

CURRICULUM VITAE
The Johns Hopkins University School of Medicine

Name: Carol W. Greider, Ph.D.

Revised: May 3, 2016

DEMOGRAPHIC AND PERSONAL INFORMATION

Current Appointments

- 2001-present Professor of Oncology, The Johns Hopkins University School of Medicine
2003-present Daniel Nathans Professor and Director, Department of Molecular Biology and Genetics
The Johns Hopkins University School of Medicine
2014-present Bloomberg Distinguished Professor, Department of Biology
The Johns Hopkins University School of Medicine

Personal Data

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Education and Training

- 1983 B.A. University of California, Santa Barbara (Biology)
1987 Ph.D. University of California, Berkeley (Molecular Biology)

Professional Experience

- 1988-1990 Fellow, Cold Spring Harbor Laboratory
1990-1992 Assistant Investigator, Cold Spring Harbor Laboratory
1992-1994 Associate Investigator, Cold Spring Harbor Laboratory
1994-1997 Investigator, Cold Spring Harbor Laboratory
1997-1999 Associate Professor, The Johns Hopkins University School of Medicine
1999-present Professor, The Johns Hopkins University School of Medicine
2001-present Professor of Oncology, The Johns Hopkins University School of Medicine
2002-2003 Interim Director, Department of Molecular Biology & Genetics,
The Johns Hopkins University School of Medicine
2003-present Daniel Nathans Professor and Director, Department of Molecular Biology & Genetics
The Johns Hopkins University School of Medicine
2014-present Bloomberg Distinguished Professor, Department of Biology
The Johns Hopkins University School of Medicine

RESEARCH ACTIVITIES

Publications: Peer-reviewed Original Science Research

1. Greider, C.W., and Blackburn, E.H. Identification of a specific telomere terminal transferase activity in *Tetrahymena* extracts. *Cell* (1985) 43: 405–413.
2. Greider, C.W. and Blackburn, E.H. The telomere terminal transferase of *Tetrahymena* is a ribonucleoprotein enzyme with two kinds of primer specificity. *Cell* (1987) 51: 887–898.

3. Greider, C.W., and Blackburn, E.H. A telomeric sequence in the RNA of *Tetrahymena* telomerase required for telomere repeat synthesis. *Nature* (1989) 337: 331–337.
4. Harley, C.B., Futcher, A.B., and Greider, C.W. Telomeres shorten during ageing of human fibroblasts. *Nature* (1990) 345: 458–460.
5. Harrington, L.A., and Greider, C.W. Telomerase primer specificity and chromosome healing. *Nature* (1991) 353: 451–454.
6. Greider, C.W. Telomerase is processive. *Mol. Cell Biol.* (1991) 11: 4572–4580.
7. Allsopp, R.C., Vaziri, H., Patterson, C., Goldstein, S., Younglai, E.V., Futcher, A.B., Greider, C.W., and Harley, C.B. Telomere length predicts the replicative capacity of human fibroblasts. *Proc. Natl. Acad. Sci. U.S.A.* (1992) 89: 10114–10118.
8. Levy, M.Z., Allsopp, R.C., Futcher, A.B., Greider, C.W., and Harley, C.B. Telomere end replication problem and cell aging. *J. Mol. Biol.* (1992) 225: 951–960.
9. Counter, C.M., Avilion, A.A., LeFeuvre, C.E., Stewart, N.G., Greider, C.W., Harley, C.B., and Bacchetti, S. Telomere shortening associated with chromosome instability is arrested in immortal cells which express telomerase activity. *EMBO J.* (1992) 11: 1921–1929.
10. Avilion, A.A., Harrington, L.A., and Greider, C.W. *Tetrahymena* telomerase RNA levels increase during macronuclear development. *Dev. Genet.* (1992) 13: 80–86.
11. Collins, K. and Greider, C.W. *Tetrahymena* telomerase catalyzes nucleolytic cleavage and nonprocessive elongation. *Genes Dev.* (1993) 7: 1364–1376.
12. Prowse, K.R., Avilion, A.A., and Greider, C.W. Identification of a nonprocessive telomerase activity from mouse cells. *Proc. Natl. Acad. Sci. U.S.A.* (1993) 90: 1493–1497.
13. Mantell, L.L., and Greider, C.W. Telomerase activity in germline and embryonic cells of *Xenopus*. *EMBO J.* (1994) 13: 3211–3217.
14. Autexier, C., and Greider, C.W. Functional reconstitution of wild-type and mutant *Tetrahymena* telomerase. *Genes Dev.* (1994) 8: 563–575.
15. Collins, K., and Greider, C.W. Utilization of ribonucleotides and RNA primers by *Tetrahymena* telomerase. *EMBO J.* (1995) 14: 5422–5432.
16. Autexier, C., and Greider, C.W. Boundary elements of the *Tetrahymena* telomerase RNA template and alignment domains. *Genes & Dev.* (1995) 9: 2227–2239.
17. Blasco, M.A., Funk, W., Villeponteau, B., and Greider, C.W. Functional characterization and developmental regulation of the mouse telomerase RNA. *Science* (1995) 269: 1267–1270.
18. Feng, J., Funk, W.D., Wang, S.-S., Weinrich, S.L., Avilion, A.A., Chiu, C.-P., Adams, R.R., Chang, E., Allsopp, R.C., Yu, J., Le, S., West, M.D., Harley, C.B., Andrews, W.H., Greider, C.W., and Villeponteau, B. The RNA component of human telomerase. *Science* (1995) 269: 1236–1241.
19. Collins, K., Kobayashi, R., and Greider, C.W. Purification of *Tetrahymena* telomerase and cloning of genes encoding the two protein components of the enzyme. *Cell* (1995) 81: 677–686.
20. Prowse, K.R., and Greider, C.W. Developmental and tissue specific regulation of mouse telomerase and telomere length. *Proc. Natl. Acad. Sci. U.S.A.* (1995) 92: 4818–4822.
21. Harrington, L.A., Hull, C., Crittenden, J., and Greider, C.W. Gel shift and UV cross-linking analysis of *Tetrahymena* telomerase. *J. Biol. Chem.* (1995) 270: 8893–8901.
22. Blasco, M., Rizen, M., Greider, C.W., and Hanahan, D. Differential regulation of telomerase activity and telomerase RNA during multi-stage tumorigenesis. *Nat. Genet.* (1996) 12: 200–204.
23. Avilion, A.A., Piatyszek, M. A., Gupta, J., Shay, J.W., Bacchetti, S., and Greider, C.W. Human telomerase RNA and telomerase activity in immortal cell lines and tumor tissues. *Cancer Res.* (1996) 56: 645–650.
24. Buchkovich, K.J., and Greider, C.W. Telomerase regulation during entry into the cell cycle in normal human T cells. *Mol. Biol. Cell* (1996) 7: 1443–1454.
25. Autexier, C., Pruzan, R., Funk, W., and Greider, C.W. Reconstitution of human telomerase activity and identification of a minimal functional region of the human telomerase RNA. *EMBO J.* (1996) 15: 5928–5935.
26. Blasco, M.A., Lee, H.-W., Hande, P.M., Samper, E., Lansdorp, P.M., DePinho, R.A., and Greider,

