

NAME Steven L. McKnight		POSITION TITLE Professor and Chairman	
eRA COMMONS USER NAME SMCKNI			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
University of Texas, Austin, TX	B.A.	1974	Biology
University of Virginia, Charlottesville, VA	Ph.D.	1977	Biology

Research and/or Professional Experience:

1979-1981 Staff Associate, Carnegie Institution of Washington, Baltimore, MD
1981-1984 Assistant Staff Member, Fred Hutchinson Cancer Research Center
1984-1992 Staff Member, Carnegie Institution of Washington, Baltimore, MD
1988-1992 Investigator, Howard Hughes Medical Institute
1984- Adjunct Professor, Johns Hopkins University
1992- Research Associate (extramural), Carnegie Institution of Washington, Baltimore, MD
1995- Professor and Chairman, Department of Biochemistry, UT Southwestern Medical Center, Dallas, TX

Honors and Awards:

1969 ARCOM Medal, Republic of Vietnam
1975 Virginia Society of Fellows
1977 Andrew Fleming Award for Biological Research, University of Virginia
1977 Helen Hay Whitney Foundation Fellowship
1985 Dai Nakada Memorial Lecture, University of Pittsburgh
1987 DeWitt Stetten Lecture, National Institutes of Health
1989 Eli Lilly Award
1989 Newcomb Cleveland Award-AAAS
1990 Steinberg/Wylie Lecture, University of Maryland
1990 Burroughs Wellcome Lecture, Indiana University Medical School
1991 University Lecture, University of Texas Southwestern Medical School
1991 Monsanto Award - National Academy of Sciences
1991 Bernard Cohen Lecture, University of Pennsylvania
1991 Gerhard Schmidt Lecture, Tufts University
1992 Harvey Lecture, Rockefeller University
1992 John Enders Lecture, Harvard Medical School
1993 Fellow American Academy of Microbiology
1995 Commencement Address, College of Natural Sciences, University of Texas
2004 NIH Pioneer Award

Member:

National Academy of Sciences
American Academy of Arts and Sciences
Japanese Biochemical Society
American Society for Biochemistry and Molecular Biology
American Association for Cancer Research

Selected Publications:

- McKnight, S.L.** and Miller, O.L., Jr. (1976). Ultrastructural Patterns of RNA Synthesis During the Early Embryogenesis of *Drosophila melanogaster*. *Cell* 8:305-319.
- McKnight, S.L.** and Miller, O.L., Jr. (1977). Electron Microscopic Analysis of Chromatin Replication in the Cellular Blastoderm *Drosophila melanogaster* Embryo. *Cell* 12:795-804.
- McKnight, S.L.** (1980). The Nucleotide Sequence and Transcript Map of the Herpes Simplex Virus Thymidine Kinase Gene. *Nucleic Acids Research* 8:5949-5964.
- McKnight, S.L.** and Gavis, E.R. (1980). Expression of the Herpes Simplex Virus Thymidine Kinase Gene in *Xenopus laevis* Oocytes: An Assay for the Study of Deletion Mutants Constructed *in vitro*. *Nucleic Acids Research* 8:5931-5948.
- McKnight, S.L.** and Kingsbury, R. (1982). Transcriptional Control Signals of a Eukaryotic Protein-Coding Gene. *Science* 217:316-325.
- Harland, R.M., Weintraub, H. and **McKnight, S.L.** (1982). Transcription of DNA Injected into *Xenopus* Oocytes is Influenced by Template Topology. *Nature* 301:38-43.
- McKnight, S.L.** and Tijan, R. (1986). Transcriptional Selectivity of Viral Genes in Mammalian Cells. *Cell* 46:795-805.
- Johnson, P.F., Landschulz, W.H., Graves, B.J. and **McKnight, S.L.** (1987). Identification of a Rat Liver Nuclear Protein that Binds to the Enhancer Core Element of Three Animal Viruses. *Genes and Dev.* 1:133-146.
- Landschulz, W.H., Johnson, P.F. and **McKnight, S.L.** (1988). The Leucine Zipper: A Hypothetical Structure Common to a New Class of DNA Binding Proteins. *Science* 240:1759-1764.
- Landschulz, W.H., Johnson, P.F., Adashi, E.Y., Graves, B.J. and **McKnight, S.L.** (1988). Isolation of a Recombinant Copy of the Gene Encoding C/EBP. *Genes and Dev.* 2:786-800.
- Friedman, A.D., Triezenberg, S.J. and **McKnight, S.L.** (1988). Expression of a Truncated Viral *trans*-activator in Mammalian Cells Selectively Impedes Lytic Infection by its Cognate Virus. *Nature* 335:452-454.
- Landschulz, W.H., Johnson, P.F. and **McKnight, S.L.** (1989). The DNA Binding Domain of C/EBP is Bipartite. *Science* 243:1681-1688.
- LaMarco, K.L. and **McKnight, S.L.** (1989). Purification of a Set of Cellular Polypeptides that Bind to the Purine-Rich *cis*-Regulatory Element of Herpes Simplex Virus Immediate Early Genes. *Genes and Dev.* 3:1372-1383.
- Vinson, C.R., Sigler, P.B. and **McKnight, S.L.** (1989). A Scissors-Grip Model for DNA Recognition by a Family of Leucine Zipper Proteins. *Science* 246:911-916.
- McKnight, S.L.**, Lane, M.D. and Gluecksohn-Waelsch, S. (1989). Is CCAAT/Enhancer Binding Protein a Central Regulator of Energy Metabolism? *Genes and Dev.* 3:2021-2024.
- Umek, R.M., Friedman, A. and **McKnight, S.L.** (1991). CCAAT/Enhancer Binding Protein: A Component of a Different Switch. *Science* 251:288-292.
- LaMarco, K., Thompson, C.C., Byers, B.P., Walton, E.M. and **McKnight, S.L.** (1991). Identification of Ets- and Notch-Related Subunits in GA Binding Protein. *Science* 253: 789-768.
- Thompson, C.C., Brown, T.A. and **McKnight, S.L.** (1991). Convergence of Ets- and Notch-Related Structural Motifs in a Heteromeric DNA Binding Complex. *Science* 253:762-768.
- Hou, J., Henzel, W.H., Ho, T.C., Brasseur, M. and **McKnight, S.L.** (1994). An Interleukin-4-Induced Transcription Factor: IL-4 Stat. *Science* 265: 1701-1706.
- Batchelor, A.H., Piper, D.E., de la Brousse, F. C., **McKnight, S. L.** and Wolberger, C. (1998). The Structure of GABP α/β : An ETS Domain-Ankyrin Repeat Heterodimer Bound to DNA. *Science* 279, 1037-1041.
- Tian, H., Hammer, R.E., Matsumoto, A.M., Russell, D.W. and **McKnight, S.L.** (1998). The Hypoxia-Responsive Transcription Factor EPAS1 is Essential for Catecholamine Homeostasis and Protection Against Heart Failure During Embryonic Development. *Genes & Dev.* 12:3320-3324.
- Garcia, J.A., Zhang, D., Estill, S.J., Michnoff, C., Rutter, J., Reick, M., Scott, K., Diaz-Arrastia, R. and **McKnight, S.L.** (2000). Impaired Cued and Contextual Memory in NPAS2-Deficient Mice. *Science* 288:2226-2230.
- Reick, M., Garcia, J.A., Dudley, C. and **McKnight, S.L.** (2001). NPAS2: An Analog of Clock Operative in the Mammalian Forebrain. *Science* 293:506-509.

