

CURRICULUM VITAE

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EDUCATION

1982 B.S., Dept. of Biology, Yale University
1990 Ph.D., Dept. of Biochemistry, Stanford University Medical Center
1990 M.D., Stanford University Medical School

RESEARCH AND PROFESSIONAL EXPERIENCE

1978–1980 Undergraduate Summer Fellowship, Carnegie Institute of Washington, Dept. of Embryology, Laboratory of Dr. Steven L. McKnight
1981 Summer Research Assistant, Johns Hopkins University School of Medicine, Laboratory of Dr. Gary S. Hayward
1981–1982 Senior Thesis Research, Department of Biology, Yale University, Laboratory of Dr. Joseph G. Gall
1982–1990 Medical Scientist Training Program, Dept. of Biochemistry, Stanford University Medical Center, Laboratory of Dr. David S. Hogness
1990–1994 Post-doctoral Fellow, Whitehead Institute, Laboratory of Dr. Ruth Lehman
1994–2001 Assistant Professor, Dept. of Molecular Biology, Princeton University
2001–2008 Associate Professor, Dept. of Molecular Biology, Princeton University
2006–2007 Sabbatical, Laboratory of Dr. Andrea Brand, Cambridge University, UK
2008–present Professor, Dept. of Molecular Biology, Princeton University
2011–present Associate Faculty, Princeton Neuroscience Institute

AWARDS AND HONORS

1982 Edgar J. Boell Biology Prize (Senior Thesis Research), Yale University
1982 Summa cum laude, Yale University
1982 Phi Beta Kappa, Yale University
1982–1989 Medical Scientist Training Program Trainee, Stanford University
1990–1993 Postdoctoral Fellow, Jane Coffin Childs Memorial Fund for Cancer Research
1993–1994 Postdoctoral Associate, Howard Hughes Medical Institute
1995–1999 NSF Early Career Development Award
1997–2000 Beckman Young Investigator Award
2006–2007 Clare Hall Visiting Fellow, Cambridge UK
2007–present Clare Hall Life Member, Cambridge UK
2009 Larry Sandler Memorial Award for best Drosophila Ph.D. thesis to T. Weil
2011–2012 President, The North American Drosophila Board of Directors
2014 Princeton Innovation Award

SOCIETIES

American Society for Cell Biology
American Society for Developmental Biology
Genetics Society of America

SERVICE

Departmental

| | |
|--------------|--|
| 1995 | Planning Committee for new Cellular Biochemistry course |
| 1995–1996 | Media Committee |
| 1996 | Chair, Departmental Seminar Series |
| 1996 | Faculty Advisor, "RNA Today" Symposium (Graduate Program-sponsored symposium) |
| 1996–1997 | Special Opportunities Job Search Committee |
| 1997, 1998 | Departmental Retreat Co-chair |
| 2002–2005 | Undergraduate Committee |
| 2002–2011 | Princeton Director, Princeton/RWJMS/UMDNJ (Joint) MD/PhD Program |
| 2003 | Committee on Tenure and Retention |
| 2003–2011 | Admissions Committee, Joint MD/PhD Program |
| 2004–2005 | Departmental Representative, Seniors |
| 2006–2011 | Steering Committee, Joint M.D./Ph.D. Program Academic Affairs Committee, Joint M.D./Ph.D. Program Curriculum Committee, Joint MD/PhD Program |
| 2010–present | Departmental Graduate Curriculum Committee |
| 2010–2011 | Developmental Biology Search Committee |
| 2011–2012 | Chair, Developmental Biology Search Committee |
| 2012–present | Advisory Committee, Princeton/RWJMS/UMDNJ MD/PhD Program |
| 2012–present | Faculty Supervisor, Confocal Microscopy Facility |
| 2013–present | Chair, Undergraduate Curriculum Committee |
| 2014– | Director of Undergraduate Studies |

Ph.D. Thesis Committees (Current):

Jason McShene, Jessica Rowland, Chaevia Cleninden, Daniel Wolle, Lauren Anllo, Julia Wittes, Bryan Heck, Jose Pelliccia