- C.W. Telomere shortening and tumor formation by mouse cells lacking telomerase RNA. *Cell* (1997) *91*: 25-34.
27. Hinkley, C.S., Blasco, M.A., Funk, W.D., Feng, J., Villeponteau, B., Greider, C.W., and Herr, W. The mouse telomerase RNA 5'-end lies just upstream of the telomerase template sequence. *Nucleic Acids Res.* (1998) *26*: 532-536.
 28. Le, S., Zhu, J.J., Anthony, D.C., Greider, C.W., and Black, P.M. Telomerase activity in human gliomas. *Neurosurgery* (1998) *42*: 1120-1125.
 29. Autexier, C.A., and Greider, C.W. Mutational analysis of the *Tetrahymena* telomerase RNA: Identification of residues affecting telomerase activity in vitro. *Nucleic Acids Res.* (1998) *26*: 787-795.
 30. Lee, H.-W., Blasco, M.A., Gottlieb, G.J., Horner, J.W., Greider, C.W., and DePinho, R.A. Essential role of mouse telomerase in highly proliferative organs. *Nature* (1998) *392*: 569-574.
 31. Rudolph, K.L., Chang, S., Lee, H.-W., Blasco, M., Gottlieb, G., Greider, C.W., and DePinho, R.A. Longevity, stress response, and cancer in aging telomerase deficient mice. *Cell* (1999) *96*: 701-712.
 32. Le, S., Moore, J.K., Haber, J.E., and Greider, C.W. *RAD51* and *RAD50* define two pathways that collaborate to maintain telomeres in the absence of telomerase. *Genetics* (1999) *152*: 143-152.
 33. Greenberg, R., Chin, L., Femino, A., Lee, K.-H., Gottlieb, G., Singer, R., Greider, C.W., and DePinho, R.A. Short telomeres impair tumorigenesis in the *INK4a*^{D2/3}^{-/-} *mTR*^{-/-} cancer-prone mouse. *Cell* (1999) *97*: 515-525.
 34. Chin, L., Artandi, S., Shen, Q., Tam, S., Lee, S.-L., Gottlieb, G., Greider, C.W., and DePinho, R.A. p53 deficiency rescues the adverse effects of telomere loss in vivo and cooperates with telomere dysfunction to accelerate carcinogenesis. *Cell* (1999) *97*: 527-538.
 35. Hemann, M.T., and Greider, C.W. G-strand overhangs on telomeres in telomerase deficient mouse cells. *Nucleic Acids Res.* (1999) *27*: 3964-3969.
 36. Le, S., Sternglanz, R., and Greider, C.W. Identification of two RNA binding proteins associated with human telomerase RNA. *Mol. Biol. Cell.* (2000) *11*: 999-1010.
 37. Chen, J.-L., Blasco, M., and Greider, C.W. A Secondary structure of vertebrate telomerase RNA. *Cell* (2000) *100*: 503-514.
 38. Hemann, M.T., and Greider, C.W. Wild derived inbred mouse strains have short telomeres, *Nucleic Acids Res.* (2000) *28*: 4474-4478.
 39. Chen, Q., IJpma, A., and Greider, C.W. Two survivor pathways that allow growth in the absence of telomerase are generated by distinct telomere recombination events. *Mol. Cell. Biol.* (2001) *21*: 1819-1827.
 40. Hemann, M.T., Rudolph, L., Strong, M., DePinho, R.A., Chin, L., and Greider, C.W. Telomere dysfunction triggers developmentally regulated germ cell apoptosis. *Mol. Biol. Cell.* (2001) *12*: 2023-2030.
 41. Hackett, J., Feldser, D.M., and Greider, C.W. Telomere dysfunction increases mutation rate and genomic instability. *Cell* (2001) *106*: 275-286.
 42. Hemann, M.T., Strong, M., Hao, L.-Y., and Greider, C.W. The shortest telomere, not average telomere length, is critical for cell viability and chromosome stability. *Cell* (2001) *107*: 66-77.
 43. Mason, D., Autexier, C., and Greider, C.W. Tetrahymena proteins p80 and p95 are not core telomerase components. *Proc. Natl. Acad. Sci. U.S.A.* (2001) *98*: 12368-12373.
 44. Chen, J.-L., Opperman, K.K., and Greider, C.W. A critical stem loop structure in the CR4-CR5 domain of mammalian telomerase RNA. *Nucleic Acids Res.* (2002) *30*: 592-597.
 45. Hathcock, K.S., Hemann, M.T., Opperman, K.K., Strong, S.A., Greider, C.W., and Hodes, R.J. Haploinsufficiency of *mTR* results in defects in telomere elongation. *Proc. Natl. Acad. Sci. U.S.A.* (2002) *99*: 3591-3596.
 46. IJpma, A., and Greider, C.W. Short telomeres induce a DNA damage response in *S. cerevisiae*. *Mol. Biol. Cell* (2003) *14*: 987-1001.
 47. Mason, D., Goneska, E., and Greider, C.W. Stem loop IV of *Tetrahymena* telomerase stimulates processivity in trans. *Mol. Biol. Cell* (2003) *23*: 5606-5613.

