GEOFFREY M. COOPER

Education:

1969 B.S. Massachusetts Institute of Technology, Cambridge, MA (Biology)

1973 Ph.D. University of Miami, FL (Biochemistry)

Postdoctoral Training:

1973 - 1975 Fellow, McArdle Laboratory for Cancer Research, University of Wisconsin, Madison, WI

Academic Appointments

1975 - 1978 Assistant Professor, Department of Pathology, Harvard Medical School at the Sidney Farber Cancer Institute, Boston, MA

1978 - 1984 Associate Professor, Department of Pathology, Harvard Medical School at the Dana-Farber Cancer Institute, Boston, MA

1984 – 1997 Professor of Pathology, Harvard Medical School at the Dana-Farber Cancer Institute, Boston, MA

1998 – present: Professor of Biology, Boston University, Boston, MA

1998- 2010 Chair, Department of Biology, Boston University, Boston, MA

1998- 2010 Associate Director, Bioinformatics Program, Boston University, Boston, MA

2010- 2015: Associate Dean of the Faculty, Natural Sciences, College of Arts and Sciences, Boston University, Boston, MA

Awards and Honors:

1967 National Science Foundation Undergraduate Research Fellowship
1971 Maytag Fellowship
1973 Jane Coffin Childs Postdoctoral Fellowship
1981 American Cancer Society Faculty Research Award
1984 Burroughs-Wellcome Visiting Professorship
1984 National Academy of Sciences U.S. Steel Award in Molecular Biology

Major Committee Assignments:

1981 – 1986 Leukemia Society of America, Medical and Scientific Advisory Committee

1986 – 1990 NIH Molecular Biology Study Section

1991 – 1997 NIH Reproductive Scientist Development Program, Evaluation Committee

1995 – 1997 External Advisory Committee, Columbia University Center for Reproductive Sciences

2000-2005 Scientific Advisory Council, Society for Women's Health Research

2000-2005 Biomedical Research Committee, The Medical Foundation, Boston, MA

2003-2005 Scientific Advisory Panel, The Iacocca Foundation

2006-2009 RAISE Advisory Board

Consulting:
1982 - 1990 New England Nuclear/DuPont Medical Products
1994 CLONTECH Laboratories
1993 - 1997 Sandoz Pharmaceutical Corporation

Teaching Experience:

1975-1981 Board of Tutors in Biochemical Sciences, Harvard University

1977-1983 Director of Tumor Virology Course, Department of Biochemistry, Harvard University and Department of Pathology, Harvard Medical School

1981 Course Instructor, Introduction of Macromolecules into Mammalian Cells, Cold Spring Harbor Laboratory, New York

1984-1997 Lecturer in Virology and Cell Biology courses, Harvard Medical School

1992-1995 Instructor, Animal Virology course, Harvard Medical School

1998– Cell Biology, BI203, Boston University

2006- Honors Cell Biology, BI213, Boston University

Editorial Boards:

1978 - 1988 Editorial Board, Journal of Virology
1985 - 1987 Associate Editor, Journal of Clinical Laboratory Analysis
1984 - 1990 Associate Editor, Cancer Research

Journal Articles (H index=60; 5 most significant papers highlighted in bold)

1. Cooper GM and Fox MS. 1969. Relationship between transformation frequency and gene function in the histidine degrading enzymes of Bacillus subtilis. Biochem Biophys Res Commun. 34:777-783.

2. Cooper GM and Greer S. 1970. Irreversible inhibition of dehalogenation of 5-iodouracil by 5-diazouracil and reversible inhibition by 5-cyanouracil. Cancer Res. 30:2937-2941.

3. Cooper GM, Dunning WF, and Greer S. 1972. Role of catabolism in pyrimidine utilization for nucleic acid synthesis in vivo. Cancer Res. 32:390-397.

4. Cooper GM and Greer S. 1973. The effect of inhibition of cytidine deaminase by tetrahydrouridine on the utilization of deoxycytidine and 5-bromodeoxycytidine for deoxyribonucleic acid synthesis. Mol. Pharmacol. 9:698-703.

5. Cooper GM and Greer S. 1973. Phosphorylation of 5-halogenated deoxycytidine analogues by deoxycytidine kinase. Mol. Pharmacol. 9:704-710.

6. Cooper GM. 1973. Phosphorylation of 5-bromodoeoxycytidine in cells infected with herpes simplex virus. Proc Natl Acad Sci USA. 70:3788-3792.

