

Eric R. May, Ph.D.

Assistant Professor
Department of Molecular and Cell Biology

University of Connecticut
91 N. Eagleville Rd, Unit 3125
Storrs, CT 06269

email: eric.may@uconn.edu
phone: 860-486-0484
web: <http://maylab.uconn.edu>

ACADEMIC TRAINING

- 2/2008-8/2012 University of Michigan, Ann Arbor, MI
Postdoctoral Fellow (NSF Postdoctoral Fellow 2009-2011)
- 12/2006 University of Florida, Gainesville, FL
Ph.D. Chemical Engineering
- 5/2001 Bucknell University, Lewisburg, PA
B.S. Chemical Engineering

PROFESSIONAL EXPERIENCE

- 8/2012-Present Assistant Professor of Molecular and Cell Biology
Graduate Faculty of Chemical Engineering
Graduate Faculty of Biomedical Engineering
University of Connecticut, Storrs, CT
- 2/2008-8/2012 Postdoctoral Fellow
8/2009-8/2011 NSF Postdoctoral Fellow
University of Michigan, Ann Arbor, MI
Department of Chemistry and Biophysics Program
Advisor: Charles L Brooks III
Research Project: Structure, Dynamics and Mechanics of Virus Capsids
- 8/2001-12/2006 Graduate Research Assistant
University of Florida, Gainesville, FL
Department of Chemical Engineering
Advisor: Atul Narang
Dissertation: Molecular Modeling of Biomembrane Deformations-The Role of Lipids
- Summer 2001 Environmental Engineering Intern
Connecticut Department of Environmental Protection, Hartford, CT
Bureau of Water Management
- 1999-2001 Chemistry Intern
Summers Neurogen Corporation, Branford, CT
Combinatorial Chemistry Department

HONORS, AWARDS AND FELLOWSHIPS

- 2013-2015 NIH NIAID Research Scholar Development Award (K22)
- 2011 National Postdoctoral Association Travel Award
- 2011 CECAM Travel Award, Multiscale Computational Biomechanics, Zurich, Switzerland
- 2010 Mathematical Virology Selected Speaker Travel Award, Ambleside, UK
- 2009-2011 National Science Foundation Postdoctoral Fellowship in Biology
- 2009 National Institutes of Health Postdoctoral Fellowship – Ruth L Kirschstein NRSA (Declined due to NSF fellowship)
- 2009 Best Physical Science and Engineering Poster, Michigan UROP Spring Symposium
- 2009 Gordon Research Conference on Physical Virology Travel Grant, Galveston, TX
- 2008 Alfred P. Sloan Foundation/ACS Postdoctoral Workshop Sponsorship, Clemson University
- 2006 UF Graduate Association of Chemical Engineers AIChE Travel Grant
- 2006 UF Graduate Student Council Travel Grant
- 2001 Dow Chemicals Graduate Fellowship, University of Florida
- 2001 Bucknell University Deans List

PUBLICATIONS

14. **E.R. May**, “Recent Developments in Molecular Simulation Approaches to Study Spherical Virus Capsids” *submitted to Molecular Simulation*.
13. **E.R. May**, K.Arora, C.L. Brooks III, “pH Induced Stability Switching of the Bacteriophage HK97 Maturation Pathway” *J. Am. Chem. Soc.*, 2014, 136(8):3097-3107. PMID:24495192.
12. J. Snijder, V.S. Reddy, **E.R. May**, W.H. Roos, G.R. Nemerow, G.J.L. Wuite, “Integrin and Defensin Modulate the Mechanical Properties of Adenovirus” *J. Virol.*, 2013, 87(5):2756-2766. PMID:23269786.
11. **E.R. May**, C.L. Brooks III, “On the Morphology of Viral Capsids: Elastic Properties and Buckling Transitions” *J. Phys. Chem. B*, 2012, 116(29):8604-9. PMID: 22409201
10. **E.R. May**, J. Feng, C.L. Brooks III, “Exploring the Symmetry and Mechanism of Virus Capsid Maturation via an Ensemble of Pathways”, *Biophys. J.*, 2012, 102(3):606-612. PMID:22325284
9. W.H. Roos, I. Gertsman, **E.R. May**, C.L. Brooks III, J.E. Johnson, G.J.L. Wuite, “The Mechanics of Bacteriophage Maturation”, *Proc. Natl. Acad. Sci. U.S.A.*, 2012, 109(7):2342-7. PMID:22308333
8. **E.R. May**, K. Arora, R.V. Mannige, H.D. Nguyen, C.L. Brooks III, “Multiscale Approaches to Studying Virus Structure, Assembly and Dynamics”, In *Computational Modeling of Biological Systems: From Molecules to Pathways*, 2102, N. Dokholyan (Ed.), Springer-Verlag, New York.
7. **E.R. May**, A. Aggarwal, W.S. Klug, C.L. Brooks III, “Viral Capsid Equilibrium Dynamics Reveals Nonuniform Elastic Properties” *Biophys. J.*, 2011, 100(11):L59-61. PMID:21641297
6. **E.R. May**, C.L. Brooks III, “Determination of Viral Capsid Elastic Properties from Equilibrium Thermal Fluctuations”, *Phys. Rev. Lett.*, 2011, 106(18):188101. PMID:21635128
5. R.S. Armen, **E.R. May**, M. Taufer, “Protein Docking”, In *Encyclopedia of Parallel Computing*, 2011, D. Padua (Ed.) Springer.
4. **E.R. May**, R.S. Armen, A.M. Mannan, C.L. Brooks III, “The Flexible C-terminal Arm of the Lassa Arenavirus Z-Protein Mediates Interactions with Multiple Binding Partners”, *Proteins*, 2010, 78(10):2251-64. PMID:20544962
3. **E.R. May**, D.I. Kopelevich, A. Narang, “Coarse-Grained Molecular Dynamics Simulations of Phase Transitions in Mixed Lipid Systems Containing LPA, DOPA, and DOPE Lipids” *Biophys. J.*, 2008, 94(3):878-90. PMID:17921207

