

Curriculum Vitae

UNIVERSITY OF MINNESOTA – TWIN CITIES
DEPARTMENT OF CHEMISTRY
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BENJAMIN M. MANNING

EDUCATIONAL BACKGROUND

University of Minnesota – Twin Cities
Minneapolis, MN 55455
Department: Chemistry

Degree Program: Doctor of Philosophy
Expected Award Date: July 2013

University of Minnesota – Twin Cities
Minneapolis, MN 55455
Department: Chemistry

Degree: Masters of Science
Awarded: January 2010
Cumulative GPA: 3.724/4.000

Saint Olaf College
Northfield, MN 55057
Major: Chemistry

Degree: Bachelor of Arts
Awarded: May 2008
Cumulative GPA: 3.36/4.00

RESEARCH EXPERIENCE

University of Minnesota-Twin Cities Minneapolis, MN Fall 2008-Summer 2013
Position: Graduate research assistant
Advisor: Dr. Christy Haynes – Department of Chemistry
Studied the role of mast cells in various inflammatory disorders using carbon-fiber microelectrode amperometry.

St. Olaf College Northfield, MN Fall 2007
Position: Independent study undergraduate research
Advisor: Dr. Douglas Beussman – Department of Chemistry
Used MALDI-TOF mass spectrometry for proteomics research in the microorganism *Tetrahymena thermophila*.

Montana State University Bozeman, MT Summer 2007
Position: REU student, undergraduate researcher
Advisor: Dr. Brian Bothner – Department of Chemistry and Biochemistry
Employed a quartz crystal microbalance to study solution dynamics of the cowpea chlorotic mottle virus.

TEACHING EXPERIENCE

University of Minnesota Minneapolis, MN
Department of Chemistry
Position: Lando Undergraduate Research Mentor Summer 2011

Directed Sarah Gruba's Lando research project using high performance liquid chromatography with electrochemical detection to monitor serotonin release from mouse peritoneal mast cells.

Position: Undergraduate Research Mentor Fall 2010-Spring 2011
Directed Gyung ah Kim's undergraduate research project developing a method to detect mast cell-secreted serotonin by high performance liquid chromatography with electrochemical detection.

Position: Teaching Assistant Fall 2008-Spring 2010
CHEM 2111 – Introductory Analytical Chemistry lab
CHEM 4111 – Modern Instrumental Methods and Chemical Analysis lab
Responsibilities: Run teaching labs, give pre-lab lectures, hold office hours, grade lab reports, and both proctor and grade exams.

St. Olaf College Northfield, MN Spring 2006-Spring 2008
Department of Chemistry
Position: Lab Assistant
Responsibilities: Assist professors as they run and teach both introductory and upper-level chemistry labs and grade lab reports.

POSTERS AND PRESENTATIONS

“Leveraging microelectrochemistry for the study of immune cell involvement in inflammatory disease at the single cell level,” *Invited lecture*, Chemistry Biology Interface Training Grant Annual Symposium, May 2013

“Study of cellular mechanisms of inflammation and the involvement of mast cells in disease,” *Poster*, Doctoral Research Showcase, April 2013

“Amperometric monitoring of mast cells to unravel the inflammatory environment in sickle cell disease,” *Invited lecture*, Pittsburgh Conference, March 2013.

“Monitoring mast cell degranulation at the single cell level using carbon-fiber microelectrode amperometry,” *Invited lecture*, 5th Mayo Clinic Angiogenesis Symposium, August 2012.

“Exploring the role of mast cells in angiogenesis at the single cell level using carbon-fiber microelectrode amperometry,” *Poster*, 5th Mayo Clinic Angiogenesis Symposium, August 2012.

“Exploring the effects of hypoxia and reperfusion injury on mast cell secretion of inflammatory mediators at the single cell level,” *Poster*, Chemistry Biology Interface Training Grant annual symposium, May 2012.

“Exploring airway smooth muscle-mediated mast cell function at the single cell level using carbon-fiber microelectrode amperometry.” *Poster*, American Association of Immunologists Annual meeting, May 2012.

“Monitoring the effects of sickle cell-induced inflammation and chronic morphine exposure on mast cell function.” *Presentation*, University of Minnesota Division of Hematology, Oncology and Transplantation Garibaldi Research Conference, November 2011.

“Carbon-fiber microelectrode amperometry for the study of mast cells in inflammatory disease.” *Poster*, Chemistry Biology Interface Training Grant annual symposium, May 2011.

“Carbon-fiber microelectrode amperometry for the study of mast cells in inflammatory disease.” *Presentation*, University of Minnesota Department of Chemistry Graduate Student Research Symposium, May 2011.

“Expanding the utility of carbon-fiber microelectrode amperometry for the study of mast cells in inflammatory disease.” *Presentation*, American Chemical Society National Meeting, March 2011.

“Using carbon-fiber microelectrode amperometry to study the effect of morphine on the secretion of serotonin from mouse peritoneal mast cells.” *Poster*, PittCon, March 2010.

PEER-REVIEWED PUBLICATIONS

Sarah M. Gruba, Audrey F. Meyer, **Benjamin M. Manning**, Yiwen Wang, John T. Thompson, and Christy L. Haynes “Analysis of time-dependent of mast cell mediator secretion by HPLC and UPLC/MS/MS” *In preparation*

Benjamin M. Manning, Audrey F. Meyer, Sarah M. Gruba, and Christy L. Haynes “Using CFMA and HPLC with electrochemical detection to characterize neuropeptide-stimulated mast cell degranulation” *In preparation*

Benjamin M. Manning, John E. Pinter, Kalpna Gupta, and Christy L. Haynes “Single-cell analysis of mast cells from knockout mice reveals evidence of kappa opioid receptor involvement in the regulation of mast cell degranulation” *In preparation*.

Benjamin M. Manning, Audrey F. Meyer, Sarah M. Gruba, and Christy L. Haynes “Single-cell analysis of mast cell exocytosis reveals direct induction of mast cell degranulation by the airway smooth muscle-associated mediators CXCL10 and RANTES” *In preparation*

Benjamin M. Manning, Robert P. Hebbel, Kalpna Gupta and Christy L. Haynes “Carbon-fiber microelectrode amperometry reveals sickle cell induced inflammation and chronic morphine effects on single mast cells” *ACS Chemical Biology*, 7 (3), 543-551, 2012.

Donghyuk Kim, Secil Koseoglu, **Benjamin M. Manning**, Audrey F. Meyer and Christy L. Haynes “Electroanalytical eavesdropping on single cell communication.” *Analytical Chemistry*, 83 (19), 7242-7249, 2011.

Vamseedhar Rayaprolu, **Benjamin M. Manning**, Trevor Douglas and Brian Bothner “Virus particles as active nanomaterials that can rapidly change their viscoelastic properties in response to dilute solutions.” *Soft Matter*, 6 (21), 5286-5288, 2010.

HONORS AND AWARDS

Mayo Clinic Angiogenesis Symposium Young Investigator Award (Summer 2012)

Doctoral Dissertation Fellowship (Spring 2012)

Graduate and Professional Student Assembly Travel Grant (Spring 2011)

Chemistry Biology Interface Traineeship (Summer 2010 and Summer 2011)

Distinction in Chemistry from Saint Olaf College (Spring 2008)

ACS Certified chemistry major at Saint Olaf College (Spring 2008)

PROFESSIONAL MEMBERSHIPS

American Association of Immunologists Spring 2012-Present

American Chemical Society Spring 2010-Present

COMMUNITY INVOLVMENT AND VOLLUNTEER EXPERIENCE

Courage Center Adaptive Ski Program Instructor (Seasonal) November 2011-Present

- Courage Center is a rehabilitation center that specializes in brain and spinal chord injuries and other physical and mental disabilities. The adaptive ski program provides lessons and training for courage center clients.

University of Minnesota Medical Center Volunteer December 2011-December 2012

- Volunteer weekly as a patient visitor in the hospital in a variety of capacities depending on the needs of individual patient.

Chemistry Day Volunteer Summers between 2009-Present

- Chemistry Day Outreach introduces science and chemistry to elementary and middle school aged students at the West 7th Community Center in St. Paul.

TRiO Upward Bound Mentor August 2009-Present

- Upward Bound assists low-income, first-generation students as they prepare for post-secondary education. Responsibilities include corresponding with a mentee via monthly letters and participation in occasional group events.

Northfield Middle School Youth Center Volunteer Fall 2006-Spring 2008

- Volunteer with middle school youth once a week during after-school hours, helping with homework and playing games.

Project Friendship Mentor Spring 2006-Spring 2008

- Meet with a middle school aged student from the Northfield community once a week for two hours. The goal of the program is to provide leadership roles to children who are in need of friendship and a role model.

- ‘Saturday Night Live’ Volunteer Spring 2006-Spring 2008
- Volunteer once a month to chaperone a middle school event on Saturday nights.
‘Saturday Night Live’ includes a dance, open gym, open pool, games and offers a safe weekend outlet for middle school children.

LEADERSHIP POSITIONS

St. Olaf Class of 2008 Annual Giving Committee Member	Fall 2012-Present
Graduate Student Seminar Committee Member (University of Minnesota)	Fall 2009-Present
CBITG Annual Symposium Committee Member	Summer 2010-Spring 2012