

Curriculum Vitae

RICHARD W. NELSON, Ph.D.

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EDUCATION:

- Furman University, B.S. in Biology, 1987
- Case Western Reserve University, Ph.D. in Molecular Biology and Microbiology, 1995
- Sloan-Kettering Cancer Center, Postdoctoral Training, 1995-1999

FELLOWSHIPS AND HONORS:

- Furman Scholarship, 1983-1987
- Bachelor of Science in Biology, *cum laude*
- NIH Developmental Biology Training Grant, 1991-1994
- NIH Postdoctoral Fellowship, 1995-1998

RESEARCH EXPERIENCE:

- **Summer Undergraduate Research**, Furman University, 1986. Separation and characterization of fluorescent pigments in butterflies.
- **Laboratory Technician**, University of Florida Department of Biochemistry and Molecular Biology. Under the direction of Dr. Susan Frost, investigating mechanisms of insulin-responsive glucose transport.
- **Graduate Student**, Case Western Reserve University, 1988-1995 (cumulative GPA, 3.63). Under the direction of Dr. Urs Rutishauser, studying the mechanisms that direct specific addition of polysialic acid to neural cell adhesion molecule.
- **Postdoctoral Fellow**, Memorial Sloan-Kettering Cancer Center, September 1995-July 1999. Under the direction of Dr. Barry Gumbiner, studying transcriptional activation by the β -catenin signaling pathway during *Xenopus laevis* development.
- **Assistant Professor of Biology**, Wabash College, July 1999-2006. Conceived and implemented a productive teaching and research program involving numerous undergraduate students focused on gene regulation in early vertebrate development
- **Professor of Biology**, Covenant College. Continuing research projects with students.

TEACHING EXPERIENCE:

- **Teacher and Coordinator of 1st-3rd Grade Science Curriculum**, Geneva School of Manhattan, 1997-1999. Developed and taught a rigorous science program in this classical Christian private school.

- **Mentor**, Cornell Science Challenge (advising middle school students in the conception and development of science projects, and the analysis and presentation of experimental results). East Side Middle School, Manhattan, 1998/1999 school year.
- **Assistant Professor** at Wabash College, July 1999-July 2006. Responsible for teaching introductory biology courses, upper level courses in cell biology, developmental biology and immunology, and general education courses.
- **Associate Professor/ Professor** at Covenant College, July 2006-present. Responsible for teaching introductory biology courses, upper level courses in cell biology, developmental biology and immunology, and general education courses

COURSES TAUGHT:

- General Biology 1 and 2
- Developmental Biology
- Cell/Molecular Biology
- Human Anatomy and Physiology
- Immunology
- Senior Seminar in Biology
- Cultures and Traditions (an all-college two-semester humanities course, aimed at exposing students to the arts, religions, philosophies, sciences and social theories of several cultures, western and eastern; the course is largely conducted in faculty-led discussion groups, with student performance determined by participation in discussion and written essays).
- Human Biology (for non-majors)
- Christian Mind
- Concepts in Human Heredity (for non-majors)
- Genetics
- Research in Biology
- Cancer Biology

COLLEGE SERVICE:

- Served on the Lilly Scholarship Committee, Wabash College, Spring 2001-Spring 2004.
- Serving on Pre-Health Committee, Wabash College, starting Summer of 2002-Spring 2005.
- Serving on Teaching and Learning Committee, Wabash College, Fall 2003-Spring 2005.
- Serving on Safety Committee, Wabash College, Fall 2003-Spring 2005.
- Academic Standards Committee, Covenant College, Fall 2007-Spring 2013
- Faculty Campus Planning Committee, Fall 2009-Fall 2012
- Chair, Biology Department, Fall 2015-present
- Athletic Committee, Fall 2015-Spring 2017
- Curriculum Committee, Fall 2018-present

PROFESSIONAL SOCIETIES AND MEMBERSHIPS

- American Association for the Advancement of Science, 1993-present
- American Society for Cell Biology, 1996-2007
- Society for Developmental Biology, 2000-2007
- Council on Undergraduate Research, 2000-2016
- American Scientific Association (Spring 2013-2016)
- Council on Undergraduate Research (Spring 2021-present)
- American Society for Cell Biology (

PROFESSIONAL DEVELOPMENT

- Attended American Society for Cell Biology Meeting, Washington, DC (December 1999). During the meeting, I attended a teaching workshop: “Genomics: How do we teach in the middle of a revolution?”
- Attended Midwest Developmental Biology Meeting (University of Illinois, May 24-25, 2000); participated in Special Focus Discussion on “The Teaching of Developmental Biology”.
- Attended National Developmental Biology Meeting (Seattle, WA, July 2001)
- Attended Midwest Developmental Biology Meeting (University of Missouri-Columbia, June 2002).
- Attended American Society for Cell Biology Meeting (San Francisco, CA, December 2002). Presented a poster (see “Poster Abstracts”, below).
- Attended Society for Developmental Biology Meeting (Boston, MA, July 2003).
- Attended Society for Developmental Biology Meeting (Calgary, AB, July 2004). Presented a poster (see “Poster Abstracts”, below) and participated in a Teaching Workshop.
- Attended Chautauqua Workshop on Investigative Case-Based Learning (Memphis, TN, July 2004).
- Attended American Society for Cell Biology Meeting (San Francisco, CA, December 2005)
- Attended and led discussion, Paideia Conference (Chattanooga, TN, March 2012)
- Attended American Scientific Association Conference, “In God’s Image: Celebrating Creativity in Science and Invention”, Nashville, TN, July 2013)
- AP Biology Readings in Kansas City, MO; June 2014, 2015, 2016, 2017, 2018, 2019. Remote in 2020, 2021.
- Journal Article Review: “Cats and carbohydrates, the carnivore fantasy?” . Vet Sci. Spring, 2017.
- Journal Article Review: “Lumican in carcinogenesis-revisited,” Biomolecules, August 2021
- Journal Article Review: The Role of Mesenchymal Stem Cells (MSC) in Veterinary Medicine and Their Use in Musculoskeletal Disorders,” Biomolecules, July 2021
- Attended virtual meeting of the American Society for Cell Biology, December 2020.