48. Chen, J.-L. and Greider, C.W. Determinants in mammalian telomerase RNA that mediate enzyme processivity and cross species incompatibility. *Embo. J.* (2003) 22: 304-314.
49. Hackett, J. and Greider, C.W. End resection initiates genomic instability in the absence of telomerase. *Mol. Cell. Biol* (2003) 23: 8450-8461.
50. Chen, J.-L., and Greider, C.W. Template boundary definition in mammalian telomerase. *Genes Dev.* (2003) 17: 2747-2752.
51. Qi, L., Strong, M., Karim, B.O., Huso, D.L., and Greider, C.W. Short telomeres and loss of ATM synergistically increase telomere dysfunction and suppress tumorigenesis. *Cancer Research* (2003) 63: 8188-8196.
52. Hao, L.-Y., and Greider, C.W. Genomic instability in both wildtype and telomerase-null MEFs. *Chromsoma* (2004) 113: 62-68.
53. Hao, L.-Y., and Greider, C.W. Phosphorylation of H2AX at short telomeres in T cells and fibroblasts. *J. Biol. Chem.* (2004) 43: 45148-45154.
54. Qi, L., Strong, M., Karim, B.O., Huso, D.L., and Greider, C.W. Telomere fusion to chromosome breaks reduced oncogenic translocations and tumor formation. *Nat. Cell Biol.* (2005) 7: 706-711.
55. Chen, J.-L., and Greider, C.W. Functional analysis of the pseudoknot structure in human telomerase RNA. *Proc. Natl. Acad. Sci. U.S.A.* (2005) 102: 8080-8085.
56. Armanios, M., Chen, J.-L., Chang, C.C., Brodsky, R.A., Hawkins, A., Griffen, C.A., J.R., E., Cohen, A.R., Chakravarti, A., Hamosh, A., and Greider, C.W. Haploinsufficiency of hTERT leads to anticipation in autosomal dominant dyskeratosis congenita. *Proc. Natl. Acad. Sci. U.S.A.* (2005) 102: 15960-15964.
57. Hao, L.Y., Armanios, M., Strong, M.A., Karim, B., Feldser, D.M., Huso, D., and Greider, C.W. Short Telomeres, even in the Presence of Telomerase, Limit Tissue Renewal Capacity. *Cell* (2005) 123: 1121-1131.
58. Feldser, D., Strong, M., and Greider, C.W. Ataxia telangiectasia mutated (Atm) is not required for telomerase-mediated elongation of short telomeres. *Proc. Natl. Acad. Sci. U.S.A.* (2006) 103: 2249-2251.
59. Frank, C.J., Hyde, M., and Greider, C.W. Regulation of telomere elongation by the cyclin-dependent kinase CDK1. *Mol Cell* (2006) 24: 423-432.
60. Feldser, D., and Greider, C.W. Short telomeres limit tumor progression in vivo by inducing senescence. *Cancer Cell* (2007) 11: 461-469.
61. Armanios, Y.M., Chen, J.-L., Cogan, J.D., Alder, J.K., Ingersoll, R.G., Markin, C., Lawson, W.E., Xiw, M., Vulto, I., Phillips, J.A., Lansdorp, P.M., Greider, C.W., and Loyd, J.E. Telomerase Mutations in Families with Idiopathic Pulmonary Fibrosis. *The New England Journal of Medicine* (2007) 356: 1317-1326.
62. Morrish, T.A., Greider, C.W. Short Telomeres Initiate Telomere Recombination in Primary and Tumor Cells. *PLoS Genet.* (2009) 5 (1): e1000357.
63. Ma, Y., and Greider, C.W. Kinase-Independent Functions of *TELI* in Telomere Maintenance. *Mol Cell Biol.* (2009) 29: 5193-5202.
64. Armanios, M., Alder, J.K., Parry, E.M., Karim, B., Strong, M.A., and Greider, C.W. Short telomeres are sufficient to cause the degenerative defects associated with aging. *The American Journal of Human Genetics* (2009) 85: 823-832.
65. Vidal-Cardenas, S.L., and Greider, C.W. Comparing effects of mTR and mTERT deletion on gene express and DNA damage response: a critical examination of telomere length maintenance-independent roles of telomerase. *Nucleic Acids Res.* (2010) 38: 60-71.
66. Tom, H.I., and Greider, C.W. A Sequence-Dependent Exonuclease Activity From *Tetrahymena thermophila*; *BMC Biochem.* (2010) 11:45.
67. Strong, M.A., Vidal-Cardenas, S.L., Karim, B., Yu, H., Guo, N., Greider, C.W. Phenotypes in mTERT^{+/+} and mTERT^{-/-} Mice are Due to Short Telomeres, Not Telomere-Independent Functions of TERT. *Mol Cell Biol.* (2011) 31: 2369-2379.
68. Bender H.S., Murchison E.P., Pickett H.A., Deakin J.E., Strong M.A., Conlan C., McMillan

- D.A., Neumann, A.A., Greider, C.W., Hannon, G.J., Reddel, R.R., Graves, J.A. Extreme telomere length dimorphism in the Tasmanian devil and related marsupials suggests parental control of telomere length. *PLoS One*. (2012) 7(9): e46195.
69. Kaizer, H., Connelly, C.J., Bettridge, K., Viggiani, C., and Greider, C.W. Regulation of Telomere Length Requires a Conserved N-Terminal Domain of Rif2 in *Saccharomyces cerevisiae*. *Genetics* (2015) 201:573-586.
70. Lee, S. S., Bohrsen, C., Pike, A.M., Wheelan, S.J., and Greider, C.W. ATM kinase is required for telomere elongation in mouse and human cells. *Cell Reports*. (2015) 13(8):1623-1632.

Reviews and Book Chapters:

1. Henderson, E., Larson, D., Melton, W., Shampay, J., Spangler, E., Greider, C.W., Ryan, T., and Blackburn, E.H. Structure, synthesis and regulation of telomeres. In: ***Cancer Cells 6: Eukaryotic DNA Replication***. Cold Spring Harbor Laboratory. Vol. (1988) 6: 453–461.
2. Blackburn, E.H., Greider, C.W., Henderson, E., Lee, M., Shampay, J., and Shippen-Lentz, D. Recognition and elongation of telomeres by telomerase. *Genome* (1989) 31: 553–560.
3. Greider, C.W. Telomeres, telomerase and senescence. *BioEssays* (1990) 12: 363–369.
4. Greider, C.W. Chromosome first aid. *Cell* (1991) 67: 645–647.
5. Greider, C.W. Telomeres. *Curr. Opin. Cell Biol.* (1991) 3: 444–451.
6. Greider, C.W. Telomeres and telomerase in small eukaryotes. In: ***The eukaryotic genome: organization and regulation***. P.M.A. Broda, S.G. Oliver and P.F.G Sims, eds. Society for General Microbiology Symposium 50. Cambridge University Press. (1992) pp. 31-42.
7. Greider, C.W. Telomere chromatin and gene expression. *Curr. Biol.* (1992) 2: 62–64.
8. Greider, C.W. Telomerase and telomere length regulation: lessons from small eukaryotes to mammals. *Cold Spring Harbor Symp. Quant. Biol.* (1993) 58: 719-723.
9. Greider, C.W., Autexier, C., Avilion, A.A., Collins, K., Harrington, L.A., Mantell, L.L., Prowse, K.R., Smith, S.K., Allsopp, R.C., Counter, C.M., Vaziri, H., Bacchetti, S., Harley, C.B. Telomeres and telomerase: biochemistry and regulation in senescence and immortalization. In: ***The Chromosome***. J.S. Hesslop-Harrison and R.B. Flavell, eds. Bios Scientific Publishers Ltd. (1993) pp. 115-125.
10. Harley, C.B., Kim, N.W., Prowse, K.R., Weinrich, S.L., Hirsch, K.S., West, M.D., Bacchetti, S., Hirte, H.W., Counter, C.M., Greider, C.W., Piatyszek, M.A., Wright, W.E., and Shay, J.W. Telomerase, cell immortality and cancer. *Cold Spring Harbor Symp. Quant. Biol.* (1994) 59: 307-315.
11. Greider, C.W. Mammalian telomere dynamics: healing, fragmentation, shortening and stabilization. *Curr. Opin. Genet. and Dev.* (1994) 4: 203-211.
12. Greider, C.W. Telomerase biochemistry and regulation. In: ***Telomeres***. E.H. Blackburn and C.W. Greider, Eds. Cold Spring Harbor Laboratory Press. Cold Spring Harbor, New York (1995) pp. 35-68.
13. Greider, C.W., and Harley, C.B. Telomeres and telomerase in cell senescence and immortalization. In *Cellular Aging and Cell Death*, N. J. Holbrook, G. R. Martin, and R. A. Lockshin, eds. (New York, Wiley-Liss, Inc. (1996) pp. 123-138.
14. Greider, C.W. Telomere length regulation. *Ann. Rev. Biochem.* (1996) 65: 337-365.
15. Greider, C.W., and Blackburn, E.H. Telomeres, telomerase and cancer. *Scientific American* (1996) 274: 92-97.
16. Greider, C.W., K. Collins, C. Autexier. Telomerases. In: ***DNA replication in Eukaryotic Cells***. M.L. DePamphilis, Ed. Cold Spring Harbor Laboratory Press. Cold Spring Harbor New York (1996) pp. 619-638.
17. Autexier, C., and Greider, C.W. Telomerase and Cancer: revisiting the telomere hypothesis. *Trends Biochem.* (1996) 21: 387-391.
18. Greider, C.W. Telomerase activity, cell proliferation and cancer. *Proc. Natl. Acad. Sci. U.S.A.* (1998) 95: 90-92.

19. Greider, C.W. Telomeres and senescence: the history, the experiment, the future. *Curr. Biol.* (1998) 8: R178-R181.
20. Greider, C.W. Telomerase Activation: one step on the road to cancer? *Trends Genet.* (1999) 15: 109-112.
21. Greider, C.W. Telomeres do D-loop-T-loop. *Cell* (1999) 97: 419-422.
22. Kass-Eisler, A., and Greider, C.W. Recombination and telomere-length maintenance. *Trends Biochem. Sci.* (2000) 25: 200-204.
23. Hemann, M.T., Hackett, J., Ijima, A., and Greider, C.W. Telomere length, telomere binding proteins and DNA damage signaling, *Cold Spring Harbor Laboratory Symposium on Quantitative Biology LXV* (2000) 275-279.
24. Greider, C.W. Cellular responses to telomere shortening: cellular senescence as a tumor suppressor mechanism. *Harvey Lect:* (2001) 96: 33-50.
25. Hackett, J.A., and Greider, C.W. Balancing Instability: Dual roles for telomerase and telomere dysfunction in tumorigenesis, *Oncogene* (2002) 21: 619-626.
26. Feldser, D.M., Hackett, J., and Greider, C.W. Telomere dysfunction and the initiation of genome instability. *Nature Reviews Cancer* (2003) 3: 623-627.
27. Greider, C.W., and Blackburn, E.H. Tracking Telomerase. *Cell* (2004) 117: S83-S86
28. Chen, J.L., and Greider, C.W. Telomerase RNA structure and function: implications for dyskeratosis congenita *Trends Biochem Sci.* (2004) 29: 183-192.
29. Chen, J.L., and Greider, C.W. An emerging consensus for telomerase RNA structure. *Proc. Natl. Acad. Sci. U.S.A.* (2004) 101: 14683-14684.
30. Armanios, M., and Greider, C.W. Telomerase and Cancer Stem Cells. *Cold Spring Harbor Laboratory Symposium on Quantitative Biology. Vol. LXX* (2005) 205-208.
31. Chen, J.-L., and Greider, C.W. Telomerase Biochemistry and Biogenesis. In *Telomeres*, T. DeLange, E.H. Blackburn, and V. Lundblad, Cold Spring Harbor, NY, Cold Spring Harbor Press (2006) 49-73.
32. Blackburn, E.H., Greider, C.W., and Szostak, J.W. Telomeres and telomerase: the path from maize, Tetrahymena and yeast to human cancer and aging. *Nat. Med.* (2006) 12: 1133-1138.
33. Greider, C.W. Telomerase RNA Levels Limit the Telomere Length Equilibrium. *Cold Spring Harbor Laboratory Symposium on Quantitative Biology. Vol. LXXI* (2007) 225-229.
34. Greider, C.W. Telomerase Discovery: The Excitement of Putting Together Pieces of the Puzzle (Nobel Lecture). *Angew Chem Int Ed Engl.* (2010) 49: 7422-7439.
35. Greider, C.W. Els telòmers i la telomerasa: una breu història sobre els telòmers i el descobriment del seu paper en les malalties que afecten els humans (Telomeres and telomerase: a short history of telomeres and uncovering their role in human disease). *Revista de la Reial Acadèmia de Medicina de Catalunya.* (2011) 26, 142.
36. Greider, C.W. Molecular Biology. Wnt regulates TERT--putting the horse before the cart. *Science* (2012) 336 (6088): 1519-1520.
37. Armanios, M., and Greider, C.W. Treating Myeloproliferation--On Target or Off? *The New England Journal of Medicine* (2015) 373(10): 965-966.

