

BRUCE D. WINEGAR, PHD  
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## PROFESSIONAL BACKGROUND

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### Laboratory Manager

2004 - 2007 Stanford University; Dept of Anesthesia, Neuropharmacology Laboratory

- Preparation of rat hippocampal and basal ganglia brain slices
- Patch clamp and field recording studies
  - Investigated propofol-induced inhibition of spontaneous spike firing in the subthalamic nucleus
  - Studied actions of isoflurane on hippocampal glutamatergic synaptic transmission and axonal conduction

### Research Scientist

2003 - 2004 Exelixis Pharmaceuticals, Inc.

- Assisted with planar patch clamp experiments (IonWorks HT)
- Maintained cultures of hERG-CHO cells
- Conducted whole cell patch clamp experiments (classic patch)
  - Characterized the biophysical and pharmacological properties of a series of insect K channels expressed in stably transfected cells
  - Screened lead compounds for block of hERG channels

### Scientist II

2001 - 2003 Pherin Pharmaceuticals

- Managed an electrophysiology and fluorescence imaging laboratory
- Co-authored an IRB application for on-site clinical studies
- Investigated the actions of Pherin compounds on human vomeronasal receptor neurons
  - Conducted experiments with the Attofluor RatioVision Digital Imaging System to measure intracellular Ca<sup>2+</sup> responses to Pherin compounds
  - Studied receptor neuron responses to Pherin compounds by whole cell recording
- Maintained cultures of HEK293 and Odora cell lines

### Assistant Adjunct Professor

1998 - 2001 University of California, San Francisco; Dept of Anesthesia and Perioperative Care

- NIH grant 1R01GM57529-02: Potassium Channel Activation by Volatile Anesthetics
- Whole cell studies of volatile anesthetic activation of neuronal noninactivating K channels
- Single channel and whole cell patch clamp studies of volatile anesthetic activation of KCNK5 channels expressed in HEK293 cells

### Post-Graduate Researcher

1993 - 1998 University of California, San Francisco; Dept of Anesthesia and Perioperative Care

- Single channel and voltage clamp studies of K channels and nAChRs expressed in *Xenopus* oocytes
- Single channel and whole cell current clamp studies of *Aplysia* neurons.
  - Characterization of volatile anesthetic induced activation of *Aplysia* neuronal SK channels

### Post-Doctoral Fellow

1989 - 1993 University of California, San Francisco; Dept of Cellular and Molecular Pharmacology

- Single channel studies of Ca channels in rat cerebellar granule neurons
- Kinetic studies of transition metal block of Ca channels in mouse C2 myotubes
- Characterization of Gd<sup>3+</sup> block of stretch-inactivated channels in *mdx* myotubes
- Studied the blocking kinetics of aminoglycoside antibiotics on mechanosensitive ion channels and dihydropyridine-sensitive Ca channels in mouse flexor digitorum brevis muscle fibers

## EDUCATION

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PhD (biological sciences)	1981 - 1986 University of North Texas, Denton
MA (psychology)	1977 - 1981 California State University, Sacramento
BA (psychology)	1973 - 1977 California State University, Sacramento

## SOCIETY MEMBERSHIPS

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Biophysical Society  
Society for Neuroscience

## AWARDS, HONORS, VOLUNTEER WORK

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- 2006 Stanford Anesthesia Department Research Award: *Propofol Depresses Spike Firing in Dopamine-Sensitive Subthalamic Neurons*
- 2006 Set up electrophysiology laboratory for Dept of Anatomy, Imo State University, Owerri, Nigeria
- 2002 The Society of Neuroscientists of Africa (SONA). Award for assistance in organizing a workshop at Obafemi Awolowo University, Ile-Ife, Nigeria: *Basic Techniques for the Study of Functional Neuronal Circuits*.
- 1998 NIH Grant 1R01GM57529-02: *Potassium Channel Activation by Volatile Anesthetics*