University

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|--------------|---|
| 1997 | Panel participant, Women in Science and Engineering Panel for incoming Freshman |
| 2000–2004 | Freshman/Sophomore Adviser, Mathey College |
| 2001–2006 | Radiation Safety Committee |
| 2003 | Princeton University Freshman Parents Day panel participant |
| 2003–2004 | President's Task Force on Health and Well-Being |
| 2005–2006 | Committee on Postdoctoral Research Staff |
| 2005–2007 | Fellow, Rockefeller College |
| 2006 | Childcare Working Group |
| 2007–2014 | Chair, Radiation Safety Committee |
| 2007–present | Fellow, Whitman College |
| 2007–2008 | UHS Executive Director Search Committee |

2008–2010 Healthier Princeton Advisory Board
 2008 Panelist, "Many Faces of Science"
 2010 Committee on Postdoctoral Appointments
 2011–2014 Student Health Plan Advisory Board
 2012–2013 Dean of Faculty Online Course Committee
 2012–2015 Campus Recreation Committee
 2013 Women in Science Colloquium, Keynote Speaker

Extramural

1996–2002 American Society for Cell Biology Education Committee, Graduate Education Subcommittee
 9/99 Panelist, Career Day Program, Roland Park Country School
 2000 American Society for Cell Biology Program Committee
 2001 Consultant, New York State Board of Education, site visit for accreditation of the Watson School of Biological Sciences, Cold Spring Harbor Laboratory
 2001–2003 Temporary member, NIH Genetics Study Section
 2002–2009 Faculty of 1000
 2004 NSF Animal Developmental Mechanisms Review Panel
 2006 Riverside Elementary School Science Day Participant
 2007 Ph.D. Viva Examiner, Gurdon Institute, Cambridge University
 2007 External Ph.D. Thesis Examiner, University of Toronto
 2007 External Ph.D. Thesis Examiner, Skirball Institute, NYU Medical School
 2007–2010 Mid-Atlantic Representative, The North American Drosophila Board
 2009–present Hunter College HHMI Faculty Development Program Mentor
 2010–present Mentor, The College of New Jersey Advancement Program (NSF-funded)
 2010–2011 President-elect, The North American Drosophila Board
 2010–2013 Mid-Atlantic Representative, Society of Developmental Biology Board of Directors
 2011–2012 President, The North American Drosophila Board
 2011 External reviewer, Harvard MCO Graduate Program
 2011 Ad Hoc reviewer, Endocrinology, Metabolism, Nutrition and Reproductive Sciences review panel (NIH)
 2012 DEV2 Review panel temporary member (NIH)
 2012–present Chair, Drosophila Board Communications Committee
 2013–2016 Genetics Society of America Communications Committee
 2014–2018 Organizing Committee, EMBO Crete Drosophila Conference

Other (Current)

Editorial Boards: RNA Biology, Cellular Logistics
 Reviewer: Nature journals, Cell journals, Curr. Biol., Development, Dev. Biol., EMBO Journal, PNAS, PLoS, RNA, Genetics, Mech. Dev., Dev. Dynam.
 Ad hoc reviewer: NIH, NSF

