

Boryana N. Manz
UC Berkeley, Biophysics
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Research interests

Information flow and spatio-temporal control of membrane proximal signaling networks

Education

UC Berkeley, Berkeley, CA	PhD Biophysics	2009
Colgate University, Hamilton, NY	BA Molecular Biology (Honors) <i>magna cum laude</i>	2003

Research experience

Jay Groves, HHMI Investigator 2004 - present

UC Berkeley, Department of Chemistry

Thesis: Spatial organization of the T cell immune synapse

- Determined minimal T cell receptor cluster signaling unit
- Characterized effect of curvature on immune synapse and actin
- Identified regulatory protein recruitment to T cell receptor clusters

Jeff Buboltz Jan - May 2003

Colgate University, Physics and Astronomy Department

- Applied fluorescence based assay to detect lipid phase separation

Ron Germain Aug - Dec 2002

NIH, NIAID, Lymphocyte Biology

- Studied T cell surface receptor binding using proteoliposomes

Fred Hughson Jun - Aug 2002

Princeton University, Department of Molecular Biology

- Characterized quorum sensing bacterial receptor interactions

Barbara Hoopes Jun - Aug 2000

Colgate University, Department of Biology

- Tested for transcriptional regulation of transcription factor expression

Teaching experience

UC Berkeley, Department of Molecular and Cell Biology Jan - May 2006

Biochemistry of metabolism, Teaching Assistant

UC Berkeley Jun 2007 - present

Mentored undergraduate student

Honors and Awards

Graduate Division Conference Travel Grant, UC Berkeley 2008

Conferences and presentations

Physical dissection of T cell receptor signaling clusters. Poster, [BN Manz](#), BL Jackson, RS Petit, ML Dustin, JT Groves. HHMI Scientific Meeting "Signaling Within and Between Cells" Janelia Farm, Ashburn, VA May 11-12, 2009

Spatial organization in the immune synapse. Talk, [BN Manz](#), Kuriyan Lab Journal Club, UC Berkeley, CA May 1, 2009

Controlling life at the molecular level with nanopatterns. Poster, [BN Manz](#), C-H Yu, BL Jackson, RS Petit, T Lohmueller, JT Groves, Berkeley Nanotechnology Forum, Haas School of Business, UC Berkeley, CA Apr 26, 2009

Partitioning T cell receptor nanocluster signaling. Poster, BN Manz, BL Jackson, RS Petit, ML Dustin, JT Groves, Biophysical Society Meeting, Boston, MA Mar 4, 2009

Mechanical perturbation of T cell actin retrograde flow. Poster, BN Manz, C-Yu, JT Groves, Biophysical Society Meeting, Boston, MA Mar 3, 2009

Mechanical perturbation of T cell actin retrograde flow. Poster, BN Manz, C-H Yu, JT Groves, American Society for Cell Biology, San Francisco, CA Dec 15, 2008

Geometric modulation of T cell actin retrograde flow. Talk, BN Rossenova, Biophysics Retreat, Marconi, CA Sep 6, 2008

Dissecting T cell receptor nanoclusters. Poster, BN Rossenova, BL Jackson, ML Dustin, JT Groves, Biomembrane Frontiers, UC Davis, Davis, CA Mar 20, 2008

Dissecting T cell receptor nanoclusters. Poster, BN Rossenova, BL Jackson, ML Dustin, JT Groves, Keystone symposium "Lymphocyte Activation and Signaling", Snowbird, UT Feb 6, 2008

Dissecting T cell receptor signaling. Talk, BN Rossenova, Biophysics Retreat, Marconi, CA Sep 9, 2007

Dissecting T cell receptor nanoclusters. Poster, BN Rossenova, BL Jackson, ML Dustin, JT Groves, American Association of Immunology, Miami, FL May 20, 2007

Counting agonist in functional T cell receptor clusters using nanopatterned corrals. Poster, BN Rossenova, BL Jackson, ML Dustin, JT Groves, Berkeley Nanotechnology Forum, Haas School of Business, UC Berkeley, CA Apr 15, 2007

Publications

Manz BN, Jackson BL, Petit RS, Dustin ML, Groves JT. "Partitioning of T cell receptor agonists alters T cell activation threshold" *in preparation* Manuscript available upon request

Manz BN, Yu C-H, Groves JT, "Mechanical perturbation of T cell actin retrograde flow" *in preparation*

Technical Experience

Tissue culture – primary mouse T cell, mammalian cell lines, B cell hybridomas,
 Biochemistry – soluble and membrane protein purification, HPLC, Western blot, labeling
 Immunology – monoclonal Ab purification, ELISA, FACS
 Lipids – supported lipid bilayer, liposomes, proteoliposomes
 Microscopy – live cell imaging, fluorescence, TIRF, single molecule counting, RICM (IRM),
 Software and Image analysis– Matlab, Origin, ImageJ, Metamorph

Professional references

Jay Groves

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 Chancellor's Professor of
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