BIOGRAPHICAL SKETCH

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NAME	POSITION TITLE
Richard W. Tsien	George D. Smith Professor, Molecular & Cellular Physiology
eRA COMMONS USER NAME	

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
MIT, Cambridge, MA	S.B.	1965	Electrical Engineering
MIT, Cambridge, MA	S.M.	1966	Electrical Engineering
Oxford University, Oxford, England	Ph.D.	1970	Biophysics

Professional Positions

1966 Research student in Eaton Peabody Laboratory of Auditory Physiology
1968-1970 Weir Junior Research Fellow, University College, Oxford
1969-1970 Lecturing Fellow, Balliol College, Oxford
1970-1974 Assistant Professor, Department of Physiology, Yale University School of Medicine
1974-1979 Associate Professor, Department of Physiology, Yale University School of Medicine
1979-1988 Professor, Department of Physiology, Yale University School of Medicine
1988-1994 Chairman and Founder, Department of Molecular and Cellular Physiology, Stanford University
1991-2001 Director, Silvio Conte - National Institutes of Mental Health Center for Neuroscience Research
1988-present George D. Smith Professor, Department of Molecular and Cellular Physiology
2000-present Co-Director, Stanford Brain Research Center

Selected Honors and Professional Activities:

Rhodes Scholar (1966-1969)
Kenneth S. Cole Award for Contributions to Membrane Biophysics (1985)
Javits Investigator, NINCDS (1986-1993)
President, Society of General Physiologists (1987-1988)
Kaiser Award for Outstanding and Innovative Teaching, Stanford University (1991, 1995, 1999)
Magnes Prize, Hebrew University, Jerusalem (1993)
Nahum Lecturer, Yale University (1993)
McDowell Lecturer, Kings College London (1993)
Sherrington Lecturer, University of Liverpool (1994)
Institute of Medicine of the National Academy of Sciences (1994)
Distinguished Neuroscience Lecturer, Duke University (1995)
Walter B. Cannon Memorial Award, American Physiological Society (April, 1996)
Member, Academia Sinica (July, 1996)
Plenary Lecturer, Society of Neuroscience (November, 1996)
Member, National Academy of Sciences (May, 1997)
Member, American Academy of Arts and Sciences (April, 1998)
George Bishop Lecturer, Washington University St. Louis (May 1998)
Council Member, National Advisory Neurological Disorders and Stroke Council (January 1999)
Roger Eckert Lecturer, German Society for Neuroscience (May, 1999)
Charter Member, Biophysical Society (June, 1999)
Harry van Dyke Lectureship, Columbia University (December, 1999)
Section Chair, Neurobiology, National Academy of Sciences (August, 2000)
Alan C. Beering Award and Lectureship, University of Indiana (October, 2000)
Fredric S. Fay Lecturer, University of Massachusetts (October 2002)

Peer Reviewed Publications (Partial Listing of approximately 200 papers):

Marban, E. & Tsien, R.W. (1982). Enhancement of cardiac calcium current during digitalis inotropy: positive feedback regulation by intracellular calcium. J. Physiol. 329: 589-614.

Nowycky, M.C., Fox, A.P. & Tsien, R.W. (1985). Three types of neuronal calcium channel with different calcium agonist sensitivity. Nature 316, 440-443.

Hirning, L.D., Fox, A.P., McCleskey, E.W., Olivera, B.M., Thayer, S.A., Miller, R.J. & Tsien, R.W. (1988). Dominant role of N-type calcium channels in evoked release of norepinephrine from sympathetic neurons. Science 239, 57-61.

Lipscombe, D., Madison, D.V., Poenie, M., Reuter, H., Tsien, R.W. and Tsien, R.Y. (1988). Imaging of cytosolic Ca2+ transients arising from Ca2+ channels in sympathetic neurons. Neuron 1: 355-365.

Lipscombe, D., Kongsamut, S., Tsien, R.W. (1989). α-adrenergic inhibition of sympathetic neurotransmitter release mediated by selective modulation of N-type calcium gating. Nature 340: 639-642.

Tsien, R.W., Tsien, R.Y. (1990). Calcium channels, stores and oscillations. Ann. Rev. Cell. Biol. 6:715-760.

Tsien, R.W., Ellinor, P.T. & Horne, W.A. (1991). Molecular diversity of voltage-dependent Ca2+ channels. Trends Pharmacol. Sci. 12:349-354.

Yang, J. & Tsien, R.W. (1993). Enhancement of N and L type calcium channel currents by protein kinase C in frog sympathetic neurons. Neuron 10:127-136.

Friel, D.D. & Tsien, R. W. (1994). A FCCP-sensitive Ca2+ store in bullfrog sympathetic neurons and its participation in stimulus-evoked changes in [Ca2+]i. J. Neurosci. 14, 4007-4024.

Deisseroth, K, Bito, H. & Tsien, R.W. (1996). Signaling from synapse to nucleus: postsynaptic CREB phosphorylation during multiple forms of hippocampal synaptic plasticity. Neuron 16, 89-101.

