

Curriculum Vitae

Douglas R. Call

Address:

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Current positions:

- July 2006 to present, Associate Professor of Molecular Epidemiology, Department of Veterinary Microbiology and Pathology, Washington State University, Pullman, WA; Appointment: 90% Research, 10% Teaching.
- Caroline Engle Distinguished Professor in Research on Infectious Diseases, July 2009 to June 2013.
- August 2008 to present, appointed to Faculty of the Washington State University School for Global Animal Health.
- July 2008 to present, appointed as Adjunct Faculty, Washington State University School of Electrical Engineering and Computer Science.
- January 2008 to January 2011, appointed to the Editorial Board for *Applied and Environmental Microbiology*.

Education:

- Postdoctoral Fellow, March 1999 to December 1999, Environmental Microbiology, Pacific Northwest National Laboratory, Richland, WA, Dr. Fred Brockman, advisor.
- Postdoctoral Fellow, April 1997 to March 1999, Immunopathology, University of Michigan, Department of Pathology, Ann Arbor, MI, Dr. Daniel Remick, advisor.
- PhD, 1997, Zoology, Washington State University, Pullman, WA, Dr. James Hallett, advisor.
- MS, 1990, Wildlife Management, Humboldt State University, Arcata, CA, Dr. R. J. Gutiérrez, advisor.
- BS, 1987, Wildlife Management, Washington State University, Pullman, WA.

Other Professional Experience:

- July 2008 to June 2009, Acting Local Director, Washington State University Zoonosis Research Unit.
- July 2000 to June 2006, Assistant Professor of Molecular Epidemiology, Department of Veterinary Microbiology and Pathology, Washington State University, Pullman, WA; 100% Research.
- December 1999 to June 2000, Research Scientist, Pacific Northwest National Laboratory, Richland, WA.
- June 1998, Instructor for BioSci 420/524, General Ecology, 4 semester credits, Eastern Michigan University, Ypsilanti, MI.
- September 1994 to May 1995, Teaching Assistant for Introductory Biology and Honors Biology at Washington State University.
- August 1991 to December 1991, Research Assistant for Dr. L. Maguire, School of the Environment, Duke Univ., Durham, NC.

Honors:

- Appointed as the Inaugural Caroline Engle Distinguished Professor in Research on Infectious Diseases, July 2009 to June 2013.
- Appointed as the Inaugural Caroline Engle Faculty Fellow for the Washington State University Department of Veterinary Microbiology and Pathology, March 2006 to 2009.

Research interests:

My lab is engaged in research involving comparative genomics, transcriptomics, and proteomics. Current research topics include:

Antibiotic resistance: Since 2000 my lab has studied factors that drive the emergence and maintenance of antibiotic resistance in the absence of antibiotic use with an emphasis on enteric bacteria of cattle. Our current work is focused on multidrug resistance plasmids that carry *bla*_{CMY-2}, which is a gene that encodes resistance to third-generation cephalosporins. Our work examines (1) the fitness costs of carrying this plasmid in *E. coli* and *Salmonella enterica*, (2) segregation control at cell division, (3) mobilization of plasmid-encoded transposons to new plasmids and mobilization of the plasmids to new host cells, and (4) transcriptional control of plasmid encoded genes. We are also engaged in studies that examine the source, fate, and transport of antibiotics in the environment with a special focus on the biological consequences of these drugs and the subsequent impact on public and animal health and welfare.

Type III secretion systems (T3SS): A T3SS is a needle-like apparatus that pathogenic bacteria (Gram negative) use to inject bacterial proteins (“effectors”) into host cells where the proteins can interrupt cell division, change cell morphology and behavior, and induce cell death through a variety of mechanisms. We are particularly interested in identifying effector proteins and determining their biological function with a focus on *Vibrio parahaemolyticus*. We are also engaged in studies of the transcriptional regulation of T3SS genes and in assessing the biological relevance of T3SS effector proteins using animal models.

Bacterial diseases of salmonid aquaculture: Bacterial coldwater disease, caused by *Flavobacterium psychrophilum*, is the leading cause of bacterial disease losses to salmonid aquaculture in the Pacific Northwest. My lab has helped delineate the population genetic structure of this pathogen and we are actively engaged in efforts to develop vaccines and diagnostics to prevent and control this important disease. My lab is also engaged in research to identify the etiologic agent of strawberry disease in rainbow trout for which we have identified a rickettsial-like organism as the probable agent.

Other projects: My lab is involved in continuing work on a variety of projects involving other important pathogens (*Campylobacter jejuni*; *S. enterica* serovars Typhimurium, Newport, Enteritidis, and Dublin; norovirus; and *Listeria monocytogenes*) and my group is involved in collaborative work in environmental microbiology, water quality, pathogen detection, protein expression, and molecular epidemiology. For more information, please see: http://www.vetmed.wsu.edu/research_vmp/MicroArrayLab.

Teaching:

I am responsible for leading 3-4 weeks of VPa 545, Mechanisms of Disease, since spring 2007. This is a graduate level course focused on formulation of hypothesis based research, evaluation of literature, and some coverage of methods employed in modern molecular biology laboratories. My contribution focuses on evolution of virulence traits and antibiotic resistance in bacterial pathogens.

Postdocs, students, staff and visiting scholars (since July 2000):

Postdoctoral Fellows:

- Dr. Xiaohui Zhou, September 2008 to present
- Dr. Rajesh Subaschandrabose, August 2008 to July 2009
- Dr. Devendra Shah, October 2005 to May 2008
- Dr. Artashes Khachatryan, January 2006 to June 2007

- Dr. Min-Su Kang, January 2007 to January 2008
- Dr. Marilyn Soule, October 2002 to July 2005

Completed graduate students:

- Sonja Lloyd, Ph.D., entered VMP PhD program in August 2006, passed preliminary exam in November 2007. Thesis title “Identifying the etiologic agent of strawberry disease in rainbow trout.” Committee members included Dr. Thomas Besser, Dr. Lindsay Oaks, Dr. Guy Palmer, and Dr. Kevin Snekvik. At the time of completion Sonja had one publication in print and a second manuscript in review. She will be employed as a postdoctoral fellow at a laboratory in Galveston, Texas.
- Xiaohui Zhou, Ph.D., entered August 2004, passed preliminary examination November 2006, graduated September 2008. Thesis title “Regulation of T3SS1 genes in *Vibrio parahaemolyticus* and its involvement in pathogenesis.” Committee members included Dr. Terry McElwain, Dr. Srikumaran Subramaniam, Dr. Michael Konkel, and Dr. Thomas Besser. Dissertation work led to three publications. Currently employed as a Postdoctoral Fellow in my laboratory.
- Min-Su Kang, Ph.D., entered August 2002, passed preliminary exam, June 2004, graduated December 2006. Thesis title, “Fitness-associated genetic traits distinguishing epidemic strains of *Salmonella enterica*.” Committee members included Dr. Thomas Besser, Dr. Terry McElwain, and Dr. Guy Palmer. Dissertation work led to three publications. Currently employed as a federal scientist in South Korea.
- Artashes Khachatryan, Ph.D., entered August 2001, passed preliminary examination May 03, graduated December 2005. Thesis title, “Mechanisms responsible for maintenance of high prevalence of antimicrobial drug resistant *Escherichia coli* in dairy calves.” Committee members included Dr. Thomas Besser, Dr. Dale Hancock, and Dr. Terry McElwain. Dissertation work led to four publications. Currently employed as a private clinician.
- Adelaide Warsen, M.S., entered August 2002, graduated August 2004; one publication. Currently employed as a research technician.
- Yi-Chang (John) Chen, M.S., entered August 2005, defended thesis February 2008; one publication. Currently employed as a private clinician.