Books:

1. Craig, N.L., Cohen-Fix, O., Green, R., Greider, C.W., Storz, G., and Wolberger, C. *Molecular Biology: Principles of Genome Function* (2010) (Oxford, Oxford University Press).
2. Craig, N.L., Cohen-Fix, O., Green, R., Greider, C.W., Storz, G., and Wolberger, C. *Molecular Biology: Principles of Genome Function, Second Edition* (2014) (Oxford, Oxford University Press).

Commission Papers:

Cloning Human Beings: Report and Recommendations of the National Bioethics Advisory Commission. Rockville MD: May 1997. (Commission Member)

Research Involving Persons with Mental Disorders that may affect Decision making Capacity Report and Recommendations of the National Bioethics Advisory Commission. Rockville MD: December 1998. (Commission Member)

Research involving human biological materials: Ethical issues and policy guidance. Report and Recommendations of the National Bioethics Advisory Commission. Rockville MD: August 1999 (Commission Member)

Ethical Issues in Human Stem Cell Research: Report and Recommendations of the National Bioethics Advisory Commission. Rockville MD: September 1999 (Commission Member)

Ethical and Policy Issues in International Research: Clinical Trails in Developing Countries Report and Recommendations of the National Bioethics Advisory Commission. Bethesda MD: April 2001 (Commission Member)

Ethical and Policy Issues in Research involving Human Participants. Report and Recommendations of the National Bioethics Advisory Commission. Bethesda MD: August 2001 (Commission Member)

Extramural Funding**Current Grants:**

09/15/91-03/31/17 Structure and Function of Telomerase
5R37AG009383-24
NIH, NIA - MERIT AWARD
Total Direct Costs: \$1,211,280
Role: PI; 30% Effort

07/05/11-04/30/16 Cellular Responses to Short Telomeres in B-Cell Lymphoma
1R01CA160300-04
NIH, NCI
Total Direct Costs: \$1,660,885
Role: PI; 15% Effort

EDUCATIONAL ACTIVITIES**Teaching**Classroom instruction:

Winter 1991-1997 Lectures in Graduate Cell and Developmental Biology Course
(MCB 656) State University of New York, Stony Brook

Fall 1997-2003 Lectures in Graduate Molecular Biology Course
The Johns Hopkins University School of Medicine

Fall 1998-present Instructor in Molecules and Cells Course
The Johns Hopkins University School of Medicine

Fall 2003-present Lectures in Graduate Molecular Biology & Genomics Course
The Johns Hopkins University School of Medicine

Mentoring

Past Graduate Students

1988-1993	Lea Harrington, Ph.D.
1990-1995	Ariel Avilion, Ph.D.
1995-1997	Helena Yang, Ph.D.
1997-2002	Douglas Mason, Ph.D.
1998-2001	Michael Hemann, Ph.D.
1998-2004	Arne Ijpma, Ph.D.
1999-2003	Jennifer Hackett, Ph.D.
2000-2005	Ling-Yang Hao, Ph.D.
2001-2006	Christopher Frank, Ph.D.
2001-2006	David Feldser, Ph.D.
2005-2008	Joseph Kabogo, M.A.
2005-2009	Molly Hyde, M.A.
2003-2011	Vinny Ranganathan, Ph.D.
2007-2011	Sofia Vidal-Cardenas, Ph.D.
2010-2015	Stella Lee, Ph.D.

Past Post-doctoral fellows:

1990-1994	Karen Prowse, Ph.D.
1991-1994	Lin Mantell, Ph.D.
1991-1997	Chantal Autexier, Ph.D.
1992-1995	Kathleen Collins, Ph.D.
1993-1997	Maria Blasco, Ph.D.
1994-1996	Karen Buchkovich, Ph.D.
1995-1996	Bong-Kyeong Oh, Ph.D.
1995-2000	Siyuan Le, Ph.D.
1996-1999	Stephen Buck, Ph.D.
1997-1999	Michael Rudd, Ph.D.
1999-2000	Qijun Chen, Ph.D.
1995-1999	Alyson Kass-Eisler, Ph.D.
1997-2000	Kay Opperman, Ph.D.
1998-2004	Jiunn-Liang Chen, Ph.D.
2001-2005	Ling Qi, Ph.D.
2003-2005	Mary Armanios, M.D.
2004-2009	Yunmei Ma, Ph.D.
2004-2011	Hui-I Tom, Ph.D.
2007-2011	Nini Guo, Ph.D.
2010-2012	Christopher Viggiani, Ph.D.
2004-2012	Tammy Morrish, Ph.D.

Present Pre-doc

2011-present	Steven Wang, BA
2012-present	Alexandra Mims, BS
2013-present	Rebecca Walter Keener, BS
2015-present	Kayarash Karimian, BA
2016-present	Callie Shubin, BS

Thesis Committee Member

1992 Fred Bunz , Advisor: Bruce Stillman
1993 York Maharens, Advisor: Bruce Stillman
1994 Karen Fein , Advisor: Bruce Stillman
1998 Alessandro Bianchi, Advisor: Titia deLange
2000 Oxana Pickeral , Advisor: Jef Boeke
2001 Greg Cost , Advisor: Jef Boeke
2002 Eric Bolton, Advisor: Jef Boeke
2002 Siew Loon Ooi, Advisor: Jef Boeke
2003 Joe Lewcock , Advisor: Randy Reed
2004 Nurjana Bachman , Advisor: Jef Boeke
2004 Dan Southworth, Advisor: Rachel Green
2004 Matthew Frieman , Advisor: Brendan Cormack
2005 Hao, Jiang, Advisor: Steve Desiderio
2006 John Callegari , Advisor: Thomas Kelly
2006 Yong Jie Xu , Advisor: Thomas Kelly
2006 John Arigo, Advisor: Jeff Corden
2006 Jiang Hao , Advisor: Steve Desiderio
2006 Christina Carroll , Advisor: Jeff Corden
2006 Ivanna Celic , Advisor: Jeff Boeke
2007 Rebekah Zinn , Advisor: James Herman
2008 Adel Hyland , Advisor: Jef Boeke
2008 Elizabeth Feezer, Advisor: Cynthia Wolberger
2011 Nailing Zhang , Advisor: D. J. Pan
2011 Taylor Reynolds, Advisor: Steve Desiderio
2014 Yun Qing, Advisor: D. J. Pan
2014 Evan Phillip Hass, Advisor: David Zappulla
2016 Meiling May, Advisor: Steve Desiderio