Bito, H., Deisseroth, K. Tsien, R.W. (1996). CREB phosphorylation and dephosphorylation: a Ca2+- and stimulus duration-dependent switch for hippocampal gene expression. Cell 87, 1203-1214.

Bito, H., Deisseroth, K. Tsien, R.W. (1997). Ca2+-dependent regulation in neuronal gene expression. Current Opin. Neurobiol. 7, 419-429.

Deisseroth, K., Heist, E.K., Tsien, R.W. (1998). Calmodulin translocation to the nucleus mediates rapid synaptic control of CREB phosphorylation in hippocampal neurons. Nature 392, 198-202.

Zühlke, R.D., Pitt, G.S., Deisseroth, K., Tsien, R.W. & Reuter, H. (1999). Calmodulin supports both inactivation and facilitation of L-type calcium channels. Nature 399, 159-162.

Graef, I.A., Mermelstein, P.G., Stankunas, K., Neilson, J.R., Deisseroth, K., Tsien, R.W. & Crabtree, G.R. (1999). L-type calcium channels and GSK-3 regulate the activity of NF-ATc4 in hippocampal neurons. Nature 401, 703-708.

Bito, H., Deisseroth, K. & Tsien, R.W. (1999). Activity-dependent regulation of communication from synapse to nucleus. In: Proceedings, 22nd Taniguchi Foundation Symposium, ed. O. Hayaishi, pp.107-120.

Zühlke, R.D., Pitt, G.S., Tsien, R.W. & Reuter, H. (2000). Ca2+-sensitive inactivation and facilitation of L-type Ca2+ channels both depend on specific amino acid residues in a consensus calmodulin-binding motif in thea1C subunit. J. Biol. Chem. 275(38):21121-29.

Mermelstein, P., Bito, H., Deisseroth, K., Tsien, R.W. (2000). Critical dependence of cAMP response element-binding protein phosphorylation on L-type calcium channels supports a selective response to EPSPs in preference to action potentials. J Neurosci. 20, 266-273.

Wu, G.-Y., Deisseroth, K. and Tsien, R.W. (2001). Activity-dependent CREB phosphorylation: Convergence of a fast, sensitive calmodulin kinase pathway and a slow, less sensitive mitogen-activated protein kinase pathway. Proc. Natl. Acad. Sci. USA, 98(5):2808-13.

Pitt, G.S., Zuhlke, R.D., Hudmon, A., Schulman, H., Reuter, H., and Tsien, R.W. (2001). Molecular basis of CaM tethering and Ca2+-dependent inactivation of L-type Ca2+ channels. J. Biol. Chem. 276, 30794-30802.

Mermelstein, P.G., Deisseroth, K., Dasgupta, N., Isaksen, A.L. and Tsien, R.W. (2001). Calmodulin priming: nuclear calmodulin translocation and the memory of prior neuronal activity. Proc. Natl. Acad. Sci. USA, 98, 15342-15347.

Deisseroth, K., Mermelstein, P.G., Xia, H. and Tsien, R. W. (2003). Signaling from synapse to nucleus: the logic behind the mechanisms. Current Opinion in Neurobiology 13, 354-65.

Hudmon, A., Schulman, H., Kim, J., Maltez, J.M., Tsien, R.W. and Pitt, G.S. (2005). CaMKII Tethers to L-type Ca2+ channels and produces a local and dedicated integrator of Ca2+ signals for facilitation. J. Cell Biol. 171, 537-547.

Thiagarajan, T., Lindskog, M., Tsien, R.W. (2005). Adaptation to synaptic inactivity in hippocampal neurons. Neuron 47, 725-737.

C. Representative Research Support, Ongoing and Completed

"Vesicular retrieval and reuse at CNS nerve terminals", P.I. Richard W. Tsien, D.Phil.
Agency: National Institute of Mental Health
Type: RO1 (MH64070, years 1-5) period 7/01/01-6/30/06
The major goals of this project are to understand novel mechanisms by which vesicles undergo exocytosis and recycling

"Neuronal Functions of Multiple Types of Calcium Channels", P.I. Richard W. Tsien, D.Phil.
Agency: National Institute of Neurological Diseases and Stroke
Type: RO1 (NS24067, years 22-27) period 7/01/2005-6/30/2010.
The major goals of this project are to study the neuronal P/Q-type Ca2+ channel and cellular aspects of the role of its mutant forms in neurological disease

"Calcium Channels, Calmodulin and Nuclear CREB Signaling", P.I. Richard W. Tsien, D.Phil.
Agency: National Institute of General Medical Sciences
Type: RO1 (NIH GM58234, Years 5-8) Period 07/01/02 - 06/30/06. Studies of cellular and molecular aspects of synapse to nucleus signaling

"Synaptic Adaptation and Plasticity After Chronic Disuse", P.I. Richard W. Tsien, D.Phil.
Agency: National Institute of Mental Health
Type: RO1 (MH71739, Years 1-5 (MERIT Award)) Period 07/01/04 – 06/30/09. Analysis of synaptic response to blockade of postsynaptic glutamate receptors