

Curriculum Vitae

Jutta Beneken Heller

Contact Information

University of Washington, Tacoma
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Education

2001 Ph.D. Biophysics, Johns Hopkins University School of Medicine, Baltimore, MD

Dissertation Title: *Characterization of the Lamina-Associated Polypeptide 2 (LAP2) and Structure of the Homer EVH1 Domain-Peptide Complex*

1995 B.A. Molecular Biology, Princeton University, Princeton, NJ

Thesis Title: *Mutations in the c-myc transcription factor NM23-H2/PuF: Effects on protein oligomerization, nucleoside diphosphate kinase activity, and in vitro DNA-binding*

Teaching

Lecturer, University of Washington, Tacoma, WA, Division of Quantitative and Environmental Sciences and Studies; January 2011 – present (full-time since September 2011)

- Courses taught include: Introduction to Biology I, II and III (TESC 120, 130, & 140), Human Biology and the Environment (TESC 240), Genetics and Society (TESC 370), Molecular Biology with Environmental Applications (TESC 380), Environmental Science Research Seminar (TESC 310), Environmental Seminar (TESC 200), Careers in the Biomedical Sciences (TESC 199)
- Responsibilities include: Preparing lectures and laboratory sessions, writing and grading in-class exams, maintaining office hours for student consultation, student advising
- Curriculum coordinator for Introductory Biology courses in the Environmental Sciences Program.

Adjunct faculty, Olympic College, Bremerton, WA, Division of Mathematics, Engineering, Science & Health; September 2010 – March 2011

- Course taught: Human Biology with Lab (BIOL 175)

Lecturer, Loyola University Chicago, IL, Department of Biology; August 2004 – June 2010

- Taught undergraduate and graduate-level courses in General Biology, Genetics, and Molecular Biology.

Assistant Graduate Program Director, Master of Arts Medical Sciences Program, Loyola University Chicago, IL; August 2009 – June 2010

- Reviewed applications for the Master of Arts, Medical Sciences (MAMS) graduate program in the Department of Biology. Worked with the Director on curricular issues. Received training in Pre-Health Professions Advising and student counseling. Developed an advanced genetics course with a strong human health focus for graduate students.

Courses Taught

- Introduction to Biology I (TESC 120, 6 credits) – University of Washington, Tacoma, WA.
- This course introduces the rules of genetic inheritance and the process of evolution by natural selection. It explores the diversity of life and the adaptations that allow organisms to thrive in habitats ranging from mountaintops to the deepest oceans. Additional topics include how organisms interact with each other and their environment, and how humans impact natural ecosystems.
- Introduction to Biology II (TESC 130, 6 credits) – University of Washington, Tacoma, WA.
- This course covers molecular and cellular biology, including basic chemistry, metabolism, cell structure and function, and the application of molecular techniques to environmental studies.
- Introduction to Biology III (TESC 140, 6 credits) – University of Washington, Tacoma, WA.
- This course covers anatomy, physiology and development within the animal and plant kingdoms.
- “You and Your Genes” (TCORE 122, 5 credits) – University of Washington, Tacoma, WA.
- This non-majors course introduces students to basic concepts of genetics and molecular biology, including social and historical aspects.
- Careers in the Biomedical Sciences (TESC 199, 1 credit) – University of Washington, Tacoma, WA.
- This weekly seminar and workshop series provides students with the opportunity to explore current requirements for applications to medical, veterinary, dental, pharmacy, and other professional schools.
- Environmental Seminar (TESC 200, 1 credit) – University of Washington, Tacoma, WA.
- This course provides exposure to current scientific research and policy initiatives. It includes presentations by researchers, discussion of recent literature, and participation in educational workshops and volunteer activities.
- Human Biology and the Environment (TESC 240, 5 credits) – University of Washington, Tacoma, WA.
- This course introduces human biological systems with a focus on environmental influences. It explores the structure and function of the major body systems (cardiovascular, endocrine, pulmonary, nervous, digestive, immune, and excretory), and the scientific and social issues implicit in addressing human health and environmental issues.
- Environmental Science Research Seminar (TESC 310, 3 credits) – University of Washington, Tacoma, WA.
- This course is required for all Environmental Science B.A. and B.S. students. It covers essential skills and tools needed to succeed in upper-division environmental science courses. Topics include: scientific ways of thinking, investigating, reading, and writing science.
- Genetics and Society (TESC 370, 5 credits) – University of Washington, Tacoma, WA.
- This course covers key advances and principles in genetics and molecular biology, providing background to critically evaluate controversial topics in biotechnology facing contemporary society.
- Molecular Biology with Environmental Applications (TESC 380, 6 credits) – University of Washington, Tacoma, WA.
- This course focuses on advanced principles of gene expression at the molecular level, emphasizing transcription and translation. It provides hands-on experience applying molecular biology techniques to isolation and characterization of genes from various organisms in research-driven projects.
- Human Biology with Lab (BIOL 175) – Olympic College, Bremerton, WA.
- This course covers the basic organization of molecules, cells, tissues, and organ systems in the human body.

- General Biology I (BIOL 101) – Loyola University Chicago, IL.
- This course is the first in a two-semester survey course and covers fundamental principles of Biology including: introduction to the scientific method, basic biological chemistry; cell structure and function; energy transformations; mechanisms of cell communication; cellular reproduction; and principles of genetics.
- General Biology II (BIOL 102) – Loyola University Chicago, IL.
- This course is a continuation of BIOL 101 and covers fundamental principles of Biology including: evolutionary theory; general principles of ecology; study of plant structure and function; and comparative animal physiology.
- Genetics (BIOL 282) – Loyola University Chicago, IL.
- This course surveys principles and processes of genetic inheritance, gene expression, molecular biology, developmental, quantitative, population and evolutionary genetics. Students develop understanding of Mendelian principles of inheritance, chromosome and DNA structure and replication, gene expression, molecular biology, genetic bases of development and other biological processes.
- Molecular genetics (BIOL 382/482) – Loyola University Chicago, IL.
- This course covers the molecular details of genetic processes such as DNA replication, RNA and protein synthesis, gene regulation and genome organization. Students gain a detailed understanding of (1) basic molecular biology techniques, (2) the macromolecules involved in genetic processes, and (3) published experiments that underlie our knowledge of these processes.
- Molecular Biology Laboratory (BIOL 390) – Loyola University Chicago, IL.
- This is an advanced laboratory course teaching students the basic principles and techniques of molecular biology, including bacterial cloning, polymerase chain reaction, restriction mapping, agarose gel electrophoresis, and DNA sequencing. The first half of the course is instructor-led, while the second half of the course focuses on independent research projects that are a required component.
- Advanced Genetics (BIOL 409) – Loyola University Chicago, IL.
- This course is part of the curriculum in the M.A. in Medical Sciences (MAMS) program at Loyola University Chicago. The MAMS program focuses on the development of intellectual skills and mastery of scientific concepts needed to succeed in medical school.

Additional Teaching Experience

- Junior Science and Humanities Symposium, Loyola University Chicago, November 2005
- Developed and led a workshop on “How to write a scientific paper” for high school students
- Advanced Placement Summer Institute, Loyola University Chicago, Summers 2006-2008, 2010
- Designed, developed and led a review sessions on topics in general biology, molecular biology techniques, and advances in biotechnology for Advanced Placement (AP) Biology teachers

Additional Experience in Education

Pearson Education Inc./Benjamin Cummings publisher, August 2010 – present

- Subject matter expert for MasteringBiology, an online learning resource for students.
- Accuracy reviewer for textbook chapters and textbook resources (e.g. chapter quizzes).
- Author of online interactive tutorials on topics of translation, transcription, and DNA replication (August – December 2010)

Mad Science of Chicago®, provider of hands-on science activities for children aged 5-12

- Instructor for summer and winter day-camps, 2007 –2009.

Awards

2010 Edwin T. and Vivijeanne F. Sujack Award for Teaching Excellence, Loyola University Chicago College of Arts and Sciences

2008 Master Teacher Award, Loyola University Chicago College of Arts and Sciences

2001 David E. Rogers Award for Community Service, Johns Hopkins School of Medicine

Service

Member of UW-Tacoma Executive Council, representing SIAS, September 2015 - present

Member of the School of Interdisciplinary Arts and Sciences Fellows Group to revise the lower division curriculum, January 2015 – present

Key author and contributor to the proposal for a new B.S. degree in Biomedical Sciences at UW-Tacoma, Summer 2014

Coordinator for the Biomedical Sciences Major, Division of Science and Mathematics, SIAS, September 2015-present

Co-coordinator of the Collaborative Learning program in the Division of Sciences and Mathematics, Autumn 2014-present

Member of Search & Interview Committees (School of Interdisciplinary Arts & Sciences at UW-Tacoma):

Mentor in the Student Success Mentoring Program at the University of Washington, Tacoma. November 2013 – present

- This program connects UWT faculty/staff with students in professional / academic mentoring relationships

Mentor in the student leadership certificate program LEAD (Learn. Engage. And. Develop) at the University of Washington, Tacoma. February 2014 – present

- This certificate is designed to give students the needed leadership and teamwork skills to become more productive teammates, classmates, co-workers, students and citizens.

Chair of the departmental Teaching Assessment and Excellence committee, Loyola University Chicago, Fall 2006 – June 2010:

- Classroom visitations and assessments of Biology faculty
- Organize and moderate informal intra-departmental discussions of teaching and classroom management techniques
- December 2006: Organized a visit and lecture by Dr. Scott Freeman on active learning techniques

Member of the departmental Instructor Promotion Committee (Elected), Loyola University Chicago, Fall 2009

Reviewer of applications for the Master of Arts in Medical Sciences (MAMS) Program, Loyola University Chicago, IL, June 2008 – June 2010

Member of two departmental search committees for new non-tenure track full-time faculty, Loyola University Chicago, Summer 2007 & Summer 2008

Member of the departmental search committee for a new tenure-track faculty member in the field of Neuroscience, Loyola University Chicago, Jan 2006 – Feb 2006

Member of the University-wide Radiation Safety Committee, Loyola University Chicago, 2007 - present

Participated in the University-wide Service Day, Loyola University Chicago, July 2007

Professional Development

Attended Association of American Colleges and Universities STEM Conference, Seattle, Nov 2015

Attended Association of American Colleges and Universities (AAC&U) Institute on General Education and Assessment, Oklahoma, June 2015

Attended UW Teaching and Learning Symposium, Seattle, April 2015

- co-presented poster on Course-Based Undergraduate Research Experiences (CURE)

Attended the “Fostering an Ethic of Place” conference organized by the Washington Center @ Evergreen State College, January 2015

Attended the Northwest Partnership for Life Sciences Education (PULSE) meeting, October 2014

Attended the Northwest Biology Instructor’s Organization annual meetings, 2012-2015

Attended the “Biology Leadership Conference” in Tucson, AZ. Organized and sponsored by Pearson Education, March 2009.

Attended “Focus on Teaching” workshops, organized by the Center for Professional Development, Loyola University Chicago, August 2007, August 2008, August 2009, January 2010

Participated in an “Active Learning” workshop, University of Illinois at Chicago, Chicago, IL. Organized by Pearson Education and the Department of Biological Sciences, September 2007

Member of the National Association of Advisors for the Health Professions (NAAHP).

Research Experience

2005 - 2006	Research Associate (Summers only)	Loyola University Chicago, Chicago, IL Dept. of Biology Advisor: Dr. Kim C. Williamson
2001 – 2004	Research Associate	The University of Chicago, Chicago, IL Dept. of Biochemistry and Molecular Biology Advisor: Dr. Carl C. Correll
1996 – 2001	Graduate Thesis	Johns Hopkins University Medical School, Baltimore, MD Dept. of Biophysics and Biophysical Chemistry Advisor: Dr. Daniel J. Leahy
1995 - 1996	Laboratory Rotations	Johns Hopkins University Medical School, Baltimore, MD Dept. of Physiology: Dr. Peter G. Gillespie

Dept. of Biophysics: Dr. Daniel J. Leahy
Dept. of Neuroscience: Dr. Richard L. Huganir

1994 - 1995 Undergraduate Thesis Princeton University, Princeton, NJ
Dept. of Molecular Biology
Advisor: Dr. Edith H. Postel

Publications

Correll, C.C., Yang, X., Gerczei, T., **Beneken, J.**, and Plantinga, M.J. (2004) RNA Recognition and base flipping by the toxin sarcin. *J. Synchrotron Rad.*, **11**, 93-96.

Correll, C.C., **Beneken, J.**, Plantinga, M.J., Chan, Y.-L., and Lubbers, M. (2003). The common and the distinctive features of bulged-G motifs based on a 1.04 Å resolution structure. *Nucl. Acids. Res.*, **31**, 6806-6818.

Beneken, J., Tu, J.C., Xiao, B., Yuan, J.P., Worley, P.F., and Leahy, D.J. (2000). Structure of the Homer EVH1 Domain-Peptide Complex Reveals a New Twist in Polyproline Recognition. *Neuron*, **26**, 143-154.

Postel, E.H., Weiss, V.H., **Beneken, J.**, and Kirtane, A. (1996). Mutational Analysis of NM23-H2/NDP Kinase Identifies the Structural Domains Critical to Recognition of a *c-myc* Regulatory Element. *Proc. Natl. Acad. Sci. USA*, **93**, 6892-6897.

Research Presentations

Beneken J., Plantinga, M.J., Chan, Y.-L., Lubbers, M., and Correll, C.C. (2003). Common and Distinctive Features of Bulged-G Motifs Based on a 1.04 Å Resolution Structure. Poster Presentation at the Rust Belt RNA Meeting, Mt. Sterling, OH.

Beneken, J., and Correll, C.C. (2002). *In Vitro* Binding Assays of Initiation Factor 2 with the Sarcin/Ricin Loop of the 23S rRNA. Poster Presentation at the Rust Belt RNA Meeting, Mt. Sterling, OH.

Beneken, J., and Correll, C.C. (2001). Assembly of core proteins on the box C/D region of the U3 RNA. Poster Presentation at the Rust Belt RNA Meeting, Mt. Sterling, OH.

Beneken, J., Tu, J.C., Xiao, B., Yuan, J.P., Worley, P.F., and Leahy, D.J. (2000). Structure of the Homer EVH1 Domain-Peptide Complex Reveals a New Twist in Polyproline Recognition. Poster Presentation at the Fourteenth Symposium of The Protein Society, San Diego, CA.

Beneken, J., Tu, J.C., Xiao, B., Yuan, J.P., Nuriya, M., Worley, P.F., and Leahy, D.J. (1999). Crystal Structure of the Homer EVH1 Domain. *Proceedings of the Third International Conference on Molecular Structural Biology, Vienna, Austria, 74*. (Poster Presentation)

Volunteer Experience

July 2010 – January 2011, Naval Undersea Museum, Keyport, WA
Worked with the collections department, greeted visitors, and helped with gift shop operations.

January 2004 – June 2010, Frank Lloyd Wright Preservation Trust, Chicago, IL
Interpreter and Tour Guide at the Frederick C. Robie House (National Historic Landmark).

August 2001 – June 2010, Museum of Science and Industry, Chicago, IL

Participated in “Science Connections”, a volunteer-based program designed to familiarize museum visitors with various concepts, such as Genetics, Human Body, Navy, Flight, etc. Helped design program flow for the Genetics program. Helped train new volunteers in the Genetics program. Interacted with museum visitors of all ages.

Laboratory Skills

Molecular biology:

Recombinant DNA cloning techniques; protein expression in *E.coli*, analytical DNA/RNA/protein gel electrophoresis

Biochemistry:

Recombinant protein purification and chromatography techniques; purification of RNA and DNA by gel electrophoresis; electrophoretic mobility shift assays

Biophysics:

Crystallization of RNA, protein, RNA-protein complexes, and protein-peptide complexes; X-ray crystallographic data collection, analysis and structure solution; fluorescence spectroscopy

Tissue/cell culture:

Cell transfection, cell line maintenance

Language Skills

Native fluency in German, working knowledge of Italian and French.