese hamster ovary cells. *Cell* 15:205-214.
10. Swan, D., P. D'Eustachio, **L.A. Leinwand**, J. Seidman, D. Keithley and F. Ruddle. (1979) Chromosomal assignment of the mouse K light chain genes. *Proc. Natl. Acad. Sci, USA.* 76:2735-2739.
11. Jelinek, W., T. Toomey, **L.A. Leinwand**, C. Duncan, P. Biro, P. Choudary, S. Weissman, C. Rubin, C. Houck, P. Deininger and C. Schmid. (1980) Ubiquitous, interspersed repeated sequences in mammalian genomes. *Proc. Natl. Acad. Sci, USA.* 77:1398-1402.
12. Haynes, S., T. Toomey, **L.A. Leinwand** and W. Jelinek (1981) The Chinese hamster Alu-equivalent sequence: A conserved, highly repetitious, interspersed DNA sequence has a structure suggestive of a transposable element. *Mol. and Cell. Biol.* 1:573-583.
13. Schmid, C.W., G. Fox, B. Dowds, D. Lowensteiner, K. Paulson, C.J. Shen and **L.A. Leinwand** (1983) Families of repeated human DNA sequences and their arrangements. *Perspectives on Genes and the Molecular Biology of Cancer.* ed. D. Robberson and G. Saunders. Raven Press, New York. pp. 35-41.

14. Pease, L., S. Nathenson and **L.A. Leinwand** (1982) Mapping class I gene sequences in the major histocompatibility complex. *Nature* 298:382-385.
15. Krauter, K., **L.A. Leinwand**, P. D'Eustachio, F.H. Ruddle and J.E. Darnell, Jr. (1982) Structural genes of the mouse major urinary protein are on chromosome 4. *J. Cell Biol.* 94:414-417.
16. **Leinwand, L.A.**, R. Wydro and B. Nadal-Ginard (1982) Small RNA molecules related to the Alu family of repetitive DNA sequences. *Mol. and Cell. Biol.* 2:1320-1330.
17. **Leinwand, L.A.**, L. Saez, E. McNally and B. Nadal-Ginard (1983) Isolation and characterization of human myosin heavy chain genes. *Proc. Natl. Acad. Sci.* 80:3716:3720.
18. Gatmaitan, Z., D.M Jefferson, N., Ruiz-Opazo, L. Biempica, I. Arias, G. Dudas, **L.A. Leinwand** and L.M. Reid (1983) Regulation of Growth and differentiation of a rat hepatoma cell line by the synergistic interactions of hormones and collagenous substrata. *J. Cell. Biol.* 97:1179-1190.
19. **Leinwand, L.A.**, R.E.K. Fournier, B. Nadal-Ginard and T. Shows. (1983) Multigene family for sarcomeric myosin heavy chain in mouse and human DNA: localization on a single chromosome. *Science* 221:766-769.
20. Enat, R., D.M. Jefferson, N. Ruiz-Opazo, Z. Gatmaitan, **L.A. Leinwand** and L.M. Reid (1984) Hepatocyte proliferation *in vitro*: its dependence on the use of serum-free, hormonally defined medium and substrata of extracellular matrix. *Proc. Natl. Acad. Sci. USA.* 81:1411-1415.
21. Sun, L., K.E. Paulsen, C.W. Schmid, L. Kadyk and **L.A. Leinwand** (1984) Non-Alu family interspersed repeats in human DNA and their transcriptional activity. *Nucl. Acids Res.* 12:2669-2690.
22. Heller, D., M. Jackson and **L.A. Leinwand** (1984) Organization and expression of non-Alu family interspersed repetitive DNA sequences in the mouse genome. *J. Mol. Biol.* 173:419-436.
23. Chinsky, J., M. Goodenow, M. Jackson, F. Lilly, **L.A. Leinwand** and G. Childs (1985) Thymic lymphomas in RF and AKR Mice: comparison of endogenous MuLV proviral organization and RNA expression in 3-methylcolanthrene-induced and spontaneous tumors. *J. of Virology* 53:94-99.