Training grant participation (current)

07/01/00 – 06/30/17

Biochemistry, Cellular & Molecular Biology Program

T32GM007445

NIH, NIGMS

07/01/2000-06/30/2020

Training Grant in Cellular and Molecular Medicine

T32GM008752

NIH, NIGMS

07/01/00-06/30/16

Oncology Training Grant: Molecular Targets for Cancer Detection and Treatment

T32CA009071

NIH, NCI

07/01/00-06/30/2020

Medical Scientist Training Program

T32GM007309
NIH, NIGMS

07/01/00 – 06/30/17
Pre-doctoral Training Program in Human Genetics
T32GM007814
NIH, NIGMS

07/01/10-06/30/19
Training Program in Hematology
T32HL007525
NIH, NHLBI

09/01/10 – 08/31/16
Training in Areas Fundamental to Cancer Research
T32CA009110
NIH, NCI

ORGANIZATIONAL ACTIVITIES

Johns Hopkins University Service:

2000-2002	Admissions Director for BCMB Graduate Program
2001-2013	Women's Leadership Council
2002-2006	University Committee on Status of Women
2002-2011	JHU SOM Agenda Committee
2004-present	Medical Scientist Training Program Steering Committee
2004-2008	Committee on Faculty Recruitment & Diversity
2004-2005	Search Committee, Department of Biophysics
2005-2008	Search Committee, Chair, Department of Dermatology
2006-present	Co-Chair Embryonic Stem Cell Research Oversight Committee
2007-2008	Search Committee, IBBS Center for Epigenetics
2010-2013	Johns Hopkins University Biology Advisory Committee
2011-2012	JHU SOM Dean Search Committee
2011-present	Institute for Cell Engineering's (ICE) Internal Advisory Committee
2012-2013	JHU Provost Search Committee
2014	Biological Chemistry Departmental Review Committee

Editorial Board appointments

1996-1999	Editorial Board, <i>Trends in Biochemical Sciences</i>
1996-2000	Editorial Board, <i>BBA Reviews on Cancer</i>
2001-present	Editorial Board, <i>Cancer Cell</i>
2003-2005	Editorial Board, <i>Molecular Cancer Research</i>
2004-2007	Editorial Board, <i>International Journal of Cancer</i>
2004-present	Editorial Board, <i>Biomedical Central (BMC) Molecular Biology</i>
2012-present	Editorial Board, <i>eLife</i>

Advisory Committees, Review Groups/Study Sections

June 1992	NIH Ad hoc Site Visit Committee
February 1993	NIH Ad hoc RFA Review Committee
October 1994	NIH Ad hoc Reviewer, Molecular Cytology Study Section

1996-2001	National Bioethics Advisory Commission
November 1998	NIH RFA Study Section
2000	AACR Pezcoller Prize Committee
2008-2010	Jane Coffin Childs Scientific Advisory Board
2009-present	Cold Spring Harbor Laboratory Scientific Advisory Council
2009-present	Passano Foundation Advisory Board
2010-2014	The Hastings Center Campaign Council
2010-present	HHMI Medical Advisory Board (MAB)
2011-2013	Research! America Board
2011	National Institute of General Medical Sciences Search Committee (NIGMS)
2011-2013	NAS Committee on Post Docs
2012	National Institute of General Medical Sciences Search Committee (NIGMS)
2012-present	President's Committee on the National Medal of Science
2013-present	ASCB Public Policy Committee
2014-present	The Hastings Center Council
2014-present	Brigham and Women's Hospital Scientific Advisory Council
2015-present	The Shaw Prize Committee

Professional Societies Membership

1989-present	American Association for the Advancement of Science
1994-present	American Society for Microbiology
1994-present	American Association for Cancer Research
1995-present	The RNA Society
1996-present	American Society for Cell Biology
2004-present	American Society for Biochemistry & Molecular Biology
2006-present	American Society for Human Genetics

Conference Organizer

October 23, 1994	Banbury Center – CSHL - Telomeres
July 2, 1995	Copper Mountain, CO - Ciliate Molecular Biology-FASEB
November 3, 1996	Banbury Center – CSHL - Telomeres and Telomerase
June 21, 1998	Gordon Conference - Rhode Island - Nucleic Acids
March 25, 1999	Cold Spring Harbor Laboratory, NY - Telomeres and Telomerase
April 10, 1999	AACR Annual Meeting, Philadelphia, PA - program committee
March 24, 2001	Cold Spring Harbor Laboratory, NY - Telomeres and Telomerase
May 4, 2003	Cold Spring Harbor Laboratory, NY - Telomeres and Telomerase

Consultantships

July 1992-June 1996	Geron Corporation, Scientific Advisory Board Member
1998-2002	Amgen, Inc., Consultant

RECOGNITION

Awards, Honors

1981	Regents Scholarship, University of California
1983	Phi Beta Kappa Society
1990-1994	Pew Scholar in the Biomedical Sciences
1992	Allied Signal Outstanding Project Award
1994	Gertrude Elion Cancer Research Award (AACR)
1995	Glenn Foundation Award, American Society for Cell Biology
1996	Cornelius Rhoads Award (AACR)

1997	Schering-Plough Scientific Achievement Award, American Society for Biochemistry and Molecular Biology
1998	Ellison Medical Foundation Senior Scholar
1998	Gairdner Foundation Award
1999	Passano Foundation Award
1999	Rosenstiel Award in Basic Medical Research
2000	Harvey Society Lecture
2003	Richard Lounsbery Award (NAS)
2003	Fellow, American Academy of Arts and Sciences
2003	Member, National Academy of Sciences
2003	Fellow, American Association for the Advancement of Science
2004	Fellow, American Academy of Microbiology
2006	Lila Gruber Cancer Research Award
2006	The Wiley Prize in Biomedical Sciences
2006	Albert Lasker Award for Basic Medical Research
2007	The Dickson Prize in Medicine
2007	The Louisa Gross Horwitz Prize
2008	The Katharine Berkan Judd Award
2009	Paul Ehrlich-and Ludwig Darmstaedter-Prize
2009	The Pearl Meister Greengard Prize
2009	Nobel Prize in Physiology or Medicine
2010	Member, Institute of Medicine (IOM)
2012	Royal Academy of Medicine of Catalonia
2013	Alpha Omega Alpha Honor Medical Society
2013	Fellow of the AACR Academy 2013
2015	Cosmos Club award
2016	Member, American Philosophical Society