PUBLICATIONS

1. McKnight, S.L. and **Gavis, E.R.** (1980). Expression of the herpes thymidine kinase gene in *Xenopus laevis* oocytes: an assay for the study of deletion mutants constructed *in vitro*. *Nucleic Acids Research* 8, 5931–5940.
2. McKnight, S.L., **Gavis, E.R.**, Kingsbury, R., and Axel, R. (1981). Analysis of transcriptional regulatory signals of the HSV thymidine kinase gene: identification of an upstream control region. *Cell* 25, 385–398.
3. Hayward, G.S., Reyes, G.R., **Gavis, E.R.**, and McKnight, S.L. (1981). Identification, cloning and sequencing of the herpes simplex virus thymidine kinase genes. In *Herpesvirus DNA: Recent Studies on the Internal Organization and Replication of the Viral Genome*. (ed. V. Becker) Amsterdam: Martinus Nijoff Publishers.
4. Reyes, G.R., **Gavis, E.R.**, Buchan, A., Raj, N.B.K., Hayward, G.S., and Pitha, P.M. (1982). Expression of human β -interferon cDNA under the control of a thymidine kinase promoter from herpes simplex virus. *Nature* 297, 598–601.
5. Jamrich, M., Mahon, K.A., **Gavis, E.R.**, and Gall, J.G. (1984). Histone RNA in amphibian oocytes visualized by *in situ* hybridization to methacrylate-embedded tissue sections. *EMBO Journal* 9, 1939–1943.
6. Hogness, D.S., Lipshitz, H.D., Beachy, P.A., Peattie, D.A., Saint, R.B., Goldschmidt-Clermont, M., Harte, P.J., **Gavis, E.R.**, and Helfand, S.L. (1985). Regulation and products of the *Ubx* domain of the bithorax complex. *Cold Spring Harbor Symposia on Quantitative Biology* 50, 181–194.
7. Beachy, P.A., Krasnow, M.A.*, **Gavis, E.R.***, and Hogness, D.S. (1988). An *Ultrabithorax* protein binds sequences near its own and the *Antennapedia* P1 promoters. *Cell* 55, 1069–1081. (*Equal contributors.)
8. **Gavis, E.R.** and Hogness, D.S. (1991). Phosphorylation, expression and function of the *Ultrabithorax* protein family in *Drosophila melanogaster*. *Development* 112, 1077–1093.
9. **Gavis, E.R.** and Lehmann, R. (1992). Localization of *nanos* RNA controls embryonic polarity. *Cell* 71, 301–313.
10. **Gavis, E.R.** and Lehmann, R. (1994). Translational regulation of *nanos* by RNA localization. *Nature* 369, 315–318.
11. **Gavis, E.R.** and Lehmann, R. (1994). RNA localization during oogenesis in *Drosophila*. In *Advances in Developmental Biology*, Vol. 3 (Greenwich: JAI Press), pp. 115–136.
12. Rongo, C., **Gavis, E.R.**, and Lehmann, R. (1995). Localization of *oskar* RNA regulates *oskar* translation and requires Oskar protein. *Development* 121, 2737–2746.

13. **Gavis, E.R.** (1995). *Gurken* meets *torpedo* for the first time. *Current Biology* 5, 1252–1254.
14. **Gavis, E.R.**, Curtis, D., and Lehmann, R. (1996). Identification of *cis*-acting sequences that control *nanos* RNA localization. *Developmental Biology* 176, 36–50.
15. **Gavis, E.R.**, Lunsford, L., Bergsten, S.E., Lehmann, R. (1996). A conserved 90 nucleotide element mediates translational repression of *nanos* RNA. *Development* 122, 2791–2800.
16. **Gavis, E.R.** (1997). Expeditions to the pole: RNA localization in *Xenopus* and *Drosophila*. *Trends in Cell Biology* 7, 485–492.
17. Bergsten, S.E. and **Gavis, E.R.** (1999). Role for mRNA localization in translational activation but not spatial restriction of *nanos* RNA. *Development* 126, 659–669.
18. Crucs, S., Chatterjee, S., and **Gavis, E.R.** (2000). Overlapping but distinct RNA elements control translational repression and activation of *nanos* mRNA. *Molecular Cell* 5, 457–467.
19. Clark, I., Wyckoff, D., and **Gavis, E.R.** (2000). Synthesis of the posterior determinant Nanos is spatially restricted by a novel co-translational regulatory mechanism. *Current Biology* 10, 1311-1314.
20. Bergsten, S.E., Huang, T., Chatterjee, S., and **Gavis, E.R.** (2001). Recognition and long range interactions of a minimal RNA localization signal element. *Development* 128, 427-435.
21. **Gavis, E.R.** (2001). Over the rainbow to translational control. *Nature Structural Biology* 8, 387-390.
22. Clark, I., Dobi, K., Duchow, H., Vlasak, A. and **Gavis, E.R.** (2002). A common translational control mechanism functions in axial patterning and endocrine signaling in *Drosophila*. *Development* 129, 3325-3334.
23. Forrest, K.M. and **Gavis, E.R.** (2003). Live imaging of endogenous RNA reveals a diffusion and entrapment mechanism for *nanos* mRNA localization in *Drosophila*. *Current Biology* 13, 1159-1168.
24. Ye, B., Petritsch, C., Clark, I.E., **Gavis, E.R.**, Jan, L.Y., and Jan, Y.N. (2004). *Nanos* and *pumilio* are essential for dendrite morphogenesis in *Drosophila* peripheral neurons. *Current Biology* 14, 314-321.
25. Forrest, K.M., Clark, I.E., Jain, R.A., and **Gavis, E.R.** (2004). Temporal complexity within a translational control element in the *nanos* mRNA. *Development* 131, 5753-5761.
26. **Gavis, L.** and Hughson, F. (2004). Dual(ing) academic careers. In: *Career Advice for Life Scientists II* (American Society for Cell Biology) pp. 16-19.