2. **E.R. May**, A. Narang, D.I. Kopelevich, "Role of Molecular Tilt in Thermal Fluctuations of Lipid Membranes", *Phys. Rev. E: Stat. Nonlin. Soft Matter Phys.*, 2007, 76(2 Pt 1):021913. PMID:17930071
1. **E.R. May**, A. Narang, D.I. Kopelevich, "Molecular Modeling of Key Elastic Properties for Inhomogeneous Lipid Bilayers", *Mol. Simulat.*, 2007, 33:787-79.

PRESENTATIONS

Invited Talks and Seminar

- 3/6/14 Department of Molecular Biology and Biochemistry, University of Connecticut Health Center, Farmington, CT
- 9/4/13 JAX-UConn/BECAT/UHC Joint Workshop on Computational Biology and Bioinformatics, University of Connecticut, Storrs, CT
- 5/17/13 BECAT High Performance Computing Workshop, School of Engineering, University of Connecticut, Storrs, CT
- 10/19/12 Department of Biomedical Engineering, University of Connecticut, Storrs, CT
- 10/19/12 BECAT High Performance Computing Workshop, School of Engineering, University of Connecticut, Storrs, CT
- 9/8/12 Departmental Retreat for Molecular & Cell Biology, Physiology & Neurobiology Departments University of Connecticut, Bolton, CT
- 7/14/12 London Mathematical Society - Grand Biological Challenges for Mathematicians Meeting
Durham University, Durham, U.K.
- 4/10/12 Department of Chemical Engineering, University of Massachusetts Lowell, Lowell, MA
- 3/23/12 Department of Chemical Engineering, Tennessee Technological University, Cookeville, TN
- 3/8/12 Department of Chemistry, The City University of New York, College of Staten Island, New York, NY
- 3/1/12 Department of Physics, The George Washington University, Washington, DC
- 2/28/12 Department of Chemical Engineering, University of New Hampshire, Durham, NH
- 2/23/12 Department of Physics, University of Massachusetts Boston, Boston, MA
- 2/22/12 Department of Chemical, Materials & Biomolecular Engineering University of Connecticut, Storrs, CT
- 2/16/12 Department of Biochemistry & Molecular Biology, The Pennsylvania State University, University Park, PA
- 2/2/12 Department of Molecular & Cell Biology, University of Connecticut, Storrs, CT
- 4/19/11 Physics of Complex Systems Section, Vrije University Amsterdam, Amsterdam, NL
- 9/12/07 Biophysics Group, Department of Structural & Chemical Biology, Mount Sinai Medical School, New York, NY
- 8/30/07 Brooks Group, Department of Molecular Biology, The Scripps Research Institute, La Jolla, CA
- 8/2/07 U.S. Army Research Labs, High Performance Technologies, Aberdeen, MD
- 7/16/07 Center for Cancer Research Nanobiology Program, NIH NCI, Frederick, MD
- 8/15/06 Gene Network Sciences, Cambridge, MA

Conference Talks

10. E.R. May, C.L. Brooks III, "Mechanical Properties of Viral Capsids From Equilibrium Thermal Fluctuations" AICHE 2011 Annual Meeting, Minneapolis, MN, Oct. 20, 2011.
9. E.R. May, C.L. Brooks III, "Exploring Virus Maturation Pathways Through Computer Simulations", AICHE 2011 Annual Meeting, Minneapolis, MN, Oct. 19, 2011.

