

Heather Wilson-Ashworth

Associate Professor of Biology
Utah Valley University
800W. University Pkwy
Orem, UT 84058

Email: heather.ashworth@uvu.edu
Telephone: 801-863-7031
Fax: 801-863-8064

Professional Experience

- Associate Department Chair Department of Biology, Utah Valley University, Orem, UT, Sept. 2007-present
- Contributor Stanfield's Human Physiology text and Campbell's Biology text supplementary materials, Pearson Benjamin Cummings, San Francisco, CA, Jan. 2011-present
- Collaborator Computerized Thermal Imaging Inc. Lake Oswego, OR, Dec. 2011-present
- Faculty positions
-Associate Professor, Department of Biology, Utah Valley University, Sept. 2006-present
-Assistant Professor, Department of Biology, Utah Valley University, Sept. 2000-2005
-Visiting Professor, Department of Zoology, Brigham Young University, Jan 2000-Aug 2000
-Instructor, Division of Cellular Biology, Department of Zoology, Brigham Young University, February 1999, Spring 1997, 1998
-Instructor, Department of Life Sciences, Utah Valley University, Orem, UT 1997 – 1999

Education

- Ph.D Brigham Young University Emphasis: Cell Biology and Physiology, 1999. Advisor: John D. Bell. Dissertation: *The Factors Responsible for S49 Cell Membrane Susceptibility to Secretory Phospholipase A₂*. GPA: 3.81
- B.A. Brigham Young University Major: Secondary Education-Math, Minor: Biology. 1994. *Graduated Magna Cum Laude*

Scholarship

Publications

**indicates UVU student researcher*

Peer-Review Journal Articles

- Franchino, H.A., Johnson B.C., Neeley, S.K., Tajhya, R.B., Vu, M.P., Wilson-Ashworth, H.A., and J. D. Bell. (2010) Combined Use of Steady-State Fluorescence Emission and Anisotropy of Merocyanine 540 to Distinguish Crystalline, Gel, Ripple, And Liquid Crystalline Phases in Dipalmitoylphosphatidylcholine Bilayers. PMC Biophysics 3, 1-16.
- Olson, E.D., Nelson, J., Griffith, K., Nguyen, T., Streeter, M., Wilson-Ashworth, H.A., Gleb, M.H., and J. D. Bell. (2010) Kinetic evaluation of cell membrane hydrolysis during apoptosis by human isoforms of secretory phospholipase A₂. Journal of Biological Chemistry 285, 10993-1002.
- Stott, B.M., Vu, M.P., McLemore, C.O., *Lund, M.S., Gibbons, E., Brueseke, T.J., Wilson-Ashworth, H.A., and J. D. Bell. (2008) Use of fluorescence to determine the effects of cholesterol on lipid behavior in sphingomyelin liposomes and erythrocyte membranes. Journal of Lipid Research 48, 1202-15.
- Wilson-Ashworth, H.A., Bahm, Q., *Erickson, J., *Shinkle, A., Vu, M.P., Woodbury, D., and J. D. Bell. (2006) Differential detection of phospholipid fluidity, order, and spacing by fluorescence spectroscopy of bis-pyrene, prodan, nystatin, and merocyanine 540. Biophysical Journal 91, 4091-101.
- Jensen, L. B., Burgess, N. K., Gonda, D. D., Spencer, E., Wilson-Ashworth, H.A., Driscoll, E., Vu, M. P., Fairbourn, J. L., Judd, A.M., and J. D. Bell. (2005) Mechanisms governing the level of susceptibility of erythrocyte membranes to secretory phospholipase A₂. Biophysical Journal 88, 2692-2705.
- Wilson-Ashworth, H.A., Judd, A.M., LawR.M., *Freestone, B.D., *Taylor, S., Mizukawa, M.K., Cromar, K.R., Sudweeks, S., and J. D. Bell. (2004) Formation of transient non-protein calcium pores by lysophospholipids in S49 lymphoma cells. Journal of Membrane Biology 200, 25-33.

