

Rebecca J. Howard, Ph.D.

Curriculum vitae • 18 September 2015

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EDUCATION

University of California, San Francisco (UCSF), San Francisco, CA	2001–2007
Ph.D., Chemistry and Chemical Biology	
Pomona College, Claremont, CA	1997–2001
B.A. cum laude, Chemistry; Dance minor	
School for International Training, Jaipur, INDIA	1999

EMPLOYMENT

Assistant Professor of Chemistry, Skidmore College	2012–present
Postdoctoral Fellow, The University of Texas at Austin (UT-Austin)	2008–2012
Instructor, University of San Francisco	2008
Daly Ralston Resource Center Coordinator, UCSF Science and Health Education Partnership	2008
Programs Assistant, UCSF Office of Career and Professional Development	2008
Science Club Facilitator, UCSF Triad Alliance for Gender Equitable Teaching	2001–2003
Research Assistant, University of Colorado Health Sciences Center	2001

HONORS

Enoch Gordis Research Recognition Award, Research Society on Alcoholism	2012
High Flyer Postdoctoral Award, UT-Austin School of Biological Sciences	2012
Travel Award, International Society for Biomedical Research on Alcoholism (ISBRA)	2012
Career Launch and Acceleration Workshop Award, COACH	2012
Travel Award, National Postdoctoral Association	2012
President's Young Investigator Award, ISBRA	2010
Chancellor's Award for the Advancement of Women, UCSF	2004
Ace Volunteer Awards, UCSF Science and Health Education Partnership	2002, 2003
Brackett Prize in Chemistry, Pomona College	2001

FELLOWSHIPS & GRANTS

Faculty Development Award, Skidmore College	2013
Ruth L. Kirschstein Individual Postdoctoral National Research Service Award (NRSA)	
National Institute on Alcohol Abuse and Alcoholism	2011–2012
Ruth L. Kirschstein Institutional Postdoctoral NRSA, UT-Austin School of Pharmacy	2009–2011
Predoctoral Fellowship, American Heart Association	2005–2007
Graduate Research Fellowship, National Science Foundation	2002–2005
Earl C. Anthony Graduate Research Fellowship, UCSF	2001–2002