POSTER ABSTRACTS

- **Nelson, R.W.** and Rutishauser, U. 1993. Specific Addition of Polysialic Acid to the Neural Cell Adhesion Molecule. Poster (Abstract #1257), American Society for Cell Biology Meeting. New Orleans, LA (December 1993).
- **Nelson, R.W.** and Gumbiner, B.M. 1997. β -Catenin directly induces expression of the siamois gene, and can initiate signaling indirectly via a membrane-tethered form. Poster, American Society for Cell Biology Meeting. Washington, D.C. (December, 1997).
- **Nelson, R.W.** and Gumbiner, B.M. 1998. Analysis of direct, β -catenin mediated induction of Spemann organizer specific genes using a novel in vitro assay system. Poster, American Society for Cell Biology Meeting. San Francisco, CA (December 1998).
- Baehl, K.P.** and **Nelson, R.W.** 2001. Altered Gene Expression in *Xenopus laevis* in response to *Siamois* overexpression. Poster, Celebration of Student Research, Wabash College, Crawfordsville, IN (January 2001).
- Collins, G.** and **Nelson, R.W.** 2002. Characterization of Differentially Expressed Genes During the Course of *Xenopus laevis* Development. Poster, Celebration of Student Research, Wabash College, Crawfordsville, IN (January 2002).
- Collins, G.**, Scott, J.** and **Nelson, R. W.** 2002. Identification and Characterization of Temporally Regulated Genes During *Xenopus laevis* Early Development using Restriction Fragment Differential Display. Poster, American Society for Cell Biology Meeting, San Francisco, CA (December 2002).
- Nelson, K. and **Nelson R. W.** 2004. Cdc42 Effector Protein 2 (XCEP2) is required for normal gastrulation and contributes to cellular adhesion in *Xenopus laevis*. Society for Developmental Biology Meeting, Calgary, AB (July 2004).
- David Lockwood**, Leigh Ann Nelson**, Caleb Peacock**, Becca Sipma** and **Richard W. Nelson, PhD.** RAPD PCR Analysis of Genetic Diversity in *Kalmia latifolia*. Poster presentation to Covenant College students, Lookout Mountain, GA (April 2013)
- J. Blackmon**, E. Coats**, G. Massot**, and **R. Nelson.** dsRNA knockdown of SNAP29 in *Schmidtea mediterranea* inhibits eyespot development and phototactic response. Posters on the Prairie, AP Biology Grading event, Kansas City, MO. (June 2017)

** indicates undergraduate student author

PUBLICATIONS

- Hall, A.K., **Nelson, R.** and Rutishauser, U. 1990. Binding Properties of Detergent Solubilized NCAM. *J. Cell Biol.* **110**:817-824.
- **Nelson, R.W.**, Bates, P.A. and Rutishauser, U. 1994. Protein Determinants for Specific Polysialylation of the Neural Cell Adhesion Molecule. *J. Biol. Chem.* **270**:17171-17179.

- Oka, S., Bruses, J.L., **Nelson, R.W.**, and Rutishauser, U. 1994. Properties and Developmental Regulation of Polysialyltransferase Activity in the Chicken Embryo Brain. *J. Biol. Chem.* **270**:19557-19663.
- **Nelson, R.W.** and Gumbiner, B.M. 1998. β -catenin directly induces expression of the *siamois* gene, and can initiate signaling indirectly via a membrane-tethered form. *Ann N Y Acad Sci.* **857**:86-98.
- **Nelson, R.W.** and Gumbiner, B.M. 1999. A cell-free assay system for β -catenin signaling that recapitulates direct inductive events in the early *Xenopus laevis* embryo. *J Cell Biol.* **147**(2):367-74.
- Nelson, K. and **Nelson R. W.** 2004. Cdc42 Effector Protein 2 (XCEP2) is required for normal gastrulation and contributes to cellular adhesion in *Xenopus laevis*. *BMC Developmental Biology* **4**:13. (full text available at <http://www.biomedcentral.com/1471213X/4/13/abstract>)

PRESENTATIONS

- “Worshiping God in Biology”- Chapel talk, Covenant College, Fall 2009.
- Science and Faith, 3-week Sunday school discussion, Mountain Fellowship, Fall 2016.
- “The Biology of Sexuality”, Chapel talk, Covenant College, Fall 2018
- “Personal Genetic Testing,” Seminar, X-Large City Camp, Hradec Kralove, Czech Republic, July 2019
- “Faith and Science,” Seminar, Josiah Venture English Camp, Dobruška, Czech Republic, July 2021