The following papers are products of my dissertation:

- Wilson, H.A., Allred, D.V., O'Neill, K., and J. D. Bell. (2000) Activities and interactions among phospholipases A₂ during thapsigargin-induced S49 cell death. Apoptosis, 5, 389-396.

- Wilson, H.A., Waldrip, J.B., Nielson, K.H., Judd, A.M., Koduri, R.S., Gelb, M.H., Han, A.K., Cho. W., Sims, P.J., and J. D. Bell. (1999) Mechanisms by which elevated intracellular calcium induces S49 cell membranes to become susceptible to the action of secretory phospholipase A₂. Journal of Biological Chemistry , 274, 11494-11504.
- Wilson, H.A., Huang, W., Waldrip, J.B., Judd, A.M., Vernon, L.P., and J. D. Bell. (1997) Mechanisms by which thionin induces membrane susceptibility of S49 cell membranes to extracellular phospholipase A₂. Biochimica et Biophysica Acta, 1349, 142-156.
- Winder, W.W., Wilson, H.A., Hardie, D.G., Rasmussen, B.B., Hutber, C.A., Call. G.B., Clayton, R.D., Conley, L.M., Yoon, S., and Zhou, B. (1997) Phosphorylation of rat muscle acetyl-CoA carboxylase by AMP-activated protein kinase and protein kinase A. Journal of Applied Physiology, 82(1), 219-225.

**indicates UVU student researcher*

Books and Teaching Materials

- Wilson-Ashworth, H.A. Human Physiology Study Guide, 3rd edition, Pearson Benjamin Cummings (2010).
- Wilson-Ashworth, H.A. Human Physiology Study Card, Pearson Benjamin Cummings (2010).
- Wilson-Ashworth, H.A. Essential Biology Test Preparation Guide, Pearson Benjamin Cummings (2010).
- Kopp, Olga, Samson, April, Wilson-Ashworth, Heather, College Biology (BIOL 1615) Laboratory Manual, 2nd edition, Pearson Benjamin Cummings (2008).
-First edition published 2007.
- Wilson-Ashworth, H.A. Instructor Guide for Human Physiology, 4th edition, Pearson Benjamin Cummings (2009).
- Wilson-Ashworth, H.A. Essential Biology Study Card for Pearson Benjamin Cummings (2004).
- Wilson-Ashworth, H.A. Powerpoint Slides for Bioinquiry text by Wiley (2004).

Invited Presentations

- Heather A. Wilson-Ashworth, Faith M. Harris, Aaron Shinkle, Joshua Erickson, Lauren B. Jensen, and John D. Bell. (2004) Distinguishing membrane fluidity and lipid order

using steady state fluorescence emission and anisotropy. Biophysical Conference, Baltimore, MD.

- Heather A. Wilson-Ashworth, Faith M. Harris, Aaron Shinkle, Joshua Erickson, Lauren B. Jensen, and John D. Bell. (2004) Distinguishing membrane fluidity and lipid order using steady state fluorescence emission and anisotropy. Utah Valley University, Biology Department Seminar, Orem, UT.
- Wilson, H.A., Judd, A.M., and J.D. Bell. (2003) Mechanism by which phospholipase A2 causes cells to become resistant to its action. FASEB Conference, San Diego CA.