## PUBLICATIONS

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- Winegar BD, MacIver MB. Multiple actions of propofol on spontaneous firing of subthalamic nucleus neurons. *Manuscript in preparation*.
- Winegar BD. Journal of environmental neuroscience and biomedicine - a new journal and a new experiment (Editorial). *J Environmental Neurosci Biomed*, 2007; 1: 78.
- Winegar BD, MacIver MB. Isoflurane depresses hippocampal CA1 glutamate nerve terminals without inhibiting fiber volleys. *BMC Neuroscience*, 2006; 7: 5.
- Gerstin KM, Gong DH, Abdallah M, Winegar BD, Eger EI 2nd, Gray AT. Mutation of KCNK5 or Kir3.2 potassium channels in mice does not change minimum alveolar anesthetic concentration. *Anesthesia & Analgesia*, 2003; 96: 1345-1349.
- Shin W, Winegar BD. Modulation of noninactivating K<sup>+</sup> channels in rat cerebellar granule neurons by halothane, isoflurane, and sevoflurane. *Anesthesia & Analgesia*, 2003; 96: 1340-1344.
- Kindler CH, Paul M, Zou H, Liu C, Winegar BD, Gray AT, Yost CS. Amide local anesthetics potently inhibit the human tandem pore domain background K<sup>+</sup> channel TASK-2 (KCNK5). *J. Pharmacol Exp Therapeutics*, 2003; 306: 84-92.
- Gabriel A, Abdallah M, Yost CS, Winegar BD, Kindler CH. Localization of the tandem pore domain K<sup>+</sup> channel KCNK5 (TASK-2) in the rat central nervous system. *Brain Res Mol Brain Res*, 2002; 98: 153-163.
- Gray, AT, Zhao BB, Kindler CH, Winegar BD, Mazurek J, Xu J, Chavez RA, Forsayeth JR, Yost CS. Volatile anesthetics activate the human tandem pore domain baseline K<sup>+</sup> channel KCNK5. *Anesthesiology*, 2000; 92: 1722-1730.
- Yost CS, Gray AT, Winegar BD, Leonoudakis D. Baseline K<sup>+</sup> channels as targets of general anesthetics: studies of the action of volatile anesthetics on TOK1. *Toxicology Letters*, 1998; 100-101: 293-300.
- Winegar BD, Yost CS. Activation of single potassium channels in rat cerebellar granule cells by volatile anesthetics. *Toxicology Letters*, 1998; 100-101: 287-291.
- Winegar BD, Yost CS. Volatile anesthetics directly activate baseline S K<sup>+</sup> channels in *Aplysia* neurons. *Brain Research*, 1998; 807: 255-262.
- Gray AT, Winegar BD, Leonoudakis DJ, Forsayeth JR, Yost CS. TOK1 is a volatile anesthetic stimulated K<sup>+</sup> channel. *Anesthesiology*, 1998; 88, 1076-1084.
- Leonoudakis D, Gray AT, Winegar BD, Kindler CH, Harada M, Taylor DM, Chavez RA, Forsayeth JR, Yost CS. An open rectifier potassium channel with two pore domains in tandem cloned from rat cerebellum. *Journal of Neuroscience*, 1998; 18: 868-877.
- Yost CS, Winegar BD (1997) Potency of agonists and competitive antagonists on adult- and fetal- type nicotinic acetylcholine receptors. *Cellular and Molecular Neurobiology*, 1997; 17: 35-50.
- Winegar BD, Owens DF, Mayeri E, Forsayeth JR, Yost CS. Volatile general anesthetics produce hyperpolarization of *Aplysia* neurons by activation of a discrete population of baseline potassium channels. *Anesthesiology*, 1996; 85: 889-900.
- Winegar BD, Haws CM, Lansman JB. Subconductance block of single mechanosensitive ion channels in skeletal muscle fibers by aminoglycoside antibiotics. *Journal of General Physiology*, 1996; 107: 433-443.

- Haws CM, Winegar BD, Lansman JB. Block of L-type  $\text{Ca}^{2+}$  channels in skeletal muscle by aminoglycoside antibiotics. *Journal of General Physiology*, 1996; 107: 421-432.
- Franco jr A, Winegar BD, Lansman JB. Open channel block by gadolinium ion of the stretch-inactivated ion channel in *mdx* myotubes. *Biophysical Journal*, 1991; 59: 1-7.
- Winegar BD, Kelly R, Lansman JB. Block of current through single calcium channels by Fe, Co, and Ni. *Journal of General Physiology*, 1991; 97: 351-367.
- Winegar BD, Lansman JB. Voltage-dependent block by zinc of single dihydropyridine-sensitive calcium channels in mouse C2 myotubes. *Journal of Physiology*, 1990; 425: 563-578.
- Winegar BD, Leslie SW, Bittner GD. Effects of pentobarbital on behavioral and synaptic plasticities in crayfish. *Brain Research*, 1998; 475: 21-27.
- Winegar BD, Rosick ER, Schafer R. Calcium and olfactory transduction. *Comparative Biochemistry and Physiology Part A*. 1988; 91: 309-15.
- Winegar BD, Schafer R. Evidence for participation by calcium ion and cyclic AMP in olfactory transduction. *Annals of the New York Academy of Sciences (Olfaction & Taste IX)*, 1988; 510: 713-715.

## REFERENCES

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- Jeffrey B. Lansman, PhD. Associate Professor, Dept of Cellular and Molecular Pharmacology, School of Medicine, University of California, San Francisco, CA 94143-0450. Tel 415-476-1322. Email [jeffl@itsa.ucsf.edu](mailto:jeffl@itsa.ucsf.edu)
- Bruce M. MacIver, MSc, PhD. Associate Professor, Dept of Anesthesia, Stanford University, School of Medicine, SUMC S284, Stanford, CA 94305-5117. Tel 650-725-5851. Email [maciver@stanford.edu](mailto:maciver@stanford.edu)
- Louis Monti, MD, PhD. Executive Vice-President, Pherin Pharmaceuticals, 4962 El Camino Real, Suite #223, Los Altos, CA 94022. Tel (650) 961-2080 or (650) 279-1484. Email [lmonti@pherin.com](mailto:lmonti@pherin.com)
- C. Spencer Yost, MD. Associate Professor, Dept of Anesthesia and Perioperative Care, University of California, San Francisco, CA 94143-0542. Tel 415-476-5200. Email [yosts@anesthesia.ucsf.edu](mailto:yosts@anesthesia.ucsf.edu)