27. Meyer, E.L. and **Gavis, E.R.** (2005). Staufen does double duty. *Nature Structural and Molecular Biology* *12*, 292-292.
28. Bassler, B.L., Flint, J., and **Gavis, E.R.** (2005). Women can do science, if encouraged. (Invited Op-Ed) *Philadelphia Inquirer*, Jan. 23, p. D7.
29. Duchow, H.K., Brechbiel, J.L., Chatterjee, S., and **Gavis, E.R.** (2005). The *nanos* translational control element represses translation in somatic cells by a Bearded box-like motif. *Developmental Biology* *282*, 207-217.
30. Kalifa, Y., Huang, T., Rosen, L.N., Chatterjee, S., and **Gavis, E.R.** (2006). Glorund, a *Drosophila* hnRNP F/H homolog, is an ovarian repressor of *nanos* translation. *Developmental Cell* *10*, 291-301.
31. Weil, T.T., Forrest, K.M., and **Gavis, E.R.** (2006). Localization of *bicoid* mRNA in late oocytes is maintained by continual active transport. *Developmental Cell* *11*, 251-262.
32. **Gavis, E.R.**, Singer, R.H., and Hüttelmaier, S. (2007). Localized translation through messenger RNA localization. In *Translational Control*, J.W.B. Hershey, M.B. Mathews, and N. Sonenberg, eds. (Cold Spring Harbor, NY: Cold Spring Harbor Laboratory Press). pp. 687-717.
33. Lipshitz, H.D. and **Gavis, E.R.** (2007) Positional cloning to positional information: the bithorax project in the Hogness lab. The 23rd International Prize for Biology Symposium.
34. **Gavis, E.R.**, Chatterjee, S., Ford, N.R., and Wolff, L.J. (2008) Dispensability of *nanos* mRNA localization for abdominal patterning but not for germ cell development. *Mechanisms of Development* *125*, 81-90.
35. Jain, R.A. and **Gavis, E.R.** (2008) The *Drosophila* hnRNP M homolog, Rumpelstiltskin, regulates *nanos* mRNA localization. *Development* *135*, 973-982.
36. Jaramillo, A.M., Weil, T.T., Goodhouse, J., **Gavis, E.R.**, and Schüpbach, T. (2008) The dynamics of fluorescently labeled endogenous *gurken* mRNA in *Drosophila*. *Journal of Cell Science* *121*, 887-894.
37. Brechbiel, J.L. and **Gavis, E.R.** (2008) Spatial regulation of *nanos* activity is required for its function in dendrite morphogenesis. *Current Biology* *18*, 745-750.
38. Weil, T.T., Parton, R., Davis, I., and **Gavis, E.R.** (2008) Changes in *bicoid* mRNA anchoring highlight conserved mechanisms during the oocyte-to-embryo transition. *Current Biology* *18*, 1055-1061.
39. Kalifa, Y., Armenti, S.T., and **Gavis, E.R.** (2009) Glorund interactions in the regulation of *gurken* and *oskar* mRNAs. *Developmental Biology* *326*, 68-74.