7. Cooper GM and Temin HM. 1974. Infectious Rous sarcoma virus and reticuloendotheliosis virus DNAs. J. Virol. 14:1132-1141.

8. Schildkraut I, Cooper GM, and Greer S. 1975. Selective inhibition of the replication of herpes simplex virus by 5-halogenated analogs of deoxycytidine. Mol Pharmacol. 11:153-158.

9. Cooper GM and Temin HM. 1975. Infectious DNA from cells infected with Rous sarcoma virus reticuloendotheliosis virus, or Rous-associated virus-O. Cold Spring Harbor Sym Quan Biol. 39:1027-1032.

10. Cooper GM and Temin HM. 1976. Lack of infectivity of the endogenous avian leukosis virus related genes in the DNA of uninfected chicken cells. J Virol. 17:422-433.

11. Cooper GM and Castellot SB. 1977. Assays of non-infectious fragments of DNA of avian leukosis virus-infected cells by marker rescue. J Virol. 22:300-307.

12. Cooper GM. 1978. Marker rescue of endogenous cellular genetic information related to the avian leukosis virus gene encoding RNA-directed DNA polymerase. J Virol. 25:788-796.

13. Neiman PE, McMillin-Helsel C and Cooper GM. 1978. Specific restriction of avian sarcoma viruses by a line of transformed lymphoid cells. Virology 89:360-372.

14. Cooper GM and Okenquist S. 1978. Mechanism of transfection of chicken embryo fibroblasts by DNA of Rous sarcoma virus. J Virol. 28:45-52.

15. Cooper GM and Silverman L. 1978. Linkage of the endogenous avian leukosis virus genome of virus-producing chicken cells to inhibitory cellular DNA sequences. Cell 15:573-577.

16. Copeland NG and Cooper GM. 1979. Transfection of exogenous and endogenous murine retrovirus DNAs. Cell 16:347-356.

17. Copeland NG, Zelenetz AD and Cooper GM. 1979. Transformation of NIH 3T3 mouse cells by DNA of Rous sarcoma virus. Cell 17:993-1002.

18. Cooper GM, Copeland NG, Zelenetz AD, and Krontiris TG. 1980. Transformation of NIH 3T3 mouse cells by avian retrovirus DNAs. Cold Spring Harbor Symp Quan Biol. 44:1169-1176.

19. Cooper GM, Okenquist S, and Silverman L. 1980. Transforming activity of DNA of chemically transformed and normal cells. Nature 284:418-421.

20. Copeland NG and Cooper GM. 1980. Transfection by DNAs of avian erythroblastosis virus and avian myelocytomatosis virus strain MC29. J Virol. 33:1199-1202.

21. Cooper GM and Neiman PE. 1980. Transforming genes of neoplasms induced by avian lymphoid leukosis virusus. Nature 287:656-659.

22. Copeland NG, Zelenetz AD, and Cooper GM. 1980. Transformation by subgenomic fragments of Rous sarcoma virus DNA. Cell 19:863-870.

23. Jenkins NA and Cooper GM. 1981. Integration, expression and infectivity of exogenously acquired proviruses of Rous-associated virus-O. J Virol. 36:684-691.

24. Copeland NG, Jenkins NA and Cooper GM. 1981. Integration of Rous sarcoma virus DNA during transfection. Cell 23:51-60.

25. Krontiris TG and Cooper GM. 1981. Transforming activity of human tumor DNAs. Proc Natl Acad Sci USA. 78:1181-1184.

26. Shalloway D, Zelenetz AD and Cooper GM. 1981. Molecular cloning and characterization of the chicken gene homologous to the transforming gene of Rous sarcoma virus. Cell 24:531-541.

27. Lane MA, Sainten A and Cooper GM. 1981. Activation of related transforming genes in mouse and human mammary carcinomas. Proc Natl Acad Sci USA 78:5185-5189.

28. Cooper GM and Neiman PE. 1981. Two distinct candidate transforming genes of lymphoid leukosis virus-induced neoplasms. Nature 292:857-858.

29. Lane MA, Sainten A and Cooper GM. 1982. Stage-specific transforming gene or human and mouse B- and T-lymphocyte neoplasms. Cell 28:873-880.

30. Becker D, Lane MA and Cooper GM. 1982. Identification of an antigen associated with transforming genes of human and mouse mammary carcinomas. Proc Natl Acad Sci USA 79:3315-3319.