8. E.R. May, "Multiscale Approaches for Studying Viral Capsid Maturation", CECAM Workshop on Multiscale Computational Biomechanics, Zurich, Switzerland, Apr. 13, 2011.
7. E.R. May, C.L. Brooks III, "Exploring the Maturation Pathway of HK97 through Computer Simulations", Gordon Research Conference on Physical Virology, Ventura, CA, Jan. 18, 2011.
6. E.R. May, C.L. Brooks III, "Determination of Viral Capsid Elastic Properties From Equilibrium Thermal Fluctuation" AIChE 2010 Annual Meeting, Salt Lake City, UT, Nov. 11, 2010.
5. E.R. May, C.L. Brooks III, "Calculation of viral capsid elastic properties from equilibrium thermal fluctuations" 3rd Mathematical Virology Workshop, Ambleside UK, Aug. 19, 2010.
4. E.R. May, A. Narang, D.I. Kopelevich, "Role of Molecular Tilt in Thermal Fluctuations of Lipid Bilayers" AIChE 2007 Annual Meeting, Salt Lake City, UT, Nov. 5, 2007.
3. E.R. May, D.I. Kopelevich, A. Narang, "Biomembrane Deformations: Molecular Modeling of Key Elastic Properties for Inhomogeneous Lipid Bilayers" AIChE 2006 Annual Meeting, San Francisco, CA, Nov. 17, 2006.
2. E.R. May, "Molecular Modeling of Biomembrane Deformations – The Role of Lipids" GRACE Graduate Symposium, Gainesville, FL, Apr. 26, 2006.
1. E.R. May, "Multi-Scale Modeling of Biomembrane Deformations" GRACE Graduate Symposium, Gainesville, FL, Mar. 9, 2005.

Conference Posters

17. J. Pattis, E.R. May, "Molecular Simulation Study of the Gating Mechanism of the Lassa Virus Nucleoprotein" 10th Annual North Eastern Structure Symposium (NESS), Storrs, CT, Oct 4, 2013.
16. J. Pattis, E.R. May, "Molecular Simulation Study of the Gating Mechanism of the Lassa Virus Nucleoprotein", XXIII Biennial Conference on Phage/Virus Assembly, Lake Arrowhead, CA., Sept. 12, 2013.
15. E.R. May, C.L. Brooks III, "Molecular Simulation of pH-Dependant Maturation-Associated Structural Changes in Bacteriophage HK97", 57th Annual Meeting of the Biophysical Society, Philadelphia, PA, Feb 5, 2013.
14. G.L. Dionne, A.M. Shaqra, A.E. Every, B.S. Moorthy, E.R. May, G.S. Anad, V.L. Robinson, "Guanine-Nucleotide Dependant Conformational Selection Regulates Distint Alternate Ribosome Bound States of the Tranlation Factor BipA" 57th Annual Meeting of the Biophysical Society, Philadelphia, PA, Feb 4, 2013.
13. J. Snijder, V.S. Reddy, E.R. May, W.H. Roos, G.R. Nemerow, G.J.L. Wuite, "Using Atomic Force Microscopy to Analyze Adenovirus-Host Interactions", Gordon Research Conference on Physical Virology, Ventura, CA, Jan. 21, 2013.
12. E.R. May, C.L. Brooks III, pH Effects on the Thermodynamic Stability of the Maturation Transition in Bacteriophage HK97", Gordon Research Conference on Physical Virology, Ventura, CA, Jan. 21, 2013.
11. E.R. May, C.L. Brooks III, "Insights into the Mechanism of HK97 Maturation from Molecular Dynamics Simulations", FASEB Virus Structure and Assembly, Saxton River, VT, June 13, 2012.
10. E.R. May, "Multiscale Modeling of Biophysical and Biochemical Aspects of Viral Life Cycles", AIChE 2011 Annual Meeting, Minneapolis, MN, Oct. 16, 2011.
9. E.R. May, "Multiscale Modeling of Biophysical and Biochemical Aspects of Viral Life Cycles", Leading Innovation and Discovery Workshop at NSF, Arlington, VA, Sept. 19, 2011.
8. S.C. Allen, E.R. May, J. Feng, C.L. Brooks III, "Molecular Modeling Study on the Mechanical Behavior of Norovirus" UROP Spring Research Symposium, Ann Arbor, MI, Apr. 20, 2011.
7. A.M. Manaana, E.R. May, R.S. Armen, C.L. Brooks III, "Flexible C-terminal arm of the Lassa Arenavirus Z-protein mediates interactions with multiple binding partners" ACS National Meeting, Anaheim, CA, Mar. 28, 2011.

6. E.R. May, C.L. Brooks, III, "Exploring the Maturation Pathway of HK97 through Computer Simulations", Gordon Research Conference on Physical Virology, Ventura, CA, Jan. 17, 2011.
5. E.R. May, "Multiscale Modeling of Biophysical and Biochemical Aspects of Viral Life Cycles", AIChE 2010 Annual Meeting, Salt Lake City, UT, Nov.7, 2010.
4. E.R. May, R.S. Armen, A.M. Mannan, C.L. Brooks III, "Prediction of the Lassa Arenavirus Z-Protein Structure and the Binding Mode of Z with eIF4E", CBSB10 Workshop: From Computational Biophysics to Systems Biology, Traverse City, MI, Jun. 7, 2010.
3. A.M. Mannan, E.R. May, R.S. Armen, R.V. Mannige, C.L. Brooks III, "Modeling Arenavirus Nucleocapsid and Z Protein Structures", National Center for Integrative Biomedical Informatics (NCIBI) 4th Annual Research Meeting, Ann Arbor, MI, Apr. 28, 2009.
2. A.M. Mannan, E.R. May, R.S. Armen, R.V. Mannige, C.L. Brooks III, "Modeling Arenavirus Nucleocapsid and Z Protein Structures", UROP Research Symposium, Ann Arbor, MI, Apr. 1, 2009
1. E.R. May, C.L. Brooks III, "Elastic Parameters of Viral Capsids Derived from Atomistic Molecular Dynamics" Gordon Research Conference on Physical Virology, Galveston, TX, Feb.17, 2009.

RESEARCH SUPERVISION

University of Connecticut

Postdoctoral Fellows

Allyn Brice, Ph.D. (2013 – Present)

Shivangi Nangia, Ph.D. (2013 - Present)

Graduate Students

Jason Pattis (2012-Present) Molecular and Cell Biology

Undergraduates

Kevin Boyd (2012-Present) Molecular and Cell Biology '14

Prakhar Bansal (2012-Present) Molecular and Cell Biology '16

Shaan Kamal (2013-Present) Molecular and Cell Biology '16

University of Michigan

Undergraduates

Shane Allen (2010-2011) Biomedical Engineering '14

Aristotle Mannan (2008-2009) Molecular, Cellular and Developmental Biology '11. *Currently* Broad Institute, MIT

TEACHING EXPERIENCE

University of Connecticut

Instructor, Macromolecular Machines, MCB 3895/5896 3 Credits, Fall 2012, Fall 2013, co-taught with V. Robinson

Instructor, Graduate Seminar in Biochemistry, MCB 5099 1 Credit, Fall 2013, Spring 2014

University of Michigan

Guest Lecturer, Undergraduate Research Opportunities Program (Fall 2009)

Guest Lecturer, Biophysical Chemistry (Fall 2008), Biophysics Graduate Program

University of Florida

Teaching Assistant, Process Thermodynamics (Fall 2004), Department of Chemical Engineering
Teaching Assistant, Biology for Engineers (Fall 2003), Department of Chemical Engineering

Other Teaching Experiences

Postdoctoral Short-Course on College Teaching in Science and Engineering (Spring 2010),
Center for Research on Learning and Teaching, University of Michigan
ACS Postdoctoral Workshop for Prospective Chemistry Faculty (Fall 2008), Sponsored by the Alfred P.
Sloan Foundation, Clemson University
Math Lab Tutor (2007-2008), Maloney High School, Meriden CT

COMMITTEE AND SERVICE DUTIES

Graduate Student Committees

Ph.D. Students

Chris Karch (Burkhard Group), Associate Advisor
Ketan Malhotra (Alder Group), Examiner

Masters Students

Gilman Dionne (Robinson Group), Associate Advisor

Departmental Committees

Recruitment Committee, Member 2013-2014
Graduate Admissions Committee, Member 2014

OTHER PROFESSIONAL ACTIVITIES

Grant Reviewer:

Dec 2013: NIH – BBM Study Section

Editorial Work:

Guest Editor for Special Issue of *Viruses* on “Virus Maturation”

Journal Reviewer:

Journal of the American Chemical Society (JACS), Journal of Molecular Biology, Journal of Structural Biology, Proteins, Biophysical Journal, Physical Biology, PLoS Computational Biology, PLoS ONE, Journal of Molecular Graphics and Modelling

Book Reviewer:

Molecular Biology of Assemblies and Machines by Wolfgang Baumeister, Louise Johnson, Richard Perham, and Alasdair Steven

Professional Society Memberships:

Biophysical Society (BPS)
American Institute of Chemical Engineers (AIChE)
Society of Biological Engineering (SBE)
American Association for the Advancement of Science (AAAS)

Mentoring:

Undergraduate Research Opportunity Program (UROP), Faculty Mentor, University of Michigan