Conference Abstracts and Presentations

- Stott, B.M., Franchino, H.A., Tajhya, R.B., Vu, M.P., Yeung, C.H.-Y., Wilson-Ashworth, H.A., and Bell, J.D. (2008) A complete phase diagram for palmitoylphingomyelin-cholesterol liposomes. *Biophys. J.* 94 (suppl), (#393).
- Wilson-Ashworth, H.A., Vu, M.P., Noble, A., Lund, M.S., McLemore, C., and Bell, J.D. (2007) Use of fluorescence spectroscopy to create a cholesterol "phase diagram" for a biological membrane. *Biophys. J.* 92 (suppl), 426a.
- Wilson-Ashworth, H.A., Baum, Q., Shinkle, A., Erickson, J., Vu, M., and Bell, J.D. (2006) Differential detection of phospholipids fluidity and order by fluorescence spectroscopy depending on probe depth. *Biophys. J.* 90, 366a.
- Jensen, L.B., Wilson-Ashworth, H.A., Judd, A.M., and Bell, J.D. (2004) Quantification of the adsorption of secretory phospholipase A2 to cell membranes and relationship to its mechanism of action. *Biophys. J.* 86, 377a.
- Wilson-Ashworth, H.A., Harris, F.M., Shinkle, A., Erickson, J., Jensen, L.B., and Bell, J.D. (2004) Distinguishing membrane fluidity and lipid order using steady state fluorescence emission and anisotropy. *Biophys. J.* 86:31a.
- Jensen, L.B., Wilson-Ashworth, H.A., Judd, A.M., and Bell, J.D. (2004) Quantification of the adsorption of secretory phospholipase A₂ to cell membranes and relationship to its mechanism of action. *Biophys. J.* 86:377a.
- Wilson-Ashworth, H.A., Freestone, B.D., Taylor, S. (2003) Formation of transient non-protein calcium pores by lysophospholipids in S49 lymphoma cells. National Conference on Undergraduate Research. Salt Lake City, Utah March 2003
- Wilson, H.A., Judd, A.M., and Bell, J.D. (2003) Mechanism by which phospholipase A2 causes cells to become resistant to its own action. *FASEB J.* 17:A578.
- Wilson, H.A., and Bell, J.D. (2002) Formation of transient non-protein calcium channels by lysophospholipid in S49 lymphoma cells. *FASEB J.* 16:A906.

- Wilson, H.A. and J.D.Bell. (2001) Secretory phospholipase A₂ causes mammalian cell membranes to become refractory to further hydrolysis by the enzyme. Biophys. J. 80, 549a.
- Wilson, H.A., Allred, D.V., O'Neill, K.L., and J.D. Bell. (1999) Roles of intracellular phospholipase A₂ in the induction of membrane susceptibility to sPLA₂ during apoptosis. Mol. Bio. Cell 10, 189a (#1093).
- Wilson, H.A., and J.D. Bell. (1998) Novel cellular response to lysophosphatidylcholine: calcium-dependent changes in membrane structure and susceptibility to phospholipase A₂. Mol. Bio. Cell 9, 80a (#464).
- Wilson, H.A., Olsen, C.A., and J.D. Bell. (1997) Induction of susceptibility to secretory phospholipase A₂ in S49 lymphoma cells. Mol. Bio. Cell 8, 78a (#456).
- Wilson, H.A., Judd, A.M., and J.D. Bell. (1997) Mechanisms by which thionin induces susceptibility of S49 cell membranes to phospholipase A₂. Biophys. J. 70, A419 (#W-Pos234).

Grants and Fellowships

National Science Foundation

- Research Opportunity Award (ROA), 2001, \$14,000.

Utah Valley University

- Center for Engaged Learning Grant, 2010, \$5000.
- UVSC Foundation Grant, 2009, 2003, 2002, \$2,500, \$2,500 and \$4,000 .
- Scholarly Activities Grant, 2001- 2007, \$12,000/semester.
- Presidential Award for Faculty Scholarship, 2002, \$1,000.
- Pope Institute Research Grant, 2001, \$2,000.

Brigham Young University

- BYU Cancer Research Fellowship, 1999.
- BYU Research Graduate Fellowship, 1998 (full year fellowship, \$6,000).

Conferences attended:

- American Diabetes Conference, Orlando Florida, June 1010.
- Biophysical Conference. Baltimore, Maryland March 2007.
- Biophysical Conference. Salt Lake City, Utah February 2005.
- Biophysical Conference. Baltimore, Maryland February 2004.
- Federation of Experimental Biologists Conference. San Diego, California April 2003.
- Field Guide to GenBank and NCBI Molecular Biology Resources Course. Orem, Utah March 2003.
- National Conference on Undergraduate Research. Salt Lake City, Utah March 2003.

- Federation of Experimental Biologists Conferences. New Orleans, Louisiana April 2002.
- Biophysical Conference. Boston, Massachusetts February 2001.

