
Sonya M. Hanson, Ph.D.

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EDUCATION

Ph.D. Biochemistry, University of Oxford 2009–14
Supervisors: [Kenton J. Swartz](#) (NIH), [Simon Newstead](#) (Oxford), [Mark. S.P. Sansom](#) (Oxford)

B.S. Biophysics, Minor: Screenwriting, University of Southern California, *cum laude* 2005–09

RESEARCH EXPERIENCE

Postdoctoral Fellow, Computational Biology Program, Memorial Sloan Kettering Cancer Center 2014–present
PI: [John D. Chodera](#).
Developing a combined pipeline of automated wetlab experiment and molecular simulation to dissect the contribution of conformational reorganization energies to inhibitor binding.

Ph.D. Biochemistry, University of Oxford 2009–14
Dissertation: *Structural, biochemical and computational studies of TRP channel transmembrane domain modularity*.
Funded via the NIH-Oxford-Cambridge scholars program, specifically the National Institute of Neurological Disorders and Stroke (NINDS) of the National Institutes of Health.

University of Southern California 2007–09
Undergraduate research with [Lin Chen](#) (*computational modeling and docking of antibody-ion channel interaction*).

Indiana University 2005–07
Undergraduate research with [Santiago Schnell](#) (*mathematical models of enzyme kinetics*).

ACADEMIC LEADERSHIP EXPERIENCE

Gordon Research Seminar 'Computer Aided Drug Design' - Discussion Leader 2015
Ad hoc reviewer, *Biochemistry*, 2015–present 2015
Biophysical Society 59th Annual Meeting Platform Co-Chair: 'Protein-Small Molecule Interactions' 2015
MSKCC Postdoctoral Association Board Member 2015

AWARDS AND HONORS

Biophysical Society Committee for Professional Opportunities for Women (CPOW) Travel Award 2016
Materials Computation Center (MCC) Travel Award to attend "Molecular and chemical kinetics" workshop 2015
OXION: Ion Channels and Disease Initiative Day Poster Award 2013
Bursary Award to Attend 2013 4th RSC/SCI symposium on Ion Channels as Therapeutic Targets 2013
NIH-Oxford-Cambridge Biomedical Research Scholar 2009–14
B.S. awarded *cum laude* and with 'Discovery honors' for original research from USC 2009
Barry M. Goldwater Scholarship 2008
Interdisciplinary Award at the USC Undergraduate Research Symposium 2008
National Merit Finalist Presidential Scholarship from the University of Southern California 2005–09

SCIENCE COMMUNICATION ACTIVITIES

Alan Alda Science Communication Boot Camp 2015
Biophysical Society 59th Annual Meeting Guest Blogger 2015
Founding Editor of the [Oxbridge Biotech Roundtable Review](#): Editor in Chief 2011–12, Oxford Editor 2011–13 2011–13

PROFESSIONAL MEMBERSHIP

Biophysical Society
Member of the organizing committee for Undergraduate Women in Physics Conference at
the University of Southern California

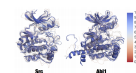
2009-present
2008

TALKS

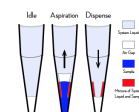
Developing High-Throughput Fluorescence-Based Assays for Measuring Kinase Inhibitor Free Energies of Binding
Biophysical Society 59th Annual Meeting - Baltimore, MD 2015
Hanson SM, Prinz JH, Behr JB, Grinaway BP, Rustenburg AS, Beauchamp KA, Parton DL, Chodera JD
Tackling complex problems in small molecule recognition using computation and automated biophysical experiment 2014
Telluride TSRC 'Molecular Recognition' Workshop - Telluride, CO
Hanson SM, Prinz JH, Grinaway BP, Rustenburg AS, Beauchamp KA, Behr JB, Parton DL, Chodera JD

PUBLICATIONS

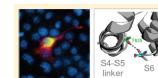
Parton DL, Grinaway PB, **Hanson SM**, Beauchamp KA, and Chodera JD. Ensembler: Enabling high-throughput molecular simulations at the superfamily scale *PLoS Computational Biology* – under review, minor corrections submitted. · [bioRxiv](#)



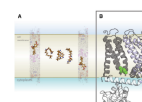
Hanson SM, Ekins S, and Chodera JD. Modeling error in experimental assays using the bootstrap principle: Understanding discrepancies between assays using different dispensing technologies. *Journal of Computer-Aided Molecular Design* 29(12):1073-86, 2015 · [DOI](#)



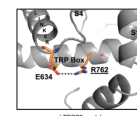
Hanson SM, Sansom MSP, and Becker EB. Modeling suggests TRPC3 hydrogen bonding and not phosphorylation contributes to the ataxia phenotype of the Moonwalker mouse. *Biochemistry* 54(26):4033-41, 2015 · [DOI](#)



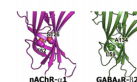
Hanson SM, Newstead S, Swartz KJ, and Sansom MSP. Insights toward the mechanism of capsaicin binding to TRPV1 in a lipid bilayer by atomistic molecular simulation. *Biophysical Journal*, 108(6):1425-34, 2015 · [DOI](#)



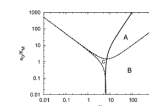
Fogel BF, **Hanson SM**, and Becker EB. Do mutations in the murine ataxia gene TRPC3 cause cerebellar ataxia in humans? *Movement Disorders*, 30(2):284-6, 2014 · [DOI](#)



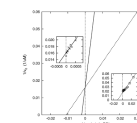
Dellisanti CM, **Hanson SM**, Chen L, and Czajkowski C. Packing of the extracellular domain hydrophobic core has evolved to facilitate pentameric ligand-gated ion channel function. *The Journal of Biological Chemistry*, 286(5):3658-70, 2011 · [DOI](#)



Hanson SM and Schnell S. The reactant stationary approximation in enzyme kinetics. *The Journal of Physical Chemistry A*, 112:8654-58, 2008 · [DOI](#)



Schnell S and **Hanson SM**. A test for measuring the effects of enzyme inactivation. *Biophysical Chemistry*, 125:269-74, 2007 · [DOI](#)



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