

Neville P. Bethel

Biophysics Graduate Program
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Education

Ph.D. Biophysics, University of California San Francisco, 2013–Present.

B.E. Biomedical Engineering, Stony Brook University, 2013.

B.S. Physics, Stony Brook University, 2013.

Honors, Awards, & Fellowships

Graduate Research Mentorship Fellowship, UC San Francisco, 2017.

Frank M. Goyan Award for Excellence in Physical Chemistry, UC San Francisco, 2017.

Predoctoral Fellowship, American Heart Association, 2017, 2018.

Minority Access to Research Careers Fellowship, Stony Brook University, 2011, 2012, 2013.

Summer Research Training Program Fellowship, UC San Francisco, 2012.

Research

Training

Graduate Student, University of California San Francisco, April 2014–Present.

Advisor: Michael Grabe, Department of Pharmaceutical Chemistry

Undergraduate Research Assistant, Stony Brook University, January 2012–August 2013.

Advisor: Yi-Xian Qin, Department of Biomedical Engineering

Visiting Summer Researcher, University of California San Francisco, May–August 2012.

Advisor: Alan Frankel, Department of Biophysics and Biochemistry

Undergraduate Research Assistant, Stony Brook University, July 2011–May 2013.

Advisor: Carlos Simmerling, Department of Chemistry

Publications

1. C.J. Peters, J.M. Gilchrist, J. Tien, **N.P. Bethel**, L. Qi, T. Chen, L. Wang, Y.N. Jan, M. Grabe and L.Y. Jan. The 6th transmembrane segment as the primary gating machinery of the TMEM16A calcium-activated chloride channel. *Neuron*. (in press)
2. C.J. Guerriero, K. Reutter, A.A. Augustine, G.M. Preston, K.F. Weiberth, T.D. Mackie, H.C. Cleveland-Rubeor, **N.P. Bethel**, K.M. Callenberg, K. Nakatsukasa, M. Grabe, and J. L. Brodsky (2017). Transmembrane helix hydrophobicity is an energetic barrier during the retrotranslocation of integral membrane ERAD substrates. *Molecular Biology of the Cell*. E17-03-0184.
3. D. Argudo[†], **N.P. Bethel**[†], F.V. Marcoline[†] and M. Grabe (2017). New continuum approaches for determining protein induced membrane deformations. *Biophys. J.* 112(10):2159-2172.
[†] Co-first author
4. **N.P. Bethel** and M. Grabe. Atomistic insight into lipid translocation by a TMEM16 scramblase (2016). *Proc. Natl. Acad. Sci. USA*. 113(49):14049-14054.

5. D. Argudo[†], **N.P. Bethel**[†], F. V. Marcoline, and M. Grabe (2016). Continuum descriptions of membranes and their interaction with proteins: towards chemically accurate models. *BBA-Biomembranes* 1858(7):1619-1634.
[†] Co-first author
6. F.V. Marcoline[†], **N. Bethel**[†], C.J. Guerriero, J.L. Brodsky, and M. Grabe (2015). Membrane protein properties revealed through data rich electrostatics calculations. *Structure* 23:1526-1537.
[†] Co-first author
7. M. Hu, J. Cheng, **N. Bethel**, F. Serra-Hsu, S. Ferreri, L. Lin, and Y.X. Qin (2014). Interrelation between external oscillatory muscle coupling amplitude and *in vivo* intramedullary pressure related bone adaptation. *Bone* 66:178-181.
8. M. Hu, F. Serra-Hsu, **N. Bethel**, L. Lin, S. Ferreri, J. Cheng, and Y.X. Qin (2013). Dynamic hydraulic fluid stimulation regulated intramedullary pressure. *Bone* 57(1):137-141.

Conference and symposium poster presentations

1. **N.P. Bethel** and M. Grabe. Atomistic insight into ion and lipid transport by the nhTMEM16 scramblase. Gordon Conference: Mechanisms of Membrane Transport. New London, New Hampshire. 2017
2. **N.P. Bethel** and M. Grabe. Atomistic insight into lipid translocation by a TMEM16 scramblase. Biophysical Society Meeting. New Orleans, Louisiana. 2017
3. S. Lee, T. Schlageter, J. Garlow, **N. Bethel**, and B. Sitharaman. Graphene Based Anode for Microbial Fuel Cells. Electrochemical Society Meeting. Toronto, Ontario, Canada. 2013
4. **N. Bethel**, B. Jayaraman, and A. Frankel. Observing Changes to HIV-1 Rev Oligomerization Using Fluorescence Resonance Energy Transfer. Annual Biomedical Research Conference for Minority Students. San Jose, California. 2012

Teaching

Volunteer teacher. Science & Health Education Partnership. UC San Francisco. 2015.

This program promotes partnerships between scientists and teachers to bring high quality science education to K-12 students. My responsibilities involved designing and teaching a series of lessons to the third grade class at Bret Hart Elementary School in San Francisco, California.

Teaching assistant. Pharmaceutical Chemistry 115: Drug Metabolism. UC San Francisco. 2015

Teaching assistant. Bioengineering 420: Computational Biomechanics. Stony Brook University. 2013