Teaching

Courses

Utah Valley University

- Biology 1010. *General Biology*. General education biology for non-science majors.
- Biology 1610. *College Biology I*. Introductory course for biology majors.
- Biology 4200. *Teaching Methods in Science*. Senior course preparing science secondary education majors for student teaching.
- Biology 494R. *Senior Seminar*. Journal article discussions with senior students.
- Zoology 1090. *Introduction to Anatomy and Physiology*. Basic introductory course to anatomy and physiology.
- Zoology 2420. *Human Physiology*. Physiology for health care professionals.
- Zoology 242H. *Honors Human Physiology*. Honors physiology for health care professionals.

Distance education courses:

- Biology 1010. *General Biology (Online)*. General education biology for non-science majors.
- Zoology 1090. *Introduction to Anatomy and Physiology (Live Interactive)*. Basic introductory course to anatomy and physiology.

Brigham Young University

- Zoology 260. *Human Physiology*. Physiology for health care professionals.
- Zoology 205 *Human Biology*. Survey of topics addressing human body and genetics.

Teaching Awards

- Faculty Appreciation Award from Utah Valley University Academic Tutoring, 2011.
- Nominated for Faculty in Excellence Award, Utah Valley University, 2011.
- Service Learning Faculty of the Year, Utah Valley University, 2006.
- Academic Service Learning Fellowship, 2005, \$750.
- Who's Who Among American Teachers, 2005.
- Who's Who Among American Teachers, 2004.
- Nominated for Faculty in Excellence Award, Utah Valley University, 2002.

Teaching Conferences attended:

- Northwest Peer Oriented Guided Inquiry Learning (POGIL) conference, 2011.
- Problem Solving Approach to Teaching (FIPSE) Workshop. Brigham Young University, Provo, Utah, 2005.

- National Science Teachers Conference. San Diego, California, 2002.
- Regional Science Teachers Conference. Salt Lake, Utah, 2001.

Service

Service to the Profession

- Peer Reviewer. National Conference for Undergraduate Research. Fall 2011.
- Panel Contributor, Finding Balance as a Professional LDS Mother, Brigham Young University, 2010.
- Peer Reviewer. 32 reviews of various chapters and teaching materials for national publishers including McGraw-Hill and Pearson Benjamin Cummings. 2000-present.
- Judge for the Central Utah Science and Engineering Fair, 2004, 2006.
- Board member of the State Science Education Curriculum Committee, 2001-2002.
- Board member of the State Science Education Coordinating Committee, 2001-2002.
- Peer Reviewer. FIPSE Grants, Department of Education. 2002.
- Judge for the State Sterling Scholar Competition, 2001.

Service to University

- Tutoring and Academic Skills Services Faculty Advisory Board, 2010-present.
 - UVU Personnel and Elections Committee, 2010-present.
 - UVU Course Fee Evaluation committee, 2010-present.
 - Testing Services Faculty Board, 2010-present.
 - UVU Academic Standards Committee, 2007-2010.
 - Secretary Elect for the Faculty Senate, 2004-Spring 2005.
-

Service to the College

- Chair for College Policy Committee, 2008-2011.
- Secretary for College Policy Committee, 2003-2008.
- College committee member for student retention 2006-2007.
- College Policy Committee Member, 2000-2003.

Service to the Department

- Department of Biology Associate Department chair, 2007-present.
- Chair College Biology Lab Manual Revision Committee, third edition, 2010-2011.
- Department of Biology Course Scheduler, 2007-present.
- Department of Biology Assessment Coordinator, 2007-present.
- College Biology Lab Manual Revision Committee, 2006-2007.
- Department Seminar Coordinator 2004-2005.
- Chair of the Biology Retention, Tenure and Promotion Writing Committee, 2004.
- Member of the Biology 1010 Final Writing Committee, 2004.
- Secondary Education Advisor, 2001-2002.

- Coauthor of Secondary Education Science Degree for Approval by Board of Regents and Utah State Office of Education, 2001.
- Chair or committee member for seven faculty/staff position searches.