24. Jackson, M., D. Heller, and **L.A. Leinwand** (1985) Transcriptional measurements of mouse repeated DNA sequences. *Nucleic Acids Research* 3:3389-3403.
25. Paulsen, K.E., N. Deka, C. Schmid, R. Misra, C. Schindler, M. Rush, L. Kadyk and **L.A. Leinwand** (1985) A transposon-like element in human DNA. *Nature* 316:359-361.
26. De Lozanne, A., M. Lewis, J.A. Spudich and **L.A. Leinwand** (1985) Cloning and characterization of a nonmuscle myosin heavy chain cDNA. *Proc. Natl. Acad. Sci. USA* 82:6807-6810.
27. Goodenow, M., K. Kessler, **L.A. Leinwand** and F. Lilly (1986) Absence of trisomy 15 in chemically induced murine T cell lymphomas. *Cancer Genetics and Cytogenet.* 19:205-211.
28. Saez, L. and **L.A. Leinwand** (1986) Cloning and characterization of myosin cDNAs in adult human skeletal muscle. in *ICN-UCLA Symposium on Molecular Biology of Muscle Development* Vol. 29, ed. Emerson, Fischman, Nadal-Ginard, and Siddiqui, pp. 263-272.
29. Saez, L. and **L.A. Leinwand** (1986) Characterization of diverse forms of myosin heavy chain expressed in adult human skeletal muscle. *Nucl. Acids Res.* 14:2951-2969.

30. Schwartz, C., E. McNally, **L.A. Leinwand** and M. Skolnick (1986) Polymorphism of a human myosin heavy chain locus and linkage to an anonymous single copy locus at 17p13. *Cytogenetics and Cell Genet.* 424:117-120.
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35. Kraft, R. and **L.A. Leinwand** (1987) Sequence of the complete P Protein gene and Part of the M. Protein gene from the histidine transport operon of *E. coli* compared to that of *S. typhimurium*. *Nucl. Acids Res.* 15:8568.
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38. Heller, D., K. Gianola and **L.A. Leinwand** (1988) A highly conserved mouse gene with a propensity to form pseudogenes in mammals. *Mol. Cell Biol.* 8:2797-2803.
39. McNally, E., E. Goodwin, J.A. Spudich and **L.A. Leinwand** (1988) Coexpression and assembly of myosin heavy chain and myosin light chain in *E. coli*. *Proc. Natl. Acad. Sci. USA* 85:7270-7273.
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41. Kraft, R., J. Tardiff, K. S. Krauter, and **L.A. Leinwand** (1988) Using mini-prep plasmid DNA for sequencing double stranded templates with sequensae. *BioTechniques* 6:544-547.
42. **Leinwand, L.A.** R. Feghali, I. Karsch-Mizrachi, R. Sohn and E. McNally (1989) Molecular genetic approaches to myosin function in *Cellular and Molecular Biology of Muscle Development*. Ed. L.H. Kedes and F.E. Stockdale, pp. 169-179.
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44. McNally, E., P. Buttrick and **L.A. Leinwand** (1989) Ventricular myosin light chain 1: nucleotide sequence of a full length cDNA and expression during development and in hypertension. *Nucl. Acids Res.* 17:2753-2767.
45. Feghali, R. and **L.A. Leinwand** (1989) Molecular genetics of a human perinatal skeletal muscle myosin heavy chain. *J. Cell Biol.* 108:1791-1797.

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47. **Leinwand, L.A.**, R. Sohn, S. Frankel, E. Goodwin, and E. McNally (1989) Bacterial expression of eukaryotic contractile proteins. *Cell Motil. and the Cyto.* 14:3-11.
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50. McNally, E., K.M. Gianola and **L.A. Leinwand** (1989) Complete nucleotide sequence of full-length cDNA for rat alpha cardiac myosin heavy chain. *Nucl. Acids Res.* 17:7527-7528.