PUBLICATIONS

- Horani S.,* Stater E.P.,* Corringer P.-J., Trudell J.R., Harris R.A., **Howard R.J.** (2015). Ethanol modulation is quantitatively determined by the transmembrane domain of human $\alpha 1$ glycine receptors. *Alcohol Clin Exp Res* 39: 962–8.
- Howard R.J.**, Trudell J.R., Harris R.A. (2014) Seeking structural specificity: direct modulation of pentameric ligand-gated ion channels by alcohols and anesthetics. *Pharmacol Rev* 66: 396–412.
- Heusser S.A., **Howard R.J.**, Borghese C.M., Cullins M.A.,* Broemstrup T., Lee U.S.,* Lindahl E., Carlsson J., Harris R.A. (2013) Functional validation of virtual screening for novel agents with general anesthetic action at ligand-gated ion channels. *Mol Pharmacol* 84: 670–8.
- Broemstrup T., **Howard R.J.**, Trudell J.R., Harris R.A., Lindahl E. (2013) Inhibition versus potentiation of ligand-gated ion channels can be altered by a single mutation that moves ligands between intra- and intersubunit sites. *Structure* 21: 1307–16.
- Sauguet L.,[†] **Howard R.J.**,[†] Malherbe L., Lee U.S.,* Corringer P.-J., Harris R.A., Delarue M. (2013) Structures of an interfacial potentiating site for alcohols and anesthetics in a pentameric ligand-gated ion channel. *Nature Commun* 4: 1697.
- Spurny R., Billen B., **Howard R.J.**, Brams M., Debaveye S., Price K., Weston D., Strelkov S., Tytgat J., Bertrand S., Bertrand D., Lummis S., Ulens C. (2013) Multi-site binding of a general anesthetic to the prokaryotic pentameric ligand-gated ion channel ELIC. *J Biol Chem* 288: 8355–64.
- Murail S., **Howard R.J.**, Broemstrup T., Bertaccini E.J., Harris R.A., Trudell J.R., Lindahl E. (2012) Molecular mechanism for the dual alcohol modulation of Cys-loop receptors. *PLoS Comput Biol* 8: e1002710.
- Johnson W.D., **Howard R.J.**, Trudell J.R., Harris R.A. (2012) The TM2 6' position of GABA_A receptors mediates alcohol inhibition. *J Pharmacol Exp Ther* 340: 445–56.
- Howard R.J.**, Murail S., Ondricek K.E.,* Corringer P.-J., Lindahl E., Trudell J.R., Harris R.A. (2011) Structural basis for alcohol modulation of a pentameric ligand-gated ion channel. *Proc Natl Acad Sci USA* 108: 12149–54.
- Howard R.J.**, Slesinger P.A., Davies D.L., Das J., Trudell J.R., Harris R.A. (2011) Alcohol binding sites in distinct brain proteins: the quest for atomic level resolution. *Alcohol Clin Exp Res* 35: 1561–73.
- Howard R.J.**, Clark K.A., Holton J.M., Minor D.L. (2007) Structural insight into KCNQ (Kv7) channel assembly and channelopathy. *Neuron* 53: 663–75.
- Walden H., Podgorski M.S., Huang D.T., Miller D.W., **Howard R.J.**, Minor D.L., Holton J.M., Schulman B.A. (2003) The structure of the APPBP1-UBA3-NEDD8-ATP complex reveals the basis for selective ubiquitin-like protein activation by an E1. *Mol Cell* 12: 1427–37.
- Blackwell H.E., Sadowsky J.D.,* **Howard R.J.**,* Sampson J.N.,* Chao J.A.,* Steinmetz W.E., O'Leary D.J., Grubbs R.H. (2001) Ring-closing metathesis of olefinic peptides: Design, synthesis, and structural characterization of macrocyclic helical peptides. *J Org Chem* 66: 5291–302.

*Undergraduate co-author.

[†]Contributed equally to this work.

INVITED TALKS

Too much of a good thing: Evolving our relationship with alcohol <i>TEDx Skidmore College, Saratoga Springs, NY</i>	2014
Alcohol binding to ligand-gated ion channels revealed in a prokaryotic model system <i>School of Pharmacy, University of New England, Portland, ME</i>	2013
Alcohol modulation of ligand-gated ion channels: Insights and opportunities from new structures <i>Karolinska Institute–Science for Life Laboratory, Stockholm, SWEDEN</i>	2013
Simple structural models for alcohol modulation of ligand-gated ion channels <i>Center for Neuroparmacology and Neuroscience, Albany Medical College, Albany, NY</i>	2012
Structural basis for alcohol modulation of a pentameric ligand-gated ion channel <i>Stockholm Center for Biomembrane Research, Stockholm, SWEDEN</i>	2011

SELECTED CONFERENCES

Invited Speaker, <i>Gage Conference on Ion Channels and Transporters</i> , Canberra, AUSTRALIA	2013
Platform Co-Chair, <i>Biophysical Society Annual Meeting</i> , Philadelphia, PA	2013
Symposium Organizer, Co-Chair, and Speaker, <i>ISBRA World Congress</i> , Sapporo, JAPAN	2012
Symposium Speaker, <i>Research Society on Alcoholism Scientific Meeting</i> , San Francisco, CA	2012
Symposium Speaker, <i>American Chemical Society National Meeting</i> , San Diego, CA	2012
Platform Speaker, <i>Biophysical Society Annual Meeting</i> , San Diego, CA	2011
Nanosymposium Chair and Speaker, <i>Society for Neuroscience Annual Meeting</i> , Washington, DC	2011
Symposium Speaker, <i>Research Society on Alcoholism Scientific Meeting</i> , San Antonio, TX	2010
Symposium Speaker, <i>17th World Molecular Engineering Network</i> , San Jose del Cabo, MEXICO	2006