31. Der CJ, Krontiris TG, and Cooper GM. 1982. Transforming genes of human bladder and lung carcinoma cell lines are homologous to the ras genes of Harvey and Kirsten sarcoma viruses. Proc Natl Acad USA 79:3637-3640.

32. Cooper GM. 1982. Cellular transforming genes. Science 217:801-806.

33. Lane MA, Neary D, and Cooper GM. 1982. Activation of a cellular transforming gene in tumors induced by Abelson murine leukemia virus. Nature 300:569-661.

34. Der CJ and Cooper GM. 1983. Altered gene products are associated with activation of cellular rasK genes in human lung and colon carcinomas. Cell 32:201-208.

35. Goubin G, Goldman DS, Luce J, Neiman PE, and Cooper GM. 1983. Molecular cloning and nucleotide sequence of a transforming gene detected by transfection of chicken B-cell lymphoma DNA. Nature 302:114-119.

36. Diamond AM, Cooper GM, Ritz J, and Lane M.-A. 1983. Identification and molecular cloning of the human Blym transforming gene activated in Burkitt's lymphomas. Nature 305:112-116.

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38. Feig L, Bast RC Jr, Knapp RC, and Cooper GM. 1984. Somatic activation of rasK in a human ovarian carcinoma. Science 223:698-701.

39. Lane M.-A., Sainten A, Doherty KM, and Cooper GM. 1984. Isolation and characterization of a stage specific transforming gene, Tlym-1, from T cell lymphomas. Proc Natl Acad Sci. 81:2227-2236.

40. Cooper GM, and Lane M.-A. 1984. Cellular transforming genes and oncogenesis. Biochim Biophys Acta Reviews on Cancer 738:9-20.

41. Finkel T and Cooper GM. 1984. Detection of a molecular complex between ras protein and transferrin receptor. Cell 36:1115-1121.

42. Finkel T, Der CJ, and Cooper GM. 1984. Activation of ras genes in human tumors does not affect localization,modification or nucleotide binding properties of p21. Cell 37:151-158.

43. Diamond A, Devine J, and Cooper GM. 1984. Nucleotide sequence of a human Blym transforming gene activated in a Burkitt's lymphoma. Science 225:516-519.

44. Becker D, Lane M.-A, and Cooper GM. 1984. Transformation of NIH 3T3 cells by DNA of the MCF-7 human mammary carcinoma cell line induces expression of an endogenous murine leukemia provirus. Mol Cell Biol 4:2247-2252.

45. Neiman P, Wolf C, Enrietto PJ, and Cooper GM. 1985. A retroviral myc gene induces pre-neoplastic transformation of lymphocytes in a bursal transplantation assay. Proc Natl Acad Sci USA 82:222-226.

46. Takahashi M, Ritz J, and Cooper GM. 1985. Activation of a novel human transforming gene (ret) by DNA rearrangement. Cell 42:581-588.

47. Der CJ, Finkel T, and Cooper GM. 1986. Biological and biochemical properties of human rasH genes mutated at codon 61. Cell 44:167-176.

48. Feig L, Pan B-T, Roberts TM, and Cooper GM. 1986. Isolation of ras GTP binding mutants using an in situ colony binding assay. Proc. Natl. Acad. Sci. USA 83:4607-4611.

49. Der CJ, Pan B-T, and Cooper, GM. 1986. RasH mutants deficient in GTP binding. Mol. Cell. Biol. 6:3291-3294.

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53. Takahashi M, and Cooper GM. 1987. The ret transforming gene encodes a fusion protein homologous to tyrosine kinases. Mol. Cell. Biol. 7:1378-1385.

54. Goldman DS, Kiessling AA, Millette CF and Cooper GM. 1987. Expression of c-mos RNA in germ cells of male and female mice. Proc. Natl. Acad. Sci. USA. 84:4509-4513.

55. Eva A, Vecchio G, Diamond M, Tronick SR, Ron D, Cooper GM, and Aaronson SA. 1987. Independently activated dbl oncogenes exhibit similar yet distinct structural alterations. Oncogene 1:355-360.

56. Feig LA and Cooper GM. 1988. Relationship among guanine nucleotide exchange, GTP hydrolysis and transforming potential of mutated ras proteins. Mol. Cell. Biol. 8:2472-2478.

57. Goldman DS, Kiessling AA, and Cooper GM. 1988. Post-transcriptional processing suggests that c-mos functions as a maternal message in mouse eggs. Oncogene 3:159-162.