51. Tsika, R.W., J.J. Bahl, **L.A. Leinwand** and E. Morkin (1990) Thyroid hormone regulates expression of a transfected human -myosin heavy chain fusion gene in fetal rat heart cells. *Proc. Natl. Acad. Sci. USA* 87:379-383.
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53. Rovner, A., E. McNally, and **L.A. Leinwand** (1990) Complete sequence of rat atrial myosin light chain 1 cDNA: patterns of expression in development and hypertension. *Nucl. Acids Res.* 18:1581-1587.
54. Karsch-Mizrachi, I., R. Feghali, T. Shows and **L.A. Leinwand** (1990) Generation of a full-length cDNA clone for human perinatal skeletal myosin heavy chain. *Gene* 89:289-294.
55. Fishman, G., D. Spray and **L.A. Leinwand** (1990) Molecular cloning, characterization and functional expression of the human cardiac gap junction cDNA. *J. Cell Biol.* 111:589-598.
56. McNally, E., R. Sohn, S. Frankel and **L.A. Leinwand** (1990) Expression of myosin and actin in *E. coli*. *Methods in Enzymology* 196:368-389.
57. Frankel, S., J. Condeelis and **L.A. Leinwand** (1990) Expression of actin in *E. coli*: aggregation, solubilization, and functional analysis. *J. Biol. Chem.* 265:17980-17987.
58. Goodwin, E.B., **L.A. Leinwand** and A.G. Szent-Gyorgyi (1990) Regulation of scallop myosin by mutant regulatory light chains. *J. Mol. Biol.* 216:85-93.
59. Feghali, R., L. Reid and **L.A. Leinwand** (1990) The role of the extracellular matrix in cardiac muscle development. In *The Development and Regenerative Potential of Cardiac Muscle* ed. J. Oberpriller pp. 33-52.
60. Frankel, S., R. Sohn and **L.A. Leinwand** (1991) The use of sarkosyl for generating soluble proteins expressed in *E. coli*. *Proc. Natl. Acad. Sci.* 88:1192-1196.
61. Buttrick, P., A. Malhotra, S. Factor, D. Geenen, **L.A. Leinwand** and J. Scheuer (1991) The effect of aging and hypertension on cardiac biochemistry and gene expression in the rat. *Circ. Res.* 68:645-652.
62. Fishman, G., E. Hertzberg, D. Spray and **L.A. Leinwand** (1991) Expression of connexin 43 in the developing rat heart. *Circ. Res.* 68:782-787.
63. McNally, E., M. Bravo-Zehnder, and **L.A. Leinwand** (1991) Identification of sequences necessary for the association of cardiac myosin subunits. *J. Cell Biol.* 113:585-590.

64. Fishman, G., A. Moreno, D. Spray and **L.A. Leinwand** (1991) Functional analysis of human cardiac gap junction channel mutants. *Proc. Natl. Acad. Sci.* 88:3525-3529.
65. Fishman, G., R. Eddy, T. Shows, L. Rosenthal, and **L.A. Leinwand** (1991) The human connexin gene family: distinct chromosomal locations but similar structure. *Genomics* 10:250-256.
66. Kitsis, R., P. Buttrick, E. McNally, M. Kaplan, and **L.A. Leinwand** (1991) Hormonal modulation of a gene injected into rat heart. *Proc. Natl. Acad. Sci.* 88:4138-4142.
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69. Buttrick, P., A. Kass, R. Kitsis, M. Kaplan, and **L. A. Leinwand** (1992) Behavior of genes directly injected into the rat heart *in vivo*. *Circ. Res.* 70:193-198.
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76. Kitsis, R.N., A. Kass, P. Buttrick and **L.A. Leinwand** (1993) Methodological issues of *in vivo* cardiac gene transfer. *Methods in Molecular Genetics.* 1:374-392.
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85. Sindhvani, R., F. Ismail-Beigi and **L.A. Leinwand** (1994) Post-transcriptional regulation of rat cardiac myosin heavy chain expression. *J. Biol. Chem.* 269:3272-3276.
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