40. Menon, K., Andrews, S., Murthy, M., **Gavis, E.R.** and Zinn, K. (2009) The translational repressors Nanos and Pumilio have divergent effects on presynaptic terminal growth and postsynaptic glutamate receptor subunit composition. *Journal of Neuroscience* *29*, 5558-5572.
41. Becalska, A.N. and **Gavis, E.R.** (2009) Lighting up mRNA localization in *Drosophila* oogenesis. *Development* *136*, 2493-2503.
42. Weil, T.T., Xanthakis, D., Parton, R., Dobbie, I., Rabouille, C., **Gavis, E.R.***, and Davis, I. (2010) Distinguishing direct from indirect roles for *bicoid* mRNA localization factors. *Development* *137*, 169-176. (*Corresponding author)
43. Becalska, A.N. and **Gavis, E.R.** (2010) Bazooka regulates microtubule organization and spatial restriction of germ plasm assembly in the *Drosophila* oocyte. *Developmental Biology* *340*, 528-538.
44. Becalska, A.N., Kim, Y.R., Belletier, N.G., Lerit, D.A., Sinsimer, K.S., and **Gavis, E.R.** (2011) Aubergine is a component of a *nanos* mRNA localization complex. *Developmental Biology* *349*, 46-52.
45. Lerit, D.A. and **Gavis, E.R.** (2011) Transport of germ plasm on astral microtubules directs germ cell development in *Drosophila*. *Current Biology* *21*, 439-448.
46. Andrews, S.A., Snowflack, D.S., Clark, I.E., and **Gavis, E.R.** (2011) Multiple mechanisms collaborate to repress *nanos* translation in the *Drosophila* ovary and embryo. *RNA* *17*, 967-977.
47. Sinsimer, K.S., Jain, R.A., Chatterjee, S., and **Gavis, E.R.** (2011) A late phase of germ plasm accumulation during *Drosophila* oogenesis requires Lost and Rumpelstiltskin. *Development*, *138*, 3431-3440.
48. JayaNandanan, N., **Gavis, E.R.**, Riechmann, V., and Leptin, M. (2011) A genetic *in vivo* system to detect asymmetrically distributed RNA. *EMBO Rep.* *12*, 1167-1174.
49. Olesnicky, E.C. and **Gavis, E.R.** (2012) Combinatorial use of translational co-factors for cell type specific regulation during neuronal morphogenesis in *Drosophila*. *Dev. Biol.* *365*, 208-218.
50. Thanawala, S., Rister, J., Goldberg, G., Zuskov, A. Olesnicky, E.C., Flowers, J., Purugganan, M., **Gavis, E.R.**, Desplan, C. and Johnston, R. (2013) Regional modulation of a stochastically expressed factor determines ommatidial subtypes in the *Drosophila* retina. *Dev. Cell* *25*, 93-105.
51. Xu, X., Brechbiel, J.L., and **Gavis, E.R.** (2013) Dynein-dependent transport of *nanos* RNA in class IV dendritic arborization neurons requires Rumpelstiltskin and the germ plasm organizer Oskar. *J. Neurosci.* *33*, 14791-14800.

52. Sinsimer, K.S., Lee, J.J., and **Gavis, E.R.** (2013) Germ plasm anchoring is a dynamic state that requires persistent trafficking. *Cell Rep.* 5, 1169–1177.
53. Dunn, J.G., Foo, C.K., Belletier, N.G, **Gavis, E.R.**, and Weissman, J.S (2013) Ribosome profiling reveals pervasive and regulated stop codon readthrough in *Drosophila melanogaster*. *eLife* 2013;2:e01179.
54. Olesnicky, E.C., Killian, D.J., Rathjen, A.R., Garcia, E., Sola, I.E., and **Gavis, E.R.** Extensive use of RNA binding proteins in *Drosophila* sensory neuron dendrite morphogenesis. *G3: Genes, Genomes, Genetics* 4, 297-306.