58 Feig LA and Cooper GM. 1988. Inhibition of NIH 3T3 cell proliferation by a mutant ras protein with preferential affinity for GDP. Mol Cell Biol 8:3235-3243.

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60. Stanton VP, Nichols DW, Laudano AP and Cooper GM. 1989. Definition of raf amino terminal regulatory region by deletion mutagenesis. Mol. Cell. Biol. 9:639-647.

61. Wolfes H, Kogawa K, Millette CF and Cooper GM. 1989. Specific expression of nuclear proto-oncogenes before entry into meiotic prophase of spermatogenesis. Science 245:740-743.

62. O'Keefe SJ, Wolfes H, Kiessling AA and Cooper GM. 1989. Microinjection of antisense c-mos oligonucleotides prevents meiosis II in the maturing mouse egg. Proc. Natl. Acad. Sci. U.S.A. 86:7038-7042.

63. Pan BT, and Cooper GM. 1990. Role of phosphatidylinositol metabolism in ras-induced Xenopus oocyte maturation. Mol. Cell. Biol. 10:923-929.

64. Szeberenyi J, Cai H, and Cooper GM. 1990. Effect of a dominant inhibitory rasH mutation on neuronal differentiation of PC12 cells. Mol. Cell. Biol. 10:5324-5332.

65. Cai H, Szeberenyi J and Cooper GM. 1990. Effect of a dominant inhibitory rasH mutation on mitogenic signal transduction in NIH 3T3 cells. Mol. Cell. Biol. 10:5314-5323.

66. O'Keefe SJ, Kiessling AA and Cooper GM. 1991. c-mos is required for cyclin B accumulation during meiosis of mouse eggs. Proc. Natl. Acad. Sci. USA. 88:7869-7872.

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71. Szeberenyi, J., Erhardt, P., Cai, H., and Cooper, G.M. 1992. Role of Ras in signal transduction from the NGF receptor: relationship to protein kinase C, calcium, and cyclic AMP. Oncogene 7:2105-2113.

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74. Schweighoffer, F., Cai, H., Chevallier-Multon, M.C., Fath, I., Cooper, G., and Tocque, B. 1993. The Saccharomyces cerevisiae SDC25 C-domain gene product overcomes the dominant inhibitory activity of Ha-Ras Asn-17. Mol. Cell. Biol. 13:39-43.

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76. Fanger, G.R., Erhardt, P., Cooper, G.M., and Maue, R.A. 1993. Ras-independent induction of rat brain type II sodium channel expression in nerve growth factor-treated PC12 cells. J. Neurochem. 61:1977-1980.

77. Cai, H., Erhardt, P., Troppmair, J., Diaz-Meco, M.T., Rapp, U.R., Moscat, J., and Cooper, G.M. 1993. Hydrolysis of phosphatidylcholine couples Ras to activation of the Raf protein kinase during mitogenic signal transduction. Mol. Cell. Biol. 13:7645-7651.

78. Pal, S.K., Torry, D.S., Serta, R., Crowell, R.C., Seibel, M.M., Cooper, G.M., and Kiessling, A.A. 1994. Expression and potential function of the c-mos proto-oncogene in human eggs. Fertil. Steril. 61:496-503.

79. Corbley, M.J., Cherington, V., Feig, L.A., Cooper, G.M., and Roberts, T.M. 1994. Rapid regeneration of virus from cells infected with a retroviral vector. Biotechniques 17:1102- 1109.

80. Yamauchi, N., Kiessling, A.A., and Cooper, G.M. 1994. The Ras/Raf signaling pathway is required for progression of mouse embryos through the two-cell stage. Mol. Cell. Biol. 14:6655-6662.

81. Gebauer, F., Xu, W., Cooper, G.M., and Richter, J.D. 1994. Translational control by cytoplasmic polyadenylation of c-mos mRNA is necessary for oocyte maturation in the mouse. EMBO J. 13:5712-5720.

82. Yao, R., and Cooper, G.M. 1995. Requirement for phosphatidylinositol-3 kinase in the prevention of apoptosis by nerve growth factor. Science 267:2003-2006.

83. Xu, W., and Cooper, G.M. 1995. Identification of a candidate c-mos repressor that restricts transcription of germ cell-specific genes. Mol. Cell. Biol. 15:5369-5375.

84. Erhardt, P., Troppmair, J., Rapp, U.R., and Cooper, G.M. 1995. Differential regulation of Raf-1 and B-Raf by cAMP. Mol. Cell. Biol. 15:5524-5530.