Invited Talks, and Meetings (since 2002):

2002

April 2002	Washington University Medical Center, Siteman Cancer Center, St. Louis, MO, Basic Science Seminar
April 2002	Vanderbilt University Medical Center, Nashville, TN, Department of Biochemistry Seminar
May 2002	Duke University Medical Center, Durham, NC, Department of Biochemistry Seminar
June 2002	Roger Williams University, Bristol, RI, Nucleic Acids Gordon Conference
June 2002	University of CA, San Francisco, Snowmass, CO, Department of Microbiology And Immunology Seminar
November 2002	Pew Science and Society Institute, Washington, DC, Public Policy Program

2003

January 2003	Memorial Sloan-Kettering Cancer Center, NY, President's Research Seminar
January 2003	National Institutes of Health, Washington, DC, NIH Director's Lecture
February 2003	Cold Spring Harbor Laboratory, NY, The Biology of DNA
March 2003	National Institute of Environmental Health Sciences/NIH, Durham, NC, Distinguished Lecture Series
April 2003	University of California, Santa Barbara, Department of Molecular, Cellular and Developmental Biology, MCDB Research Seminar

April 2003 Cold Spring Harbor Laboratory, NY, Telomerase & Telomere Meeting
July 2003 AACR, Toronto, Canada, Symposium on Telomerase and Senescence
September 2003 National Institute on Aging, Baltimore, MD, Aging Symposium
November 2003 University of Texas, Southwestern Medical Center, University Lecture Series

2004

February 2004 University of Miami, Miami Nature Biotechnology Winter Symposium
March 2004 Boston University, Evans Research Seminar
April 2004 Robinson College, Cambridge, UK, EMBO/58th Harden Conference
April 2004 Stowers Institute for Medical Research, Kansas City, MI,
“The Structural Biology of Chromosomes” Symposium
June 2004 Nucleic Acids Gordon Conference, Salve Regina University, Newport, RI,
September 2004 Thomas Jefferson University, Kimmel Cancer Center
Philadelphia, PA, Giacchino Lecture
October 2004 University of PA, Cell & Molecular Biology Seminar
October 2004 University of Cincinnati, Department of Molecular Genetics,
Biochemistry & Microbiology Seminar
October 2004 Cornell University, Department of Molecular Biology & Genetics Seminar
November 2004 University of California, San Francisco, Department of Biochemistry
And Biophysics Seminar
November 2004 UCSF/Genentech Seminar, San Francisco, CA
November 2004 AACR Telomeres Conference, San Francisco, CA

2005

February 2005 Salk Institute for Biological Studies, La Jolla, CA, Seminar
March 2005 University of Chicago, The Ben May Institute for Cancer Research,
Cancer Biology Seminar
April 2005 Duke University Medical Center, Program in Genetics & Genomics
UPGG Distinguished Lecture
April 2005 The Franklin Institute, Philadelphia, PA, Awards Program Seminar
May 2005 Cold Spring Harbor Laboratory, NY, Telomeres & Telomerase Meeting
June 2005 Cold Spring Harbor Laboratory, NY, CSH Symposium
September 2005 Purdue University, Department of Biochemistry, West Lafayette, IN,
Axelrod Lecture

2006

February 2006 Keystone Symposia on Nucleic Acid Enzymes, Taos, New Mexico
March 2006 American Academy of Dermatology, San Francisco, CA,
Lila Gruber Cancer Research Award
April 2006 AACR Meeting, Washington, DC
April 2006 The Rockefeller University, NY, The Wiley Prize in Biomedical Sciences
May 2006 Cold Spring Harbor Laboratory, NY, Telomeres & Telomerase Meeting
May 2006 Brown University, Providence, RI, Biology of Human Aging Colloquium
June 2006 Washington, DC, General Motors Cancer Research Conference
September 2006 Duke University Medical Center, Durham, NC,
Duke 75th Anniversary Science Symposium
November 2006 University of Pittsburgh, Laureate Lecture
November 2006 Tulane University Medical School, New Orleans, LA, Department of
Biochemistry Seminar

2007

January 2007 Johns Hopkins Medicine, Palm Beach, FL, Aging, Memory & Alzheimer's Disease Seminar

February 2007 Vanderbilt University Medical Center, Nashville, TN, Cell and Developmental Biology Seminar

March 2007 Johns Hopkins University Institute of Genetic Medicine, GSA Lecture

April 2007 Montclair State University, NIGMS, NIH, Montclair, NJ, Tomorrow's Medicine Today

April 2007 Hunter Wilson, Jr., M.D. Lecture, GBMC, Baltimore, MD

May 2007 Phosphorylation, Signaling & Disease meeting Cold Spring Harbor Laboratory

September 2007 Johns Hopkins University, BCMB Retreat, Keynote speaker

September 2007 University of Wisconsin-Madison Medical School, Department of Biomolecular Chemistry, Contemporary Biochemistry Seminar

October 2007 University of Pittsburgh, Dickson Prize in Medicine Lecture

October 2007 Cold Spring Harbor Laboratory, Seminar

November 2007 University of MD, College Park, Department of Chemistry & Biochemistry, Marker Lecture

November 2007 Columbia University Medical Center, NY, Louisa Gross Horwitz Prize Lecture

November 2007 Arizona State University, School of Life Sciences Seminar

December 2007 AACR Telomeres and Telomerase Conference, San Francisco, CA

2008

February 2008 Scripps Research Institute, La Jolla, CA, Bernard Fields Lecture

March 2008 New York University SOM, Honors Program Lecture

March 2008 Carnegie Institution, Department of Embryology, Symposium on Aging

April 2008 Washington University, St. Louis, MO, Erlanger Gasser Speaker

April 2008 AACR Meeting, San Diego, CA, Plenary Speaker

May 2008 Harvard Medical School, Cambridge, MA, Baird Hastings Lecture

May 2008 Memorial Sloan-Kettering Cancer Center, NY, Katharine Berkan Judd Award Lecture