SERVICE

Society for Neuroscience Hudson-Berkshire Chapter	2015
Chemistry Department Safety Committee, Skidmore College	2012–present
SEE-Beyond Program Committee, Skidmore College	2012–2014
Albany Medical College Biomedical Science Club Annual Career Symposium	2013
School of Biological Sciences Postdoctoral Association, UT-Austin	2009–2012
Institute for Neuroscience Executive Board, UT-Austin	2010–2011
Society for Neuroscience Capitol Hill Day, UT-Austin Representative	2010
San Francisco Association for Women in Science	2001–2008
Women Leaders in Science Seminar Series, UCSF	2004–2006
Women in Life Sciences, UCSF	2001–2006

PROFESSIONAL MEMBERSHIPS

American Society for Pharmacology and Experimental Therapeutics	2014–present
Faculty for Undergraduate Neuroscience	2011–present
Society for Neuroscience	2010–present
Research Society on Alcoholism	2010–present
International Society for Biomedical Research on Alcoholism	2010–present
Biophysical Society	2007–present
American Chemical Society	2000–present

TEACHING

Experimental Biochemistry, Skidmore College	2015
Biochemistry: Intermediary Metabolism, Skidmore College	2013–2015
Biochemistry: Macromolecular Structure and Function, Skidmore College	2012–2015
Principles of Chemistry, Skidmore College	2012–2014
Chemistry Senior Seminar, Skidmore College	2014
Under the Influence: Alcohol in Science and Society, Skidmore College	2014
Ion Channel Structure and Function, Australian Course in Advanced Neuroscience	2013, 2014
Microbiology Laboratory, University of San Francisco	2008
City Science Summer Institute, University of California Berkeley Extension	2002, 2008
Macromolecular Crystallography, American Crystallographic Association (Teaching Assistant)	2006

STUDENT MENTORSHIP

Kristina Foley, B.A. Chemistry, Skidmore College '18 (expected)	2015–present
Killian J. Grider, B.A. Chemistry, Skidmore College '18 (expected)	2015–present
Rehima L. Jordan, B.A. Biology, Skidmore College '17 (expected)	2015–present
Andrei M. Tuluca, B.A. Chemistry, Skidmore College '18 (expected)	2015–present
Glenna E. Joyce, B.A. Exercise Science, Skidmore College '16 (expected)	2013–present
Alex R. Mola, B.A. Chemistry, Skidmore College '16 (expected)	2013–present
Travers Ruel, B.A. Chemistry, Skidmore College '16 (expected)	2013–present
Heather A. Braun, B.A. Chemistry, Skidmore College '15	2014–2015
Thomas R. Schneider, B.A. Chemistry, Skidmore College '15	2014–2015
Thomas B. Voigt, B.A. Neuroscience, Skidmore College '15	2013–2015
Daniel E. Manson, B.A. Chemistry, Skidmore College '15	2014
Jody-Ann M. Facey, B.A. Biology, Skidmore College '14	2013–2014
Amber E. Plante, B.A. Biology, Skidmore College '14	2013–2014
Erika A. Riederer, B.A. Chemistry, Skidmore College '14	2012–2014
Michael J. Hyde, B.A. Biology, Skidmore College '13	2013
Sthorm A. Pyrame, B.A. Biology, Skidmore College '17 (expected)	2013
Evan P. Stater, B.A. Biology, Skidmore College '13	2013
Brenda Olivo, B.A. Biology, Skidmore College '14	2012–2013
Laura C. Venner, B.A. Biology, Skidmore College '14	2012–2013
Stephanie A. Heusser, M.S. Pharmacy, Eidgenössische Technische Hochschule Zürich '13	2012
Suzzane Horani, B.A. Biology, UT-Austin '12	2011–2012
Nadia N. Khan, B.S. Human Biology and Pre-Medical, UT-Austin '12	2011–2012
Ui (Danny) S. Lee, B.S. Neurobiology, UT-Austin '13	2010–2012
Kathryn E. Ondricek, B.S. Marine Biology, UT-Austin '12	2009–2012
Joseph R. Coskey, B.S. Biology and B.A. Spanish, UT-Austin '11	2009
Brooks G. Robinson, Ph.D. Neuroscience, UT-Austin '14	2008