85. Yao, R., and Cooper, G.M. 1995. Regulation of the Ras signaling pathway by GTPase-activating protein in PC12 cells. Oncogene 11:1607-1614.

86. Yao, R., and Cooper, G.M. 1996. Growth factor-dependent survival of rodent fibroblasts requires phosphatidylinositol 3-kinase but is independent of pp70S6K activity. Oncogene 13:343-351.

87. Erhardt, P., and Cooper, G.M. 1996. Activation of the CPP32 apoptotic protease by distinct signaling pathways with differential sensitivity to Bcl-xL. J. Biol. Chem. 271:17601-17604.

88. Cai, H., Wixler, V., Smole, U., Moscat, J., Rapp, U.R., and Cooper, G.M. 1997. Role of diacylglycerol-regulated protein kinase C isotypes in growth factor activation of the Raf-1 protein kinase. Mol. Cell. Biol. 17:732-741.

89. Dudek,H., Datta, S.R., Franke, T.F., Birnbaum, M.J., Yao, R., Cooper, G.M., Segal, R.A., Kaplan, D.R., and Greenberg, M.E. 1997. Regulation of neuronal survival by the Ser/Thr protein kinase Akt. Science 275:661-665.

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96. Erhardt, P., Schremser, E.J., and Cooper, G.M. 1999. B-Raf inhibits programmed cell death downstream of cytochrome *c* release from mitochondria by activating the MEK/Erk pathway. Mol. Cell. Biol. 19:5308-5315.

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99. Pap, M., and Cooper, G.M. 2002. Role of translation initiation factor 2B in control of cell survival by the phosphatidylinositol 3-kinase/Akt/glycogen synthase kinase 3β signaling pathway. Mol. Cell. Biol. 22:578-586.

100. Gross, V.S., and Cooper, G.M. 2002. Functional analysis of sperm from c-*mos*$^{-/-}$ mice. Mol. Reprod. Dev. 62:519-524

101. Hartley, D. and Cooper, G.M. 2002. The role of mTOR in the degradation of IRS-1: regulation of PP2A activity. J. Cell. Biochem. 85:304-314.

102. Pagon, Z., Volker, J., Cooper, G.M., and Hansen, U. 2003. Mammalian transcription factor LSF is a target of ERK signaling. J. Cell. Biochem. 89:733-746.

103. Zilz, A., and Cooper, G.M. 2004.. A binding site for germ cell nuclear factor within c-*mos* regulatory sequences. Mol. Reprod. Dev. 67:55-64.

104. Tullai, J.W., Schaffer, M.E., Mullenbrock, S., Kasif, S., and Cooper, G.M. 2004. Identification of transcription factor binding sites upstream of human genes regulated by the phosphatidylinositol 3-kinase and MEK/ERK signaling pathways. J. Biol. Chem. 279:20167-20177.

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109. Terragni, J., Graham, J.R., Adams, K.W., Schaffer, M.E., Tullai, J.W. and Cooper, G.M. 2008. Phosphatidylinositol 3-kinase signaling in proliferating cells maintains an anti-apoptotic transcriptional program mediated by inhibition of FOXO and non-canonical activation of NFκB transcription factors. BMC Cell Biol. 9:6.

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114. Tullai, J.W., Tacheva, S., Owens, L.J., Graham, J.R. and Cooper, G.M. 2011. AP-1 is a component of the transcriptional network regulated by GSK-3 in quiescent cells. PLoS ONE 6:e20150.

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Book Chapters:

1. Cooper GM, Lane, Krontiris TG, Goubin G. Analysis of cellular transforming genes by transfection. In: Klein G, ed. Advances in viral oncology. New York: Raven Press, 1982.

2. Cooper GM. Transforming genes of chicken bursal lymphomas. In: Mak T, Bernstein A, eds. Cellular and Molecular Biology of Hemopoietic Stem Cell Differentiation. New York: Alan R. Liss, 1982.

3. Cooper GM, Lane MA. Tumor transforming genes. In: Rowley J., ed. Chromosomes and Cancer From Molecules to Man. New York: Academic Press, 1983.

4. Cooper GM. Transforming genes of human lung carcinomas. In: Mizell, M, ed. Proc Intl. Lung Cancer Update Conf., Verlag Chemie Intl., 1983.

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7.Cooper GM. The 1984 Walter Hubert lecture: Activation of transforming genes in neoplasms. Br. J. Cancer 50:137-142.

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