May 2008 Manitoba Institute of Cell Biology, Winnipeg, Manitoba, Canada, Sixth Canadian Symposium on Telomeres & Telomerase

June 2008 Nucleic Acids Gordon Research Conference, Salve Regina University

June 2008 Beth-Israel Deaconess Medical Center & Harvard Medical, Apffel Lecture

September 2008 Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins, Translational Research Conference

September 2008 University of Michigan, Ann Arbor, MI, Cell and Molecular Biology Symposium

October 2008 University of California Irvine, Medical Scientist Lecture

December 2008 Mount Sinai School of Medicine, New York University, Black Family Stem Cell Institute Seminar

December 2008 Johns Hopkins Bayview Medical Center, Bayview Research Symposium

2009

January 2009 Stanford University School of Medicine, McCormick Lecture Series

February 2009 University of Texas Southwestern Medical Center, Women in Science And Medicine Advisory Committee (WISMAC)

March 2009 Paul-Ehrlich-Institut, Frankfurt, Germany, Paul Ehrlich and Ludwig Darmstaedter Prize

May 2009 Johns Hopkins University, Department of Biochemistry & Molecular Biology Seminar

May 2009 Erasmus University Medical Center, Erasmus Lecture Series on Cell Biology

And Genetics, Rotterdam, Netherlands
June 2009 Johns Hopkins University SOM, JH Medical and Surgical Association
June 2009 Bodossaki Foundation Symposium, National Research Athens, Greece,

2010

January 2010 National Human Genome Research Institute (NHGRI), Bethesda, MD
Jeffrey M. Trent Lecture in Cancer Research
January 2010 United for Medical Research, Washington, DC
January 2010 National Advisory Council on Aging, Division of Aging Biology,
Bethesda, MD
February 2010 AAAS Meeting, San Diego, CA, Bridging Science & Society Lecture
March 2010 Johns Hopkins University, Dept. of Cardiac-Pathology, Baltimore, MD,
International Women's Day Seminar
April 2010 Johns Hopkins University SOM, JHU-Med student Revisit 2010
April 2010 Johns Hopkins University, Department of Biology Seminar
April 2010 Baltimore Polytechnic Institute, Ingenuity Project's Mathematics
and Science Research Symposium
April 2010 AACR Meeting, Washington, DC
May 2010 Brodsky Lecture, Johns Hopkins Division of Hematology,
May 2010 American Assn. of University Women (AAUW), Washington, DC
June 2010 Moscow, Russia, Prizvanie/Vocation Foundation for Support of
Medical Achievements
June 2010 Genetics Society of America, Boston, MA
September 2010 Baltimore Women's Forum, Baltimore, MD
September 2010 Graduate Student Invitational Seminar, University of MD, College Park,
September 2010 National Cancer Institute, Bethesda, MD, CCR Eminent Lecture
September 2010 Ernest Caspari Lecture, University of Goettingen, Germany,
October 2010 National Institute on Aging, NIH, Washington, DC, Global Health Forum
October 2010 Vincent J. Cristofalo, Ph.D. Lectures, University of Pennsylvania,
October 2010 Novartis Lecture, University of CA, Berkeley,
December 2010 Florence Mahoney Lecture on Aging NIH, Bethesda, MD,

2011

January 2011 University of California, Santa Barbara, Department of MCDB,
Frontiers in Cancer Research Distinguished Lecture Series
April 2011 University of MD, Graduate lecture in Life Sciences,
May 2011 Telomere & Telomerase Meeting, CSHL, NY
May 2011 Baltimore Polytechnic Institute, Ingenuity Project's Research Symposium
September 2011 Johns Hopkins University SOM, Mary Elizabeth Garrett Lecture
October 2011 Davis High School, Davis, CA, DHS Hall of Fame
October 2011 University of CA, Davis, CWR Distinguished Women in Science Lecture
October 2011 University of CA, Davis, Nelson Scientific Lectureship
November 2011 Johns Hopkins University, Elizabeth L. Rogers, MD
Visiting Lecture in Geriatrics Medicine
November 2011 University of Florida, Genetics Institute Symposium
November 2011 OSHER lecture at Johns Hopkins University, Montgomery County

2012

January 2012 NIH Campus, Bethesda, MD, HHMI-NIH Research Scholars
April 2012 Bernard Cohen Memorial Lecture in Genetics, University of PA SOM,
April 2012 Medical School at Universidad Internacional del Ecuador, Quito-Ecuador

September 2012 NAS-Science, Technology & Policy Forum, Washington, DC

2013

February 2013 University of CA, Berkeley, CAL Alumni lecture, Washington, DC

March 2013 Massachusetts Institute of Technology, Biology Undergrad Student Assn.

April 2013 AACR Annual Meeting, Washington, DC

April 2013 Telomeres & Telomerase Conference, CSHL, NY

September 2013 Telomeres and Disease Conference, Banbury Center, CSHL, NY

October 2013 Meeting of Nobel Prize Laureates and Young Scientists, Ministry of Science & Higher Education, Warsaw, Poland

November 2013 Library of Congress, Washington, DC, Discovery of DNA conference

2014

March 2014 The Hitchcock Lectureship (2 lectures), University of CA, Berkeley,

May 2014 The Shattuck Lecture, Massachusetts Medical Society, New England Journal of Medicine.

May 2014 Ho-Am Forum on Medicine, Samsung Medical Center, Seoul, Korea,

October 2014 Lof der Geneeskunst Lecture, Erasmus University Medical Center Rotterdam, Netherlands,

November 2014 AAMC Annual Meeting, Chicago, IL

December 2014 ASCB Annual Meeting, Philadelphia, PA

2015

March 2015 Ohio State University, Block Lectureship

March 2015 Middlebury College, VT, Biology Department, Saul Lectureship

March 2015 American River College, CA, ARC Foundation

April 2015 AAP Meeting, Chicago, IL

April 2015 Telomere & Telomerase Conference, CSHL, NY

June 2015 University of Lausanne, Switzerland, Center for Integrative Genomics (CIG) Grace Lecture

June 2015 University of Lausanne, Switzerland, Center for Integrative Genomics (CIG) Symposium

July 2015 Gordon Research Conference, West Dover, VT

September 2015 Colorado State University, Murray Scholar Award

October 2015 Johns Hopkins Bayview, Biomedical Research Center, NIDA/NIA Symposium