

CURRENT POSITION

Associate Professor, Department of Biology
Seattle University
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Seattle, WA 98122
206-398-4376
stenbakc@seattleu.edu

EDUCATION

- **Ph.D.** Microbiology, University of Washington, 2003
- **B.S.** Bacteriology, University of Wisconsin-Madison, 1996

SCIENTIFIC RESEARCH EXPERIENCE

2014-present **Associate Professor of Biology**, Seattle University. Seattle, Washington. *Understanding Foamy Virus Polymerase protein; Zoonotic transmission of New World Simian Foamy Viruses.*

2007-2014 **Assistant Professor of Biology**, Seattle University. Seattle, Washington. *Understanding Foamy Virus Polymerase protein; Zoonotic transmission of New World Simian Foamy Viruses.*

2006-2007 **HHMI Postdoctoral Fellow**, Department of Biology, Trinity University. San Antonio, Texas. *The role of structural and enzymatic viral protein interactions in Foamy Virus assembly.*

2006 **CURE Visiting Research Scientist**, Laboratory of Dr. Maxine Linial, Fred Hutchinson Cancer Research Center. Seattle, Washington. *Development of a yeast two-hybrid assay to examine interactions between Foamy Virus structural and enzymatic proteins.*

2004-2005 **Postdoctoral Fellow**, Laboratory of Dr. Bruno Lemaitre, Centre Nationale de la Recherche Scientifique, Centre de Génétique Moléculaire. Gif-sur-Yvette, France. *Requirements for specific innate immune recognition of bacteria in Drosophila.*

2002 **Visiting Doctoral Student**, Laboratory of Dr. Stephen Hughes, National Cancer Institute, Program in HIV Drug Resistance. Frederick, Maryland. *In vitro enzymatic characterization of the Foamy Virus reverse transcriptase protein.*

1997-2003 **Doctoral Student**, Laboratory of Dr. Maxine Linial, Fred Hutchinson Cancer Research Center and University of Washington, Department of Microbiology. Seattle, Washington. *Characterization of the Foamy Virus reverse transcriptase and polymerase proteins.*

1996-1997 **Business Team Product Specialist**, Abbott Laboratories-Diagnostic Division, C/Bs Business Team. Abbott Park, Illinois. *Development of an automated, high-throughput, diagnostic blood screening assay for Hepatitis C Virus.*

1995-1996 **Process Development Intern**, Promega Corporation, Process Development Group. Madison, Wisconsin. *Analysis of strain-specific challenges in plasmid isolation techniques.*

1994 **Microbiology Intern**, The Upjohn Company, Microbiology-Department of Quality Control. Kalamazoo, Michigan. *Investigation of drug preservative effectiveness against various microorganisms.*

1993-1995 **Undergraduate Researcher**, Laboratory of Dr. Ann Palmenberg, University of Wisconsin-Madison, Institute for Molecular Virology. Madison, Wisconsin. *Site-directed mutagenesis of picornavirus EMCV protease 3C.*

TEACHING EXPERIENCE

- 2011-present **Biology 488 Senior Synthesis Seminar**, Seattle University
- 2009-present **Biology 487 Senior Synthesis Research**, Seattle University
- 2009-present **Biology 499 Independent Study**, Seattle University
- 2009-present **Biology 161/171 Introductory Biology**, Seattle University
- 2007-present **Biology 315 Virology**, Seattle University.
- Biology 220 Microbiology**, Seattle University
- Biology 415 Fundamentals of Immunology**, Seattle University
- 2006-2007 **Biology 3391 Molecular Biology of Viruses**, Trinity University.
- 2006-2007 **Biology 1212 Introductory Biology Laboratory**, Trinity University.
- 2003 **Guest Lecturer – Prokaryotic Recombinant DNA Techniques**, University of Washington, “*DNA Sequencing*”
- 2001 **Guest Lecturer – General Microbiology**, University of Washington, “*Bacteriophage*”
- 2000 **Lecturer - Cancer Biology 101**, Fred Hutchinson Cancer Research Center, “*Viruses and Cancer*”
- 1997-1998 **Teaching Assistant (Instructor) – General Microbiology Laboratory**, University of Washington.

GRANTS AND FELLOWSHIPS

- 2014 **M. J. Murdock Charitable Trust – College of Science & Engineering Summer Research Program, Seattle University.** Utilizing a bimolecular fluorescence assay to investigate the role of the C-terminus of the foamy virus polymerase protein in its dimerization. Student: Cooper Hayes. (*Award amount \$12,000*)
- 2013-present **M.J. Murdock Charitable Trust – Major Instrumentation.** Acquisition of spectroscopy equipment to support undergraduate research at Seattle University. Lead PI: C. Stipe (Mechanical Engineering). Contributors: T. Shuman & F. Shih (Mechanical Engineering), D.R. Smith & C.R.Stenbak (Biology). (*Award amount: \$200,000*)
- 2013 **M. J. Murdock Charitable Trust – College of Science & Engineering Summer Research Program, Seattle University.** Utilizing a bimolecular fluorescence assay to investigate the role of the C-terminus of the foamy virus polymerase protein in its dimerization. Student: Jacqueline Wallis. (*Award amount \$12,000*)
- 2012-present **National Institutes of Health R21 Grant.** Foamy virus zoonotic transmission from New World monkeys. Co-PIs: M.L. Linial (Fred Hutchinson Cancer Research Center), G. Engel & L. Jones-Engel (University of Washington). Key Personnel: C.R.Stenbak. (*Award amount \$503,927*)

GRANTS AND FELLOWSHIPS (continued)

- 2011 **Washington Sea Grant.** Pyrethroids in urban watershed runoff: A case study for investigating the chemistry, genetics, and ecology of contaminant impacts on aquatic ecosystems. Co-PIs: W.L. Whitlow, G. Yasuda, C.R.Stenbak (Biology), D. Latch & P. Alaimo (Chemistry). (*Pre-proposal accepted, Full proposal submitted; not awarded*)
- 2011 **M. J. Murdock Charitable Trust – College of Science & Engineering Summer Research Program, Seattle University.** Exploring the role of the C-terminus of the foamy virus polymerase protein in its cleavage and assembly. Student: Katie Deets. (*Award amount \$5700*)
- 2011 **Seattle University Office of the Provost – Junior Faculty Professional Development Award.** Investigation of foamy virus polymerase protein cleavage and packaging. (*Awarded*)
- 2010-present **M.J. Murdock Charitable Trust – College Life Sciences Program.** Identification and Characterization of Packaging Determinants Within the C-terminus of Foamy Virus Polymerase Protein. P.I.: C.R. Stenbak (*Award amount: \$58,000*)
- 2009 **Howard Hughes Medical Institute Science Education Alliance – National Genomics Research Initiative.** Incorporating novel, collaborative bacteriophage genomics research into the undergraduate biology classroom at Seattle University. Co-PIs: G. Yasuda, M. Dubois, C.R.Stenbak, R. Rutherford (Biology). (*Submitted; not awarded*)
- 2009-2012 **National Science Foundation - Major Research Instrumentation.** Acquisition of a Large-Volume Preparative Ultracentrifuge for Use in Research and Research Training at Seattle University. Lead P.I.: C.R.Stenbak. Contributors: D.R.Smith, M.Dubois, P.Murphy. (*Award amount \$127, 114, Award # 0960313*)
- 2009 **American Society for Virology -Undergraduate Educator Travel Award.** Travel to the American Society for Virology 28th Annual Meeting to allow incorporation of current research into Virology and Immunology courses. (*Award amount \$500*)
- 2008-2010 **M.J. Murdock Charitable Trust – College Life Sciences Program.** Identification of packaging determinants within the Foamy Virus polymerase polyprotein. P.I.: C.R.Stenbak. (*Award amount \$50,500*)
- 2006-2007 **Howard Hughes Medical Institute/Trinity University Teaching and Research Postdoctoral Fellowship.** Development of a yeast two-hybrid assay to detect foamy virus protein interactions. (*Awarded*)
- 2004-2005 **Fondation pour la Recherche Médicale Postdoctoral Research Fellowship.** Microbial motifs allowing recognition and activation of the *Drosophila* immune system. (*Awarded*)
- 2002-2003 **National Cancer Institute, NIH - Cancer Research Training Fellowship.** *In vitro* characterization of the polymerase and RNase H activities of foamy virus reverse transcriptase. (*Awarded*)
- 2002 **National Cancer Institute, NIH - Student Travel Award.** Travel and conference fees for the Third HIV Drug Resistance Program Symposium on Antiviral Resistance. (*Awarded*)
- 1999-2002 **National Cancer Institute, NIH/University of Washington - Viral Oncology Training Grant Predoctoral Fellowship.** Foamy virus polymerase activities and assembly. (*Awarded*)
- 1997-1999 **University of Washington Graduate School Fellowship.** Unique resistance of human foamy virus to antiretroviral drugs. (*Awarded*)

GRANTS AND FELLOWSHIPS (continued)

- 1993-1994 **University of Wisconsin-Madison/ College of Agriculture and Life Sciences Honors Undergraduate Research Scholar.** Undergraduate research training. (*Awarded*)
- 1992-1996 **The State of Wisconsin Academic Excellence Scholar.** 4-year scholarship covering tuition and fees for the University of Wisconsin-Madison. (*Awarded*)

PEER-REVIEWED JOURNAL PUBLICATIONS (*Maiden name, Carolyn S. Rinke*)

- **Stenbak CR**, Craig KA, Ivanov SB, Wang X, Soliven C, Jackson DL, Gutierrez GA, Engel G, Jones-Engel L, Linial ML. New World simian foamy virus infection *in vitro* and *in vivo*. Journal of Virology 2014 Jan.; 88(2):982-91 (*Seattle University*)
- Lee EG, **Stenbak CR**, Linial ML. Foamy virus assembly with emphasis on Pol encapsidation. Viruses 2013 Mar.;5:886-900 (*Seattle University*)
- Boyer PL, **Stenbak CR**, Hoberman D, Linial ML, Hughes SH. *In vitro* fidelity of the prototype foamy virus (PFV) RT compared to HIV-1 RT. Virology 2007 Oct.;367(2):253-64 (*FHCRC, NCI, and Trinity University*)
- **Stenbak CR**, Ryu JH, Leulier F, Pili-Floury S, Parquet C, Hervé M, Boneca I, Lee WJ, Lemaitre B, Mengin-Lecreulx D. Peptidoglycan molecular requirements allowing detection by the *Drosophila* Imd pathway. Journal of Immunology 2004 Dec 15;173(12):7339-48 (*CNRS-CGM France*)
- **Stenbak CR** and Linial ML. The role of the C-terminus of FV Gag in RNA packaging and Pol expression. Journal of Virology. 2004 Sept;78(17):9423-9430. (*FHCRC*)
- Boyer PL, **Stenbak CR**, Linial ML, Hughes SH. Characterization of the polymerase and RNase H activities of human foamy virus reverse transcriptase. Journal of Virology. 2004 Jun;78(12):6112-21. (*FHCRC and NCI*)
- **Stenbak CR**. Foamy virus polymerase: Enzymatic activities and assembly. Ph.D. Dissertation. University of Washington, Seattle, WA, 2003. (*FHCRC*)
- **Rinke CS**, Boyer PL, Sullivan MD, Hughes SH, Linial ML. Mutation of the catalytic domain of the foamy virus reverse transcriptase leads to loss of processivity and infectivity. Journal of Virology. 2002 Aug;76(15):7560-70. (*FHCRC and NCI*)

JOURNAL PUBLICATIONS *in preparation* (* indicates undergraduate student)

- Deets KA*, Grams JD*, Hagan CM*, Wallis JM*, Hayes C*, Emerson D*, **Stenbak CR**. The integrase domain of the prototype foamy virus polymerase protein contains regions required for dimerization, cleavage, and infectivity. Virology (anticipated submission Spring 2014)

POSTER PRESENTATIONS (* indicates undergraduate student)

- Wallis J*, Emerson D*, Hayes C*, **Stenbak CR**. The Venus IN-tervention: Exploring Foamy Virus Polymerase Dimerization Utilizing a Bimolecular Fluorescence Assay. Murdock Charitable Trust 22nd Annual Conference on Undergraduate Research – Vancouver, WA, November 2013. **Winner of the Murdock Poster Prize in Molecular and Cellular Biology.**
- Wallis J*, Emerson D*, Hayes C*, **Stenbak CR**. The Venus IN-tervention: Exploring Foamy Virus Polymerase Dimerization Utilizing a Bimolecular Fluorescence Assay. West Coast Biological Undergraduate Research Conference – San Diego, CA, April 2014. **Winner of Poster Prize.**

POSTER PRESENTATIONS (continued) (* indicates undergraduate student)

- Deets KA*, Grams JD*, Hagan CM*, Wallis J* **Stenbak CR**. The Light With-IN: Exploring Foamy Virus Polymerase Dimerization Utilizing a Bimolecular Fluorescence Assay. Murdock Charitable Trust 21st Annual Conference on Undergraduate Research – Walla Walla, WA, November 2012.
- Deets KA*, Grams JD*, Hagan CM*, Wallis J* **Stenbak CR**. Exploring the Role of Foamy Virus Polymerase Protein in Virion Assembly and Pol Dimerization Utilizing an Integrase Deletion Panel. American Society for Virology 31st Annual Meeting– Madison, WI, July 2012.
- Deets KA*, Grams JD*, Hagan CM*, **Stenbak CR**. Exploring the Role of Foamy Virus Polymerase Protein in Virion Assembly Utilizing an Integrase Deletion Panel. American Society for Microbiology Northwest Branch Meeting – Seattle, WA, November 2011.
- Grams JD*, Hagan CM*, **Stenbak CR**. Creation of a Deletion Panel Spanning the C-terminus of Foamy Virus Polymerase Protein by a Modified Overlap Extension PCR Strategy. West Coast Biological Undergraduate Research Conference – Tacoma, WA, April 2011.
- Grams JD*, Hagan CM*, **Stenbak CR**. Creation of a Deletion Panel Spanning the C-terminus of Foamy Virus Polymerase Protein by a Modified Overlap Extension PCR Strategy. National Conference for Undergraduate Research – Ithica, NY, March 2011.
- Hagan CM*, Grams JD*, **Stenbak CR**. Polymerase IN-errupted: Creation of a Deletion Panel Spanning the C-terminus of Foamy Virus Polymerase Protein. M. J. Murdock Charitable Trust 19th Conference on Undergraduate Research – McMinnville, OR, November 2010.
- Harrington BT*, **Stenbak CR**, Mozaffarian N, Weideman AE, Stevens AM. Programmed Cell Death Ligand-1 is Cleaved by Human Caspases *in vitro*. National Conference for Undergraduate Research – Missoula, MT, 2009.
- Hagan CM*, Fletcher LR*, **Stenbak CR**. Creation of a Deletion Panel Spanning the C-terminus of Foamy Virus Polymerase Protein. M.J. Murdock Charitable Trust 18th Conference on Undergraduate Research – Spokane, WA, 2009.
- **Rinke CS**, Boyer PL, Hughes SH, Linal ML. Foamy virus reverse transcriptase - unusual resistance to nucleoside analog inhibitors. National Cancer Institute HIV Drug Resistance Program Symposium on Antiviral Resistance – Bethesda, MD, 2002.
- **Rinke CS**, Sullivan MD, Boyer PL, Hughes SH, Linal ML. Decrease in processivity of a reverse transcriptase catalytic-site mutant blocks foamy virus replication. Retroviruses Meeting – Cold Spring Harbor, NY, 2001.
- **Rinke CS**, Boyer PL, Hughes SH, Linal ML. Unique replication defect of human foamy virus reverse transcriptase mutant V319M. Retroviruses Meeting – Cold Spring Harbor, NY, May 2000.
- **Rinke CS**, Linal ML. Human foamy virus reverse transcriptase mutant V319M is unable to replicate. West Coast Retrovirus Meeting. Palm Springs, CA, 1999.

ORAL PRESENTATIONS (* indicates undergraduate student)

- **Stenbak CR**. The Threat of Emerging Viral Diseases. *Invited talk*, Seattle University Bannan Scholars Seminar – Seattle, WA, May 2014.
- **Stenbak CR**. The Science of HIV and AIDS. *Invited talk*, Seattle University Community Health Conference – Seattle, WA, April 2014.

ORAL PRESENTATIONS (continued) (* indicates undergraduate student)

- Deets KA*, Grams JD*, Hagan CM*, **Stenbak CR**. Polymerase IN-errupted: Exploring the Role of Foamy Virus Polymerase Protein in Virus Assembly. Murdock Charitable Trust 20th Annual Conference on Undergraduate Research – Seattle, WA, October 2011.
- Grams JD*, **Stenbak CR**. Infectious Curiosity: Faculty/Student Collaborative Foamy Virus Research. *Invited talk*, Seattle University Mission Day – Seattle, WA, April 2011.
- Hagan CM*, Grams JD*, **Stenbak CR**. Creation of a Deletion Panel Spanning the C-terminus of Foamy Virus Polymerase Protein. *Invited talk*, Seattle University Natural Sciences Seminar Series – Seattle, WA, January 2011.
- Grams JD* and **Stenbak CR**. Protein Incorporation in Foamy Viruses. *Invited talk*, Seattle University College of Science & Engineering Advisory Board Meeting – Seattle, WA, November 2010.
- **Stenbak CR**. Influenza 2009 A (H1N1) “Swine Flu”: Understanding a pandemic. *Invited talk*, Seattle University Bannan Scholars Seminar – Seattle, WA, November 2009.
- Boyer PL, **Stenbak CR**, Linal ML, Hughes SH. Fidelity of the Prototype Foamy Virus RT Compared to HIV-1 RT. Sixth International Foamy Virus Conference – Seattle, WA, 2006.
- **Stenbak CR**, Leulier F, Mengin-Lecreux D, Lemaitre B. How *Drosophila* sense bacterial infection and discriminate between Gram-negative versus Gram-positive bacteria. *Invited talk*, International Workshop on Innate Immunity – Plön, Germany, 2004.
- **Stenbak CR**, Kingston D*, Eastman SW, Baldwin DN, Linal ML. The role of basic regions near the C-terminus of FV Gag in RNA and Pol packaging. Retroviruses Meeting - Cold Spring Harbor, NY, 2003.
- **Rinke CS**, Boyer PL, Hughes SH, Linal ML. Mutation of the catalytic domain of the foamy virus reverse transcriptase leads to loss of processivity and infectivity. National Cancer Institute HIV Drug Resistance Program Invited Student Symposium – Frederick, MD 2002.
- **Rinke CS**, Boyer PL, Hughes SH, Linal ML. Mutation of the catalytic domain of the foamy virus reverse transcriptase leads to loss of processivity and infectivity. Fourth International Foamy Virus Conference – Atlanta, GA, 2002.

OTHER CONFERENCES ATTENDED

- 9th International Foamy Virus Conference, National Institutes of Health, Bethesda, MD 2012.
- 8th International Foamy Virus Conference, Argos, Greece, 2010.
- 28th Annual American Society for Virology Conference, University of British Columbia, 2009.
- Viral Pathogenesis Symposium, Fred Hutchinson Cancer Research Center, 2009.
- American Society for Microbiology Undergraduate Educators Conference, University of Buffalo, 2007
- National Cancer Institute HIV Drug Resistance Program Think Tank, NCI Frederick, MD, 2002.
- Retroviruses Meeting, Cold Spring Harbor Labs, 2002.

SERVICE

UNIVERSITY

- SU Academic Day Discussion Leader, 2014, 2013
- SU Career Services Initiative Advisory Committee member, 2013
- Chemical Hygiene & Biosafety Officer hiring committee member, 2012
- New Faculty Institute panelist, “Teaching SU Undergraduates”, 2012, 2010.
- University Mission Day invited speaker: “A Fire that Ignites Other Fires: Igniting Wonder, Pursuing Justice”, 2011
- Teagle Foundation Workshop invited participant: “Teaching the Literature Review: Critical Reading and Writing in the Social and Natural Sciences”, 2011

SERVICE (continued)

UNIVERSITY

- SU Office of Research Services and Sponsored Projects Certificate of Appreciation Awardee, 2009-10
- Ignatian Pedagogy Workshop participant, 2009

COLLEGE OF SCIENCE & ENGINEERING

- Science Futures Committee member, 2014
- Academic Grievance Committee member, 2013-present
- Active Learning in the Science and Engineering Classrooms Workshop participant, 2012
- College undergraduate research promotional video contributor, 2012
- Faculty Development committee member, 2010-11
- Natural Sciences Seminar speaker, 2010
- New Science Building Visioning Workshop and Design Charette participant, 2010
- VLST Biotechnology Corporation - SU Internship Liaison, 2009-2010
- Establishment of External Review Process Committee Member, 2009

DEPARTMENT OF BIOLOGY

- Assessment of Writing in Biology Committee member, 2012-present
- Academic Advisor (average of 18 students/quarter), 2008-present
- Senior Synthesis Advisor (8 SU science majors), 2010-present
- SU Student Referee (written letters for more than 20 students for admission to professional & graduate schools, educational programs, and jobs) , 2009-present
- Physiologist faculty hiring committee member, 2012-13
- Botanist faculty hiring committee member, 2012-13
- Conservation Biologist faculty hiring committee member, 2011-12
- Marine Biologist faculty hiring committee member, 2011-12
- Cellular and Molecular Biologist faculty hiring committee member, 2011-12
- New Cellular and Molecular Biology Major Curriculum Development, 2009-10
- Teagle Foundation grant-funded "Writing in the Majors" project participant, 2009-10
- Biology Department Program Review contributor, 2008
- Bannan 157 Research Laboratory Design contributor, 2007-08

SCHOLARLY

- Undergraduate Student Research Mentoring
 - 2013-present Cooper Hayes, Dana Emerson (SU, Cellular and Molecular Biology)
 - 2012-present Jacqueline Wallis (SU, Biology/Philosophy)
 - 2010-2012 Katherine Deets (SU, Biology)
 - 2009-2012 Jeremiah Grams (SU, General Science)
 - 2008-2011 Christopher Hagan (SU, Biology)
 - 2008 Layken Fletcher (SU, Biology)
 - 2007 Heather Amen (Trinity University, Biology)
 - 2003-2004 Dior Kingston (University of Washington, Microbiology)
- Kuby Immunology Textbook 7th Edition Reviewer, Chapters 10 and 19, 2012
- Atlas Visual Resource Collection, MicrobeLibrary.org Reviewer, 2007

SERVICE (continued)

COMMUNITY

- University of Washington Pathobiology Program Careers panelist, 2014, 2013, 2011
- Fred Hutchinson Cancer Research Center Ivory Tower Quest panelist: “Teaching Statements and C.V.s in your job search”, 2013, 2011
- University of Washington HHMI Future Faculty Fellows Workshop panelist: “Teaching at an Undergraduate Institution”, 2009
- Fred Hutchinson Cancer Research Center - Science Education Partnership Hutch Lab Volunteer, 2002-03

PROFESSIONAL ASSOCIATIONS

2009-present **Member**, American Society for Virology

2005-present **Member**, American Society for Microbiology, Southwest branch and Northwest branch

PATENTS

US Patent 7560117 - Foamy virus mutant reverse transcriptase. Issued on July 14, 2009.