

APPLICANT/FELLOW BIOGRAPHICAL SKETCH

USE ONLY FOR INDIVIDUAL PREDOCTORAL and POSTDOCTORAL FELLOWSHIPS. DO NOT EXCEED FOUR PAGES.

NAME OF APPLICANT/FELLOW Christopher Michael Welch		POSITION TITLE MD/PhD Student	
eRA COMMONS USER NAME CHRISTOPHER_WELCH			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Clemson University, Clemson, SC	BS	2004	Biological Sciences
Clemson University, Clemson, SC	BA	2004	Chemistry
University of North Carolina, Chapel Hill, NC	Ph.D.	2011*	Pharmacology
University of North Carolina, Chapel Hill, NC	M.D.	2013*	Medicine * (expected)

A. Positions and Honors**Professional Experience**

University of North Carolina – Chapel Hill School of Medicine

August 2007 – Present

PhD Supervisor: Dr. Klaus M. Hahn, Department of Pharmacology

PhD Dissertation Thesis Title: Rho GTPase Dynamics in Cell Migration

Clemson University

August 2000 – May 2004

Honors Thesis Advisor: Dr. Sidney A. Gauthreaux

Honors Thesis Title: Atmospheric trajectories and spring bird migration across the Gulf of Mexico.

Professional Activities

2002-2004 American Chemical Society
 2004-Present National Institutes of Health Medical Scientist Training Program at UNC-Chapel Hill
 2005-2007 Alternative Spring Break Program (President 2006-2007)
 2005-2007 Focus Groups for Various Academic Blocks
 2006-2007 UNC School of Medicine Orientation Committee
 2006-2007 2nd Year Student Advocate, UNC School of Medicine
 2006-2007 Whitehead Medical Society (VP of Research and Development)
 2005-Present John B. Graham Medical Student Research Society (Research Opportunities Co-Chair, Vice President of Student Research Day, **Co-President**, Treasurer)
 2007-Present American Society for Cell Biology
 2009-Present UNC-Chapel Hill MSTP Admissions Committee

Academic and Professional Honors and Awards

2004-Present National Institutes of Health Medical Scientist Training Program
 2007 William deB. MacNider Award – Awarded to Two Medical Students of Outstanding Character Each Year, as voted on by classmates
 2007 Highest Grade Average in Medical School through Year 2
 2007 Honors for Year 2 of Medical School
 2007 Outstanding Basic Science Slide Presentation – School of Medicine Research Day
 2006-2007 Medical Alumni Loyalty Fund Scholarship
 2006 Outstanding Basic Science Poster Presentation – School of Medicine Research Day

2004	Faculty Scholarship Award, Clemson University – Highest Graduating GPA
2003	Rhodes Scholarship National Finalist
2002-Present	Mortar Board Honor Society
2002-Present	Omicron Delta Kappa Honor Society
2002-Present	Phi Kappa Phi Honor Society
2002	Barry M. Goldwater Scholar
2000-2004	Palmetto Fellows Scholarship Recipient
2000-2004	Robert C. Byrd Honors Scholarship Recipient
2000-2004	Clemson National Scholar

B. Publications

Original Peer-Reviewed Research Articles:

Gauthreaux SA, Belser CG, **Welch CM**. Atmospheric trajectories and spring bird migration across the Gulf of Mexico. *Journal of Ornithology*. 2006 147: 317-325.

Machacek, M*, Hodgson, L*, **Welch, CM***, Elliott, H, Pertz, O, Shen, F, Abell, A, Johnson, GL, Hahn, KM, Danuser, G. Coordination of Rho GTPase activities during cell protrusion. *Nature*. 2009 Sep 3;461(7260):99-103. *denotes co-authors with equal contributions

Koivusalo M, **Welch C**, Hayashi H, Scott CC, Kim M, Alexander T, Touret N, Hahn KM, Grinstein S. Amiloride inhibits macropinocytosis by lowering submembranous pH and preventing Rac1 and Cdc42 signaling. *J Cell Biol*. 2010 Feb 22;188(4):547-63.

Borikova AL, Dibble CF, Sciaky N, **Welch CM**, Abell AN, Bencharit S, Johnson GL. Rho kinase inhibition rescues the endothelial cell cerebral cavernous malformation phenotype. *J Biol Chem*. 2010 Apr 16;285(16):11760-4.

Samson T, **Welch CM**, Monaghan-Benson E, Hahn KM, Burridge K. Endogenous RhoG is rapidly activated after EGF stimulation through multiple GEFs. *Mol Biol Cell*. 2010 May;21(9):1629-42.

Mitin N, Rossman KL, **Welch CM**, Marshall TW, Currin R, Anne S, Hahn KM, Bear JE, Der CJ. TEM4 Activates RhoC to Mediate Focal Adhesion Disassembly by Microtubules. *Submitted to Cell 5/9/2010*.

Welch CM, Samson T, Wu J, Berginski M, Allen R, Gomez S, Elston T, Burridge K, and Hahn KM. RhoG spatiotemporally regulates lamellipodial Rac1 activity via an endosomal recycling pathway. *In preparation for Cell, 2010*.

Welch CM, Allen R, Trudeau E, Elston T, Burridge K, and Hahn KM. Novel Rho GTPase biosensor designs and delivery methods for live cell and *in vivo* imaging applications. *In preparation for Nature Methods or Biophysical Journal, 2010*.

Welch CM, Elliott H, Danuser G, Hahn KM. Multiplex Imaging of Signaling Dynamics *In Vivo*. *In preparation for Nature Reviews in Molecular Cell Biology, 2010*.

Abstracts:

Atmospheric Trajectories and Spring Bird Migration Across the Gulf of Mexico. **Welch CM**, Belser CG, Gauthreaux SA. *Bird Migration in Response to Climatic Change. Wilhelmshaven, Germany, 2005*.

Spatiotemporal Dynamics of RhoG Activation During Cell Migration. **Welch CM**, Samson T, Wu J, Burridge K, and Hahn KM. *American Society for Cell Biology Meeting 2009, San Diego, California*.

Presentations:

Live Cell Imaging of RhoG and Rac1 Activation. *Oral Presentation. Symposium on Adhesion and Migration in Inflammation, Chapel Hill, North Carolina, 2009*.

Coordination of Rho GTPases in Cell Migration. *Poster Presentation. ASCI/AAP Joint Meeting with National MSTP/APSA Meeting, Chicago, Illinois, 2009. **Awarded a travel grant.** Withdrew from meeting due to conflict with another meeting.*

Coordination of Rho GTPases in Cell Migration. *Oral Presentation. National MD/PhD Student Conference, Keystone, Colorado, 2009.*

Spatiotemporal Dynamics of RhoG Activation During Cell Migration. *Poster Presentation. American Society for Cell Biology Meeting 2009, San Diego, California.*

RhoG Regulates the Spatiotemporal Dynamics of Rac1 Activation During Cell Migration. *Poster Presentation. National Heart Lung and Blood MD/PhD Trainees Conference, Bethesda, Maryland, 2010.*

C. Research Support

Active:

Leukocyte Transendothelial Migration: Coordination of Rho GTPase Signaling 08/012008-05/01/2013
5F30 HL940202 (Welch)
National Institutes of Health