- Rutter, J., Garcia, J.A., Dudley, C. and **McKnight, S.L.** (2001). Regulation of Clock and NPAS2 DNA Binding by the Redox State of NAD Cofactors. *Science* 293:510-514.
- Rutter, J., Michnoff, C.H., Harper, S.M., Gardner, K.H. and **McKnight, S.L.** (2001). PAS Kinase: An Evolutionarily Conserved PAS Domain-Regulated Serine/Threonine Kinase. *Proc. Natl. Acad. Sci.* 98:8991-8996.
- Bruick, R., **McKnight, S.L.** (2001). A Conserved Family of Prolyl-4-Hydroxylases That Modify HIF. *Science* 294:1337-1340.
- Rutter, J., Reick, M. and **McKnight, S.L.** (2002). Metabolism and the Control of Circadian Rhythm. *Annu. Rev. Biochem.* 71:307-331.
- Rutter, J., Probst, B.L. and **McKnight, S.L.** (2002). Coordinate Regulation of Sugar Flux and Translation by PAS Kinase. *Cell* 111:17-28.
- Dioum, E.M., Rutter, J., Tuckerman, J.R., Gonzalez, G., Gilles-Gonzalez, M.-A. and **McKnight, S.L.** (2002). NPAS2: A Gas-Responsive Transcription Factor. *Science* 298:2385-2387.
- Dudley, C.A., Erbel-Sieler, C., Estill, S.J., Reick, M., Franken, P., Pitts, S. and **McKnight, S.L.** (2003). Altered Patterns of Sleep and Behavioral Adaptability in NPAS2-Deficient Mice. *Science* 301:379-383.
- Harrison, S.C., Alberts, B., Ehrenfeld, E., Enquist, L., Fineberg, H., **McKnight, S.L.**, Moss, B., O'Donnell, M., Ploegh, H., Schmid, S.L., Walter, K.P., and Theriot, J. (2004). Discovery of Antivirals Against Smallpox. *Proc. Natl. Acad. Sci.* 101:11178-11192.
- Erbel-Sieler, C., Dudley, C., Zhou, Y., Wu, X., Estill, S.J., Han, T., Diaz-Arrastia, R., Brunskill, E.W., Potter, S.S., and **McKnight, S.L.** (2004). Behavioral and Regulatory Abnormalities in Mice Deficient in the NPAS1 and NPAS3 Transcription Factors. *Proc. Natl. Acad. Sci.* 101:13648-13653.
- Wu, X., Alexander, P.B., He, Y., Kikkawa, M., Vogel, P.D., and **McKnight, S.L.** (2005). Mammalian sprouty proteins assemble into large monodisperse particles having the properties of intracellular nanobatteries. *Proc. Natl. Acad. Sci.* 102:14058-14062.
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Research Support

Steven McKnight - NCI, 1 P01 CA95471-02

“A Concerted Chemical, Biophysical & Molecular Biological Attack of Intracellular Pathways Relevant to Human Cancer”

The major goal of this project is to seek to discover and characterize synthetic, small molecule compounds that may be effective in the treatment of human cancer.

09/01/02-08/31/07 \$1,858,974

Steven McKnight - NIH, 5 R37 MH59388-06

“Genetics and Biochemistry of Neuronal PAS Domain Proteins”

The major goal of this project is on resolution of the biological roles and biochemical activities of two transcription factors expressed in the mammalian brain.

01/15/99-12/31/08 \$321,495

Steven McKnight - 1 DP1 OD000276-01

“NIH Director’s Pioneer Award”

09/30/04-07/31/09 \$500,000