Current graduate students:

- Dan Erwin, Army Captain and Clinical Microbiologist, Ph.D. program, enrolled August 2008.
- Karol Gliniewicz, Ph.D. program, enrolled August 2008, co-advised with Dr. Kevin Snekvik.

- Seth Nydam, Ph.D. program, WSU Biotechnology Training Program trainee. Joined lab in March 2009.
- Pablo Piñeyro, M.S. program, WADDL Pathology Resident. Joined lab in November 2008.
- Murugan Subbiah, Ph.D. program, enrolled January 2008.

Graduate committees from the College of Veterinary Medicine (VMP=Veterinary Microbiology & Pathology; VCS=Veterinary Clinical Sciences; VCAPP=Veterinary Comparative Anatomy, Pharmacology & Physiology):

- James Stanton, Ph.D., VMP, T. Baszler, chair, September 2008
- Josh Daniels, Ph.D., VMP, T. Besser, chair, April 2008
- Susan Noh, Ph.D., VMP, G. Palmer, chair, November 2007
- Renu Joseph, M.S, VMP, T. Besser, chair, November 2007
- Sunshine Lahmers, Ph.D., VCAPP, H. Granzier, chair, December 2005
- Caron Smith Pruiett, M.S., VCS, T. Besser, chair, August 2004
- Wayne Muraoka, M.S., VMP, M. Borucki, chair, December 2002
- Margaret Davis, Ph.D., VCS, D. Hancock, chair, October 2002

Completed graduate committees from other units (EECS=Electrical Engineering and Computer Science; CEE=Civil and Environmental Engineering; SBS=School of Biological Sciences; SMB=School of Molecular Biosciences; BSE=Biological Systems Engineering; COP=College of Pharmacy; FWR=Fish and Wildlife Resource, University of Idaho):

- Da Meng, Ph.D., EECS, S. Broschat, chair, April 2009
- Jennifer Allen, M.S., CEE, M. Beutel, chair, April 2009
- Jennifer Stewart, M.S., SBS, A. Storfer, chair, July 2008
- Preeti Malik, Ph.D., SMB, M. Konkel, chair, January 2008
- Ben LaFrentz, Ph.D., FWR, K. Cain, chair, November 2007
- Bo Hu, Ph.D., BSE, S. Chen, chair, July 2007
- Sabine Teske, Ph.D., COP, P. Lawrence, chair, January 2006
- Erik Coats, Ph.D., CEE, F. Loge, chair, August 2005
- Nicole Lindstrom, M.S., FWR, K. Cain, chair, December 2007
- Mark Leach, M.S., EECS, S. Broschat, chair, May 2007
- Binhu Li, M.S., Statistics, Nairanjana Dasgupta, chair, April 2005
- Brandi Wallis, M.S., of CEE, F. Loge chair, December 2002

Ongoing graduate committees:

- Katie Boland, Ph.D. program, VMP, K. Lahmers, chair
- Kaitlyn Morse, Ph.D. program, VMP W. Brown, chair
- Dan Righter, MS program, VMP, T. McElwain, chair

- Sudarvili Shanthalingam, Ph.D. program, VMP, S. Subramaniam, chair
- Smriti Shringi, Ph.D. program, VMP, T. Besser, chair
- Renuka Subramaniam, Ph.D. program, VMP, S. Subramaniam, chair
- Kun Taek Park, Ph.D. program, VMP, W. Davis, chair
- Letizia Tomassini, Ph.D. program, VCS, W. Sischo, chair
- Stephen Dent, Ph.D. program, CEE, M. Beutel, chair
- Amy Long, Ph.D. program, FWR, K. Cain, chair

NIH NCCR Summer Research Program for Veterinary Students, NHLBI Summer Research Program for Ethnic Minority Students, and WSU-CVM Summer DVM Research Fellows:

- Jessica Bailey, Tuskegee University, Auburn, AL, summer 2009
- Sophie Aschenbroich, University of Georgia, summer 2008
- Nicole Lindstrom, Washington State University, summer 2008
- Lisa Otto, Washington State University, summer 2007
- Sara Dobry, Washington State University, summer 2007
- Peter Plescia, University of Illinois, summer 2005; co-author for a manuscript published in *Northwest Science*
- Tremon Bell, Mississippi State University, summer 2004
- Adesola Odunayo, Oklahoma State University, summer 2003
- Karen Chan, Colorado State University, summer 2002

WSU McNair Scholars Program:

- Jennifer Elmore (Leader), August 2003 to December 2005. Jennifer completed one project concerning the physics of microarray hybridizations and in 2005 she studied the interaction between amoebae and *Listeria monocytogenes*. Her efforts earned co-authorship on a paper published in *Environmental Microbiology*, 2007.

WSU Honors College Students:

- Jonathan Bliggenstorfer, January 2009 to present
- Samantha Lane, June 2002 to May 2004 (co-advised with J. Evermann). Passed Honor's Thesis defense (25 Feb 04) and her work was also designated as "Pass with Distinction" by the Honors College Council; thesis work has been published in *Biosensors and Bioelectronics*, 2004.

WSU Center for Integrated Biotechnology Undergraduate Research Fellows:

- Amelia Lanier, summer 2007 (with Dr. Shira Broschat) with subsequent work as time slip employee and as a full-time technician.

Other student mentoring:

- Kassandra Garner, WSU undergraduate student, August 2008 to present
- Margaret Besser, McAlister undergraduate student summer 2008, 2009
- Karou Hatate, WSU undergraduate student, summer 2009
- Abdul Abat, WSU undergraduate student, summer 2008 to present
- Allison Fischer, WSU undergraduate student, June 2006 to present. Allison's efforts were recognized as a co-authorship with a paper published by Dr. Thomas Besser (fall 2007, *Journal of Clinical Microbiology*). Allison is a co-author on another paper in review.
- Helen Chen, Pullman High School student, summer 2007
- Elizabeth Strom, WSU undergraduate student, spring 2007 to 2008
- Ried Peckham, WSU undergraduate student, spring 2007 to 2008
- Autumn Ramsrud, Molecular Biosciences senior thesis project, 2005. Continued from fall 2004 through spring 2006 and published a first-authored paper in *Journal of Fish Health*, 2007.
- Marlene Bakko, WSU DVM student, November 2001 to April 2003, Morris Animal Foundation Fellow, co-author on a paper published in *Journal of Clinical Microbiology*, 2003.
- Kristin Rice, Pullman High School student, fall 2002 to May 2004
- Sophia Pacheco, Ph.D. student from the School of Molecular Biosciences, lab rotation, fall 2003.

Visiting Scholars and Students:

- Radka Pribylova, Graduate student from the University of Veterinary and Pharmaceutical Sciences Brno, Czech Republic, May 2008 to August 2008. Received basic training in design, construction, and application of glass-based microarrays. Ms. Pribylova's visit was funded through a grant from the European Commission Specific Support Action EU-US SafeFood.
- Alice Bungay, Assistant Professor, College of Public Health, University of the Philippines, Manila. Fulbright Fellow and visiting scientist, October 2006 to March 2007. Received training in basic molecular biology (PCR, PFGE, DNA processing, microarrays) and additional training from the Bacteriology and Immunohistochemistry sections of the Washington Animal Disease Diagnostic Laboratory.
- Lisa Barco, DVM, 11 August to 1 Sept 2006, from Centro Nazionale di Referenza per le Salmonellosi Istituto Zooprofilattico Sperimentale delle Venezie Viale dell'Università, Legnaro, Italy. Received training on BioPlex platform (bead arrays).
- Santiago González, Ph.D. student, University of Santiago, Spain, fall 2002. Received training on planar microarray production and application. A

manuscript from this effort was published in the *Journal of Clinical Microbiology*, 2004.

Technical Staff

- Lisa Orfe, B.S., October 2004 to present; CVM staff award in 2008
- Patrick Friel, B.S., October 2007 to present
- Stacey LaFrentz, B.S., December 2002 to 2007, CVM staff award in 2006
- Melissa Krug, B.S., October 2000 to July 2005, CVM staff award in 2003
- Murugan Subbiah, DVM, January 2007 to November 2007; returned to full-time graduate studies
- Melissa Oatley, M.S., October 2002 to May 2004
- Edward Kuhn, B.S., April 2004 to August 2005
- Deborah Duricka, B.S., October 2004 to May 2007; returned to full-time graduate studies.
- Michael Satterwhitte, Ph.D., October 2005 to 2007

Current society memberships:

- American Association for the Advancement of Science
- American Society for Microbiology
- Northwest Scientific Association
- American Fisheries Society

Professional positions and activities (July 2000 to present):

Grant Reviews:

- 2008: NSF SBIR Marine Biotechnology review panel; *Ad hoc* review for NSF Research Initiation and Career Advancement proposal; *Ad hoc* reviewer for NSF/USDA-CSREES Microbial Genome Sequencing Program; *Ad hoc* reviewer for U.S. Civilian Research and Development Foundation.
- 2007: USDA-NRI Functional Genomics review panel; University of Alabama Board of Trustees; WSU New Faculty Seed grants (panel manager); Austrian Research Promotion Agency.
- 2006: WSU New Faculty Seed grants (panel manager); Austrian Science Fund; National Science Foundation; California Sea Grant Program; CSREES SBIR program.
- 2005: *Ad hoc* reviewer for USDA-NRI Epidemiological Approaches to Food Safety; WSU New Faculty Seed grants (panel manager); *Ad hoc* reviewer for Microbes Section of the Functional Genomics of Agriculturally Important Organisms (NRICGP); *Ad hoc* reviewer for USDA SBIR program.

- 2004: *Ad hoc* reviewer for Fonds zur Förderung der wissenschaftlichen Forschung, Austria, Postdoctoral Fellowship; NRICGP Functional Genomics of Agriculturally Important Organisms; Auburn University intramural grant program WSU New Faculty Seed grants (panel manager); USDA-NRI Epidemiological Approaches to Food Safety; American Institute of Biological Sciences; NRICGP Food Safety Post-Harvest Section; Helsinki University Environmental Research Centre, HERC, University of Helsinki, Finland, Intramural grant review; Binational Agricultural Research and Development Fund.
- 2003: *Ad hoc* reviewer for USDA-CREES SBIR grant (n=1); USDA-NRICGP Epidemiology-Food safety section; NOAA University of New Hampshire; New York Sea Grant program; National Research Council, Institute for Marine Biosciences (Canada).
- 2002: *Ad hoc* reviewer for USDA-NRICGP; National Institutes for Water Resources (USGS); U.S. Civilian Research and Development Foundation; Ohio State University Research Enhancement Competitive Grants Program.
- 2001: National Heart, Lung and Blood Institute RFA 00-014 review panel.

Manuscript reviews:

- Number of reviews by year: 2009 n=27; 2008 n=24; 2007 n=16; 2006 n=17; 2005 n=17; 2004 n=10; 2003 n=3; 2002 n=3; 2001 n=2.
- I have provided reviews for the following journals: *American Journal of Veterinary Research, Analytical Chemistry, Applied and Environmental Microbiology, Aquaculture Research, Biologia, BioTechniques, Biotechnology and Bioengineering, BMC Genomics, BMC Microbiology, Bulletin of the European Association of Fish Pathologists, Canadian Journal of Microbiology, Cellular Microbiology, Current Issues in Molecular Biology, Diseases of Aquatic Organisms, Environmental Biotechnology, Environmental Microbiology, FEMS Microbiology Letters, Food Microbiology, Future Medicine, Gene, Genome Research, IEEE Transactions on Microwave Theory and Techniques, Infectious Agents and Cancer, Journal of Agricultural and Food Chemistry, Journal of Aquatic Animal Health, Journal of Bacteriology, Journal of Biotechnology, Journal of Clinical Microbiology, Journal of Dairy Science, Journal of Environmental Quality, Journal of Fish Diseases, Journal of Fish Health, Journal of Immunological Methods, Journal of Medical Virology, Journal of Microbiological Methods, Microbial Ecology, Microbiology, Molecular and Cellular Probes, Molecular Microbiology, Nature Materials, Nucleic Acids Research, Philippine Agricultural Scientist, Plasmid, Science of the Total Environment, Water Research, Veterinary Microbiology, Zoonoses and Public Health.*

Appointments:

- Faculty in the WSU School for Global Animal Health, fall 2008 to present.
- Participating faculty for the WSU Biotechnology Training Grant, April 2008 to present.
- Editorial Board for *Applied and Environmental Microbiology*, January 2008 to 2011.
- Associate Editor, *Critical Reviews in Microbiology*, October 2006 to 2008.
- Faculty in WSU/UI Center for Reproductive Biology, November 2001 to present.
- Faculty in the WSU Center for Integrated Biotechnology, Fall 2002 to present.

Search Committees (WSU):

- School for Global Animal Health Infectious Disease and Immunology faculty position, 2009 academic year
- Avian Diagnostic Lab Director, VMP-WADDL, 2008 academic year
- Immunology search committee (2 recruitments), VMP, spring 2007
- Bacteriologist search committee, VMP, 2006 academic year
- Public Health search committee, VMP, 2006 academic year.
- Administrative search committee, OGRD, 2006 academic year.
- Combined Microbiology and Biochemistry search committee, School of Molecular Biosciences, 2006 academic year.
- Soil Microbiologist, Soils Dept., WSU, fall 2004 to spring 2006.
- Bioinformatics Faculty Search Committee, 2004 academic year. This seven member committee interviewed candidates for faculty positions in the College of Engineering, College of Agriculture, and College of Sciences at Washington State University (>125 applicants).
- Microbial Genomics faculty position, VMP, 2001 academic year.
- Neuroscientist faculty position, VCAPP, 2001 academic year

Recruitment of guest speakers:

- Dr. Jean Bouldin, guest seminar, fall 2008
- Josh Turse, guest seminar as potential Immunology Training Grant Postdoctoral Fellow, fall 2008
- Co-hosted visiting postdoctoral fellow candidate, Issmat Kassem, fall 2008.
- Christopher Secombes, Advances in Immunology seminar series, 2007
- Dr. Thomas Whittam, Ecology and Evolution of Infectious Disease seminar series, February 2006
- Dr. Laura Brown, Center for Reproductive Biology, January 2006
- Xenogen Corp., bioimaging applications, January 2006
- Co-hosted Dr. Richard Sayre, VMP-IBC-CIB, March 2003

- Dr. Mark McBride, Center for Reproductive Biology, April 2003
- Dr. Daniel Remick, 2002 Distinguished Lecture Series in Advances in Immunobiology

Department, College, and University Committees:

- CVM Research Committee, August 2009 to present
- WSU Faculty Status Committee, August 2009 to May 2012
- WSU Research Infrastructure Committee, spring 2009 to present
- CVM-VMP Graduate Studies Committee, August 2007 to present
- Veterinary Medical Research Scholars Steering Committee, August 2007 to present (VM508P)
- Honors College Council 2006 to 2009
- Chair of the University Research and Arts Committee and Faculty Senate Steering Committee, August 2006 to May 2007
- Vice-Chair of the University Research and Arts Committee, October 2005 to April 2006
- University Research and Arts Committee, May 2003 to September 2004
- *Ad hoc* review committee for Institutional Biosafety Committee concerning revisions to BAF, April-May 2006

Other professional service:

- Faculty participant in three training programs: T32 AI07025, Immunology/Infectious Diseases Training Program; T35 RR007049, NCCR Short-term Training grant for veterinary students; T32 GM08336, Biotechnology Training Program
- Served on an NIH sponsored scientific misconduct investigative committee for the WSU Research Integrity Officer, summer 2008 to spring 2009
- Periodically serve as acting chair in support of VMP chair, 2008 to present
- Drafted preliminary VMP Graduate Program academic review (with S. Hines), July 2008 with subsequent editorial effort
- Appointed to mentoring committee for Dr. Nehal Abu-Lail (Chemical Engineering), March 2009 to present
- VMP New Faculty Research Mentor for Dr. Troy Bankhead and Dr. Devendra Shah, summer 2008 to present
- External reviewer for a tenure review application at the University of Toledo, fall 2008
- Participated in VMP efforts to prepare a proposal for an Infectious Diseases Peaks program at WSU, 2007

- Served as external examiner for Ph.D. Dissertation from the Adelaide Graduate Center, University of Adelaide, South Australia. I was selected as a reviewer because of my experience with *Listeria monocytogenes*, bacteria-protist interactions, and work with plasmid biology; June 2007
- Served as external reviewer for FDA scientist GS-14 promotion, June 07
- Member of the *Flavobacterium* 2007 conference steering committee, Shepherdstown, WV, 2-4 May 2007. Besides assisting with organization, I was the lead-PI for a successfully funded USDA-NRI conference grant to support this effort (\$10,000)
- Trustee, Board of Directors, Northwest Scientific Association, March 2000 to 2003; elected Treasurer March 2003; Manage association webpage at http://www.vetmed.wsu.edu/org_NWS/NWSci_Home.htm
- Member Ag/Vet committee for Task Force on Antimicrobial Resistance, Tacoma-Pierce Co. Dept. Public Health, January 2001 to 2006
- Executive Committee for the Ecology and Evolution of Infectious Diseases seminar series (Initiation of Collaboration grant through WSU), fall 2005 through spring 2006. This group submitted an NSF IGERT pre-proposal in spring 2006
- External examiner for Honors Theses, 2004-2006, 2008-2009

Teaching, guest lectures/service and community service:

- Served as judge for WSU Biotechnology training program graduate student poster session, Pullman, WA, spring 2009
- Seminar, Pathogenesis Journal Club, *Call*, “Food- and water-borne pathogens: *Vibrio parahaemolyticus*,” August 2008
- Served as panel member for Dodo exposition intended to highlight evolutionary theory and provide an educational discussion targeted at the undergraduate community, 28 October 2008, Pullman, WA
- Served as guest lecturer for WSU-OGRD sponsored Faculty Development Series focused on writing grant proposals and new faculty orientation (2005, 2008).
- Served as judge for WSU Wiley Exposition, spring 2008.
- Guest Lecture, Stats 565, 25 Oct 2007 – application of microarrays for genomics and transcriptomics.
- Judged, Franklin Elementary School Science Fair, Pullman, WA, 2006—2009
- Judged, 4H public speaking, state competition, Pullman, WA, 11 May 2006

- Guest lecture for civil engineering course (CE 584) on microarrays and microbial source tracking, 4 October 2005
- Taught genomics section of Immunopathology (VPa 545) for three weeks during spring 2004 as part of maternity leave support
- Guest lectures for Neuro 555 (VCAPP), 4 hours, 25-26 September 2003
- Facilitated and led four graduate student presentations at ASM, May 2003, Washington D.C. Three students received WSU Graduate Student travel awards for their poster presentations
- Judge for graduate student poster session; Center for Multiphase Environmental Research, April 2003, Pullman, WA
- Guest lectures, Mechanisms of Disease, 4 March 2002 and 2 March 2003
- Guest lecture, Fish Health/diagnostics, Univ. Idaho, Dr. Ken Cain, November 2002, April 2002.
- Guest lecture, MBioS 446, Epidemiology, October 2001.
- FDIU seminar, Pullman, WA, July 2001, “Microarray applications in molecular epidemiology,” seminar 7/01.

Grants and Honors prior to July 2000:

- American Society for Investigative Pathology Merit Award, 1999; Brislawn Memorial Scholarship, 1996; WSU College of Sciences student minigrant, 1996; EPA STAR Fellowship, 1995-96; WSU Graduate School Fellowship, 1995; James R. King Fellowship, 1994; Mazamas grant, 1994; The Nature Conservancy grant, 1993; Sigma Xi grant, 1993; Northwest Scientific Association grant, 1993; WSU Graduate School travel grant, 1993.

Intramural funded grants, July 2000 to present:

Completed:

1. WSU-CVM intramural grant program, **Call**, “Identifying the etiologic agent of Strawberry Disease in rainbow trout,” \$20,000, funded 7/07—6/08.
2. WSU and UI Aquaculture initiative. **Call**, Cain, and Snekvik. Development of a quantitative ELISA to detect *Flavobacterium psychrophilum* for broodstock management, \$35,000, funded, 7/05—6/07.
3. College of Veterinary Medicine, WSU. **Call**, “Interaction between *Listeria monocytogenes* and free-living amoebae,” \$17,367, funded, 7/05—6/06.
4. WSU and UI Aquaculture initiative. **Call** and Cain. Development of sandwich ELISA to detect *Flavobacterium psychrophilum*, \$12,000, 10/03—6/05.

5. College of Veterinary Medicine, WSU. **Call**, Besser and Hancock. The role of calf-adapted *Escherichia coli* in maintenance of antibiotic resistance in dairy calves, \$20,000, 7/03—6/04.
6. WSU and UI Aquaculture initiative. **Call** and Stanek. Sensitivity and specificity of a DNA microarray detector for *Renibacterium salmoninarum*, \$36,000, 2/02—6/03.
7. State of Washington Water Research Center, WSU. **Call**, Cain, Hotchkiss, and Loge. Development of a comprehensive monitoring protocol to characterize the concentration and associated health risks of salmonid pathogens suspended in water, \$20,000, 3/02—2/03.
8. College of Veterinary Medicine, WSU. **Call**, Hancock and Besser. The role of calf-adapted *Escherichia coli* in maintenance of antibiotic resistance in dairy calves, \$60,000, 7/01—6/03.
9. WSU and UI Salmon Restoration Program, Center for Reproductive Biology. **Call** and McElwain. Microarray detection of multiple pathogens in salmonid populations, renewed annually, \$87,000 cumulative, 8/01—8/04.

In progress:

1. I participated in VMP proposal to secure four new RA positions for new faculty in VMP (2-year program; D. Prieur, Director). The proposal was funded through the WSU Graduate School with first students August 2008 to May 2010.
2. WSU and UI Aquaculture initiative. Cain and **Call** (Co-PIs). Comparative genomics and proteomics of *Flavobacterium psychrophilum* and regulation of host genes during a protective immune response. Competitive renewal annually 2002-2009 when funding available (\$590,000 cumulative direct costs split 50:50 between Cain and Call).
3. WSU-UI Aquaculture Initiative, **Call**, Snekvik, Cain, and St-Hilaire, “Identifying the etiologic agent of Strawberry Disease in rainbow trout,” \$70,000 cumulative with competitive annual renewals, 2006, 2008, and 2009.

Extramural funded grants, July 2000 to present

Completed:

1. NIH N01-AI-30055, ZW010-06, **Call**, Konkel, and Bej, “*Vibrio parahaemolyticus* Type III Secretion Proteins,” \$390,385 (\$216,331 to Call lab), 9/06—2/09.
2. USDA-NRI. **Call**, Wiens, LaPatra, and Hunnicutt. “*Flavobacterium* 2007,” conference grant, \$10,000, awarded.

3. Murdock Foundation grant for purchase of a state-of-the-art field emission scanning electron microscope for the Francheschi Microscopy and Imaging Center, WSU, \$484,681, funded 2007, M. Knoblauch Director (DCall participating faculty).
4. USDA-NRI Food Safety. Konkel, **Call**, Joens, and Parker. Comparative genomics, transcriptomics, and proteomics of pathogenic and non-pathogenic isolates of *Campylobacter jejuni*, \$325,000, 10/05—9/08.
5. NIH WSU-ZRU: **Call**. Subtyping *Listeria monocytogenes* using a suspension array, \$338,186, 9/04—8/07.
6. NIH WSU-ZRU: **Call**. Transcriptional signatures of epidemic *L. monocytogenes*, \$293,600, 10/04—9/07.
7. NIH N01-AI-30055, WSU-ZRU, **Call**, Besser, Borucki, and Cobbold. Detection and characterization of phenotypic and genotypic traits for newly emergent zoonotic enteric pathogens, \$990,000, 2/04—2/07.
8. USDA-NRI. **Call**, Loge and Gay. Identifying host-specific markers of fecal pollution using mixed genome microarrays, \$314,000, 9/02—8/06 (one-year no-cost extension).
9. USDA-NRI. **Call**, Besser and Hancock. The role of calf-adapted *Escherichia coli* in maintenance of antibiotic resistance in dairy calves, \$257,964, 12/03—12/06 (one-year no-cost extension).
10. USDA-NRI. Besser, Hancock, Sischo, and **Call**. Clonal dissemination of antimicrobial resistant *Campylobacter jejuni* and *Escherichia coli*, \$1.3 M, 11/01—10/05 (one-year, no-cost extension).
11. Morris Foundation. **Call**, Besser and Hancock. Genotyping antimicrobial resistance using DNA microarrays, \$7,500, 9/01—8/02.

In progress:

1. NIH NIAID (contract N01-AI-30055) for the Food and Waterborne Diseases Integrated Research Network. Hancock, Besser, Borucki, **Call**, Cobbold, Gay, Gay, and Loge. Regional Dissemination of Food and Water-borne Zoonotic Enteropathogens in the Pacific Northwest (\$9.9 M), December 2002—October 2009. Subprojects within this program:
 - N01-AI-30055, ZRU009-06, Davis, **Call**, and Besser, “Characterization of bacterial antimicrobial resistance using a validated DNA microarray,” \$440,400, 9/06—8/09.
 - N01-AI-30055, ZW013-07, Konkel, **Call**, and Mansfield, “Classification (virotyping) of pathogenic *Campylobacter jejuni*,” \$1,170,765 (\$387,712 to Call lab), 3/07—2/10.

- N01-AI-30055, ZW014-07, **Call**, Besser, Broschat, and Top, “Epidemiology of antibiotic resistance plasmids,” \$1,238,796; awarded 8/07—10/2010.
 - N01-AI-30055, ZW015-07, Straub, Bartholomew, and **Call**, “Pathogenesis of circulating norovirus strains,” \$546,671 (\$146,671 to Call lab), 1/08—8/2010.
 - N01-AI-30055, Shah, **Call**, Davis, and Besser, “Differential virulence of *Salmonella enteritidis*,” \$267,726, 1/08—8/2010.
2. NRI 32.0 Food Safety. Konkel, **Call**, Dhillon, and Smit. “Investigation of the *Campylobacter jejuni* CadF protein as an agent for reducing *Campylobacter* carriage in chickens,” Amount requested \$399,714, 10/2006--9/2009.
 3. Western Regional Aquaculture Center (WRAC), Cain, **Call**, and LaPatra, “Coldwater disease prevention and control through vaccine development and diagnostic improvements,” \$398,174, awarded December 2006; funding available 1/08.

Participation in training grants

1. T32 AI07025, Faculty participant, Immunology/Infectious Diseases Training Program, G. Palmer Program Director 07/04-06/09. Renewed for 5 years, June 2009.
2. T35 RR007049, Faculty participant, NCCR Short-term Training grant for veterinary students, Prieur and Ritter Program Directors, “Students in Health Professional Schools,” \$229,720 direct costs (\$248,095 total) for most recent renewal, total project period 09/30/1990—01/31/2011.
3. T32 GM08336, Faculty participant, NIH NIAID Biotechnology Training Program, Ray Reeves Program Director, 09/03-08/11. Renewed for 5 years, June 2009.

Proposal activities for 2009:

1. NIH-NIAID, R01 application. DR **Call**, S Broschat and ME Konkel. Regulation and function of *Vibrio parahaemolyticus* type III secretion systems. \$1,495,000, 1/10—12/14. *In review*.
2. USDA-AFRI. TE Besser, MA Davis, D Moore, W Sischo and DR **Call**. Differential Epidemiology and Ecology of Clinical and Bovine-biased Genotypes of *Escherichia coli* O157:H7. \$1,249,750, 11/09—10/12. Funded.
3. USDA-AFRI. KD Cain, DR **Call**, and K Snekvik. Characterization and delivery of *Flavobacterium psychrophilum* 259.93B.17, an attenuated vaccine candidate for coldwater disease. \$374,998, 10/09—9/12. Not funded.

4. USDA-AFRI. ME Konkel, DR **Call**, S Dhillon, P Mixter, and M Trevisan. Use of a probiotic *Lactobacillus* Strain as an Oral Vaccine Strategy to Reduce *Campylobacter jejuni* in Chickens. \$599,644, 9/09—08/12. *In review*.
5. USDA-AFRI. MA Davis, TE Besser, DR **Call**, and ME Konkel. Molecular Characterization of Bovine-origin *Campylobacter jejuni* Using Multi-locus Sequence Typing. \$398,677, 1/10—1/12. Not funded.
6. USDA-CSREES training grant, W Sischo, TE Besser, and DR **Call**. Expanding Global Competencies in Research Training Programs in Food and Waterborne Disease. \$258,000, 1/10—5/13. *In review*.
7. Submitted competitive renewals for WSU-UI Aquaculture Initiative projects (1) Coldwater disease (\$100,000), and (2) Strawberry disease (\$35,000). Funded.
8. NIH-NIAID Research and Research Infrastructure “Grand Opportunities, RC2. ME Konkel, DR **Call**, and J Alderete. Targeting human mucosal pathogens with lactobacillus epitope vaccines. \$3,273,957, 10/09—10/11. Not funded.
9. I am a participating faculty for an NIH T32 grant proposal with the School for Molecular Biosciences (Nilson, PI; \$965,875). *In review; qualified for initial site visit*.

Contracts and other funding activities for 2008-09:

My lab was contracted by the Asotin County Conservation District to test water samples from Asotin Creek for the presence of host-specific fecal markers; \$3,317 total.

Additional proposals:

Since July 2000, an additional 43 pre-proposals, proposals and training grant proposals have been submitted to WSU intramural competitions, nonprofit foundations and other granting organizations, but were not funded.

Theses titles:

- **Call**, DR. 1990. Home-range and habitat use by California Spotted Owls (*Strix occidentalis*) in the Sierra Nevada. M.S. thesis, Dept. Wildlife, Humboldt State University, Arcata, CA.
- **Call**, DR. 1997. Microsatellite characteristics and population structure for two anurans (*Rana luteiventris* and *Hyla regilla*). Ph.D. thesis, Dept. Zoology, Washington State University, Pullman, WA.

Peer-reviewed publications:

I queried the Web of Science citation database (11 May 2009) and determined that my peer-reviewed publications have been cited 1,783 times. A similar analysis in February 2009 showed a 24.6% increase in total citations since January 2008. My “h-index” at this time is 27 (a least 27 papers have been cited ≥ 27 times) whereas this index was 22 in January 2008.

Pre-2000:

1. **Call**, DR, RJ Gutiérrez and J Verner. 1992. Habitat use and home-range size of California Spotted Owls in the Sierra Nevada. *Condor* 94:880-888.
2. **Call**, DR, JG Hallett, SG Mech, and M Evans. 1998. Considerations for measuring genetic variation and population structure with multilocus fingerprinting. *Molecular Ecology* 7:1337-1346.
3. **Call**, DR and JG Hallett. 1998. PCR primers for microsatellite loci in the anurans *Rana luteiventris* and *Hyla regilla*. *Molecular Ecology* 7:1085-1087.
4. **Call**, DR and DG Remick. 1998. Low molecular weight heparin is associated with greater cytokine production in a stimulated whole blood model. *SHOCK* 10:192-197.
5. Ebong S, DR **Call**, G Bolgos, DE Newcomb, J Granger, M O'Reilly, and DG Remick. 1999. Immunopathologic alterations in non-lethal sepsis. *SHOCK* 12: 118-126.
6. Ebong, S, D **Call**, G Bolgos, J Nemzek and D Remick. 1999. Immunopathologic alterations in murine sepsis models of increasing lethality. *Infection and Immunity* 67:6603-6610.
7. Granger, J, M O'Reilly, DR **Call**, S Ebong, A Taur, B Williams, M Nauss, J Millican and DG Remick. 1999. A sandwich ELISA for measurement of picogram quantities of murine granulocyte colony stimulating factor. *Journal of Immunological Methods* 225:145-156.
8. LaHaye, WS, RJ Gutiérrez, and DR **Call**. 1997. Nest-site selection and reproductive success of California Spotted Owls. *Wilson Bulletin* 109:42-51.
9. Nemzek, JA, D Newcomb, DR **Call**, and DG Remick. 1999. Optimization of enzyme-linked immunosorbant assays using commercially matched antibody pairs: removal of plasma inhibition. *Immunological Investigations* 28:209-221.

2000:

10. **Call**, DR, M Jacoby, K Rudolf, G Bolgos, C Robbins, and DG Remick. 2000. Detecting wildlife orthologues for tumor necrosis factor (TNF α) and interleukin-6 (IL-6). *Northwest Science* 74:340:345.

11. Nemzek, JA, DR **Call**, SJ Ebong, GR Bolgos, DE Newcomb and DG Remick. 2000. Immunopathology of a 2 hit model of pulmonary injury. *American Journal of Physiology. Lung Cellular and Molecular Physiology* 278:L512-L520.
12. Remick, DG, DE Newcomb, GL Bolgos, and DR **Call**. 2000. Comparison of the mortality and inflammatory response of two models of sepsis: lipopolysaccharide vs. cecal ligation and puncture. *SHOCK* 13:110-116.

2001:

13. **Call**, DR, FJ Brockman, and DP Chandler. 2001. Detecting and genotyping *Escherichia coli* O157:H7 using multiplexed PCR and nucleic acid microarrays. *International Journal of Food Microbiology* 67:71-80.
14. **Call**, DR, DP Chandler, and FJ Brockman. 2001. Fabrication of DNA microarrays using unmodified oligomer probes. *BioTechniques* 30:368-379.
15. **Call** DR, Nemzek JA, Ebong SJ, Bolgos GR, Newcomb DE, Wollenberg GK and Remick DG. 2001. Differential local and systemic regulation of the murine chemokines KC and MIP2. *SHOCK* 4:278-284.
16. **Call**, DR, JA Nemzek, SJ Ebong, GR Bolgos, DE Newcomb, and DG Remick. 2001. Ratio of local to systemic chemokine concentrations regulates neutrophil recruitment. *American Journal of Pathology* 158:715-721.
17. Chandler, DP, J Brown, DR **Call**, JW Grate, DA Holman, L Olson, MS Stottlmyre, and CJ Bruckner-Lea. 2001. Continuous, automated immunomagnetic separation and microarray detection of *E. coli* O157:H7 from poultry rinsate. *International Journal of Food Microbiology* 70:143-154.
18. Remick, DG, LB Green, DE Newcomb, SJ Garg, GL Bolgos, and DR **Call**. 2001. CXC Chemokine redundancy ensures local neutrophil recruitment during acute inflammation. *American Journal of Pathology* 159:1149-1157.
19. Remick DG, DR **Call**, SJ Ebong, DE Newcomb, P Nybom, JA Nemzek, GE Bolgos. 2001. Combination immunotherapy with soluble tumor necrosis factor receptors plus interleukin 1 receptor antagonist decreases sepsis mortality. *Critical Care Medicine* 29:473-481.
20. Small, JA, DR **Call**, FJ Brockman, TM Straub, and DP Chandler. 2001. Direct detection of 16S rRNA in soil extracts using oligonucleotide microarrays. *Applied and Environmental Microbiology* 67:4708-4716.

2002:

21. Davis WC, RL Konzek, K Haas, DM Estes, MJ Hamilton, DR **Call**, V Apostolopoulos, and IF McKenzie. 2002. Use of the mannan receptor to selectively target vaccine antigens for processing and antigen presentation through the MHC Class I and Class II pathways. *Annals of the New York Academy of Sciences* 969:119-125.
22. Kingsley, MT, TM Straub, DR **Call**, SC Wunschel, DS Daly and DP Chandler. 2002. Fingerprinting closely related *Xanthamonas* pathogens with random nonamer oligonucleotide microarrays. *Applied and Environmental Microbiology* 68:6361-6370.
23. Loge, FJ, DE Thompson, and DR **Call**. 2002. PCR detection of specific pathogens in water: A risk-based analysis. *Environmental Science and Technology* 35:2754-2759.
24. Wang X, SJ Ebong, DR **Call**, DE Newcomb, GR Bolgos, and DG Remick. 2002. Calcitonin gene-related peptide partially reverses decreased production of chemokines KC and MIP-2 following murine sepsis. *Inflammation* 26:167-174.

2003: (trainees are underlined)

25. Borucki MK, MJ Krug, WT Muraoka, and DR **Call**. 2003. Discrimination among *Listeria monocytogenes* isolates using a mixed genome DNA microarray. *Veterinary Microbiology* 92:351-362.
26. Borucki, M, and DR **Call**. 2003. *Listeria monocytogenes* serotype identification using PCR. *Journal of Clinical Microbiology* 41:5537-5540.
27. Borucki, MK, JD Peppin, D White, F Loge and DR **Call**. 2003. Variation in biofilm formation among strains of *Listeria monocytogenes*. *Applied and Environmental Microbiology* 69:7336-7342.
28. **Call**, DR, MK Borucki and FJ Loge. 2003. Detection of bacterial pathogens in environmental samples using DNA microarrays. *Journal of Microbiological Methods* 53:235-243.
29. **Call**, DR, MK Borucki, and TE Besser. 2003. Mixed-genome microarrays reveal multiple serotype and lineage-specific differences for *Listeria monocytogenes*. *Journal of Clinical Microbiology* 41:632-639. *****This paper was selected as one of the top six ASM papers for the month of January 2003 (announced in April issue of *ASM News*)*****
30. **Call**, DR, MK Bakko, MJ Krug, and MC Roberts. 2003. Identifying antimicrobial resistance genes using DNA microarrays. *Antimicrobial Agents and Chemotherapy* 47:3290-3295. See related article by Holzman, D. 2003. Microarray analyses may speed antibiotic resistance testing. *ASM News* 69 (Nov):538-539.

31. Davis, MA, DR **Call**, TE Besser and DD Hancock. 2003. Evaluation of pulsed field gel electrophoresis as a measure of relatedness between strains of *Escherichia coli* O157:H7. *Journal of Clinical Microbiology* 41:1843-1849.
32. Davis, MA, DD Hancock, DH Rice, DR **Call**, R DiGiamcomo, M Samadpour, and TE Besser. 2003. Feedstuffs as a vehicle of cattle exposure to *Escherichia coli* O157:H7 and *Salmonella enterica*. *Veterinary Microbiology* 95:199-210.
33. Davis, MA, DD Hancock, TE Besser, DH Rice, CJ Hovde, R. DiGiacomo, M. Samadpour, and DR **Call**. 2003. Correlation between geographic distance and genetic similarity in an international collection of bovine fecal *Escherichia coli* O157:H7 isolates. *Epidemiology and Infection* 131:923-930.

2004:

34. Borucki, MK, SH Kim, DR **Call**, SC Smole, and F. Pagotto. 2004. Selective discrimination of *Listeria monocytogenes* epidemic strains by a mixed-genome DNA microarray compared to discrimination by pulsed-field gel electrophoresis, ribotyping, and multilocus sequence typing. *Journal of Clinical Microbiology* 42:5270-5276.
35. Cobbold, RN, DH Rice, M Szymanski, DR **Call**, and DD Hancock. 2004. Comparison of shiga-toxigenic *Escherichia coli* (STEC) prevalence between dairy, feedlot and cow-calf herds in Washington State. *Applied and Environmental Microbiology* 70:4375-4378.
36. González, SF, MJ Krug, ME Nielson, Y. Santos, and DR **Call**. 2004. Simultaneous detection of marine fish pathogens using multiplexed PCR and DNA microarrays. *Journal of Clinical Microbiology* 42:1414-1419.
37. Khachatryan, AR, DD Hancock, TE Besser, and DR **Call**. 2004. The role of calf-adapted *Escherichia coli* in maintenance of antibiotic resistance in dairy calves. *Applied and Environmental Microbiology* 70:752-757.
38. Lahmers, S, Y Wu, DR **Call**, S. Labeit, and H. Granzier. 2004. Developmental control of titin isoform expression and passive stiffness in fetal and neonatal myocardium. *Circulation Research* 94:505-513.
39. Lane, S., J. Evermann, F. Loge and D.R. **Call**. 2004. Secondary structure prevents target hybridization to oligonucleotide microarrays. *Biosensors and Bioelectronics* 20:728-735.
40. Panicker, G, DR **Call**, MJ Krug, and AK Bej. 2004. Detection of pathogenic *Vibrio* spp. in shellfish and Gulf of Mexico water using multiplex PCR and DNA-array hybridization. *Applied and Environmental Microbiology* 70:7436-7444.

41. Straub, TM, Quinoñez Díaz, MD, CO Valdez, DR **Call**, and DP Chandler. 2004. Using DNA microarrays to detect multiple pathogen threats in water. *Water Science and Technology: Water Supply* 4:107-114.
42. Warsen, A, MJ Krug, S LaFrentz, DR Stanek, FJ Loge, and DR **Call**. 2004. Simultaneous discrimination between 15 fish pathogens using 16S rDNA PCR and DNA microarrays. *Applied and Environmental Microbiology* 70:4216-4221.
43. Willse, A, TM Straub, S. Wunschel, JA Small, DR **Call**, D Daly, and DP Chandler. 2004. Quantitative oligonucleotide microarray fingerprinting of closely related *Salmonella enterica* isolates. *Nucleic Acid Research* 32:1848-1856.
44. Woodford, NL, DR **Call**, DG Remick, and R Rochford. 2004. A model of angiogenesis in SCID mice xenografted with Epstein-Barr virus transformed B cells. *Comparative Medicine* 54:209-215.

2005:

45. Bae, W, KN Kaya, DD Hancock, DR **Call**, YH Park, and TE Besser. 2005. Prevalence and antimicrobial resistance of thermophilic *Campylobacter* sp. from cattle farms in the Northwestern United States. *Applied and Environmental Microbiology* 71:169-174.
46. Borucki, MK, CC Gay, J Reynolds, KL McElwain, SH Kim, DR **Call**, DP Knowles. 2005. Genetic diversity of *Listeria monocytogenes* strains from a high-prevalence dairy farm. *Applied and Environmental Microbiology* 71:5893-5899.
47. Borucki, MK, J Reynolds, DR **Call**, T Ward, B Page, and J Kadushin. 2005. Suspension arrays for direct and high throughput subtyping of *Listeria monocytogenes* from genomic DNA. *Journal of Clinical Microbiology* 43:3255-3259.
48. Broschat, SL, FJ Loge, JD Peppin, D White, DR **Call**, and E Kuhn. 2005. Optical reflectance assay for the detection of biofilm formation. *Journal of Biomedical Optics* 10:44027.
49. Broschat SL, DR **Call**, EA Kuhn, and FJ Loge. 2005. Comparison of the reflectance and crystal violet assays for measurement of biofilm formation by *Enterococcus*. *Biofilms* 2:177-181.
50. **Call**, DR. 2005. Challenges and opportunities for pathogen detection using DNA microarrays. *Critical Reviews in Microbiology* 31:91-99.
51. Skinner, DZ, PA Okubara, KH Baek, and DR **Call**. 2005. Long oligonucleotide microarrays in wheat: evaluation of hybridization signal

amplification and an oligonucleotide-design computer script. *Functional and Integrative Genomics* 5:70-79.

52. Soule, M, K. Cain, S. LaFrentz, and DR **Call**. 2005. Combining suppression subtractive hybridization and microarrays to map the intraspecies phylogeny of *Flavobacterium psychrophilum*. *Infection and Immunity* 73:3799-3802.
53. Soule, M, S LaFrentz, K Cain, S LaPatra, and DR **Call**. 2005. Polymorphisms in 16s rRNA genes of *Flavobacterium psychrophilum* correlate with elastin hydrolysis and tetracycline resistance. *Diseases of Aquatic Organisms* 65:209-216.

2006:

54. **Call**, DR, MS Kang, J Daniels, and TE Besser. 2006. Assessing genetic diversity in plasmids from *Escherichia coli* and *Salmonella enterica* using a mixed-plasmid microarray. *Journal of Applied Microbiology* 100:15-28.
55. Kang, MS, TE Besser, and DR **Call**. 2006. Variability in the region downstream of the *bla*_{CMY-2} β -Lactamase Gene in *Escherichia coli* and *Salmonella enterica* plasmids. *Antimicrobial Agents and Chemotherapy* 50:1590-1593.
56. Kang, MS, TE Besser, DD Hancock, S Porwollik, M McClelland, and DR **Call**. 2006. Identification of specific gene sequences conserved in contemporary epidemic strains of *Salmonella enterica*. *Applied and Environmental Microbiology* 72:6938-6947.
57. Khachatryan, AR, DD Hancock, TE Besser, and DR **Call**. 2006. Antimicrobial drug resistance genes do not convey secondary fitness advantage in calf-adapted *Escherichia coli*. *Applied and Environmental Microbiology* 72:443-448.
58. Khachatryan, AR, TE Besser, DD Hancock, and DR **Call**. 2006. Use of a nonmedicated dietary supplement correlates with increased prevalence of streptomycin-sulfa-tetracycline-resistant *Escherichia coli* on a dairy farm. *Applied and Environmental Microbiology* 72:4583-4588.
59. Raymond, M, R Wohrle, and DR **Call**. 2006. Assessment and promotion of judicious antibiotic use on dairy farms in Washington State. *Journal of Dairy Science* 89:3228-3240.
60. Soule, M, EA Kuhn, F Loge, J Gay, and DR **Call**. 2006. Using DNA microarrays to identify library-independent markers for bacterial source tracking. *Applied and Environmental Microbiology* 72:1843-1851.

2007:

61. Bae, W, DD Hancock, DR **Call**, YH Park, ACB Berge, RM Finger, WF Sischo, and TE Besser. 2007. Dissemination of antimicrobial resistant strains of *Campylobacter coli* and *Campylobacter jejuni* among cattle in Washington State and California. *Veterinary Microbiology* 122:306-315.
62. **Call**, DR, DM Satterwhite, and M Soule. 2007. Using DNA suspension arrays to identify library-independent markers for bacterial source tracking. *Water Research* 41:3740-3746.
63. Daniels, JB, DR **Call**, and TE Besser. 2007. Molecular epidemiology of *bla_{CMY-2}* plasmids carried by *Salmonella enterica* and *Escherichia coli* isolated from cattle in the Pacific Northwest. *Applied and Environmental Microbiology* 73:8005-8011.
64. Davis MA, DD Hancock, TE Besser, JB Daniels, K Baker and DR **Call**. 2007. Antimicrobial resistance in *Salmonella enterica* serovar Dublin isolates from beef and dairy sources. *Veterinary Microbiology* 119:221-230.
65. Davis, MA, TE. Besser, K Eckmann, K McDonald, D Greene, DD Hancock, K.N.K. Baker, and DR **Call**. 2007. Emerging multi-drug resistant strain of *Salmonella enterica* serovar Typhimurium in cattle in the Pacific Northwest United States. *Emerging Infectious Diseases* 13:1583-1586.
66. Kang, MS, TE Besser, DD Hancock, and DR **Call**. 2007. Multiple environmental stress tests show no common phenotypes shared amongst contemporary epidemic strains of *Salmonella enterica*. *Applied and Environmental Microbiology* 72:6938-6947.
67. LaFrentz, BR, NM Lindstrom, SE LaPatra, DR **Call**, and KD Cain. 2007. Electrophoretic and Western blot analysis of the lipopolysaccharide and glycocalyx of *Flavobacterium psychrophilum*. *Fish and Shellfish Immunology* 23:770-780.
68. Ramsrud, AL, SA LaFrentz, BR LaFrentz, KD Cain, and DR **Call**. 2007. Differentiating 16S rRNA alleles of *Flavobacterium psychrophilum* using a simple PCR assay. *Journal of Fish Diseases* 30:175-180.
69. Sudheesh, PS, BR LaFrentz, DR **Call**, WF Siems, SE LaPatra, GD Wiens, and KD Cain. 2007. Identification of potential vaccine target antigens by immunoproteomic analysis of a virulent and a non-virulent strain of the fish pathogen *Flavobacterium psychrophilum*. *Diseases of Aquatic Organisms* 74:37-47.
70. Wan, Y, SL Broschat, and DR **Call**. 2007. Validation of mixed-genome microarrays as a method for genetic discrimination. *Applied and Environmental Microbiology* 73:1425-1432.

71. Zhou, X, J Elmose, and DR **Call**. 2007. Interactions between the environmental pathogen *Listeria monocytogenes* and a free-living protozoan (*Acanthamoeba castellanii*). *Environmental Microbiology* 9:913-922.

2008:

72. **Call**, DR, L Orfe, MA Davis, S LaFrentz and MS Kang. 2008. Impact of compounding error on strategies for subtyping pathogenic bacteria. *Foodborne Pathogens and Disease* 5:505-516. PMID: 18713065.
73. **Call**, DR, MA Davis, and AA Sawant. 2008. Antimicrobial resistance in beef and dairy cattle production. *Animal Health Research Reviews* 9:159-167. PMID: 18983724.
74. **Call**, DR and P Plescia. 2008. Identifying sources of fecal pollution in the Colville River using library-independent genetic markers. *Northwest Science* 82:120-127.
75. Chen, J, MA Davis, SE LaPatra, K Cain, K Snekvik, and DR **Call**. 2008. Genetic diversity of *Flavobacterium psychrophilum* recovered from commercially raised rainbow trout and spawning Coho salmon. *Journal of Fish Diseases* 31:765-773.
76. Khachatryan, AR, TE Besser, and DR **Call**. 2008. The SSuT antimicrobial resistance element form calf-adapted *Escherichia coli* is widely distributed in Washington State cattle. *Applied and Environmental Microbiology* 74:391-395.
77. LaFrentz, BR, SE LaPatra, DR **Call**, and KD Cain. 2008. Development and characterization of rifampicin resistant *Flavobacterium psychrophilum* strains and their potential as live attenuated vaccine candidates. *Vaccine* 26:5582-5589. PMID: 18708112.
78. Larson, CL, DH Shah, AS Dhillon, DR **Call**, S Ahn, GJ Haldorson, C Davitt, and ME Konkel. 2008. *Campylobacter jejuni* invades chicken LMH cells inefficiently and stimulate differential expression of the chicken CXCLi1 and CXCLi2 cytokines. *Microbiology* 154:3835-3847. PMID: 19047751.
79. Leach, MD, SL Broschat, and DR **Call**. 2008. A discrete, stochastic model and correction method for bacterial source tracking. *Environmental Science and Technology* 42:524-529.
80. Lloyd, SJ, KR Snekvik, S St-Hilaire, SE LaPatra, KD Cain, and DR **Call**. 2008. Strawberry disease lesions in rainbow trout (*Oncorhynchus mykiss*) are closely associated with a Rickettsia-like organism. *Disease of Aquatic Organisms* 82:111-118. PMID: 19149374.

81. Meng, D, SL Broschat, and DR **Call**. 2008. A Java-based tool for the design of classification microarrays. *BMC Bioinformatics* 9:328. PMID: 18680597.
82. Shah, DH, KD Cain, GD Wiens, and DR **Call**. 2008. Challenges associated with heterologous expression of *Flavobacterium psychrophilum* proteins in *Escherichia coli*. *Marine Biotechnology* 10:719-730.
83. Zhou, X, DH Shah, ME Konkel, and DR Call. 2008. Type III secretion system 1 genes in *Vibrio parahaemolyticus* are positively regulated by ExsA and negatively regulated by ExsD. *Molecular Microbiology* 69:747-764. PMID: 18554322.
84. Whitworth, JH, N Fegan, J Keller, KS Gobius, JL Bono, DR **Call**, CJ Hovde, DD Hancock, and TE Besser. 2008. At an international scale, *E. coli* O157:H7 Stx bacteriophage insertion genotypes have a variable distribution between human and cattle hosts. *Applied and Environmental Microbiology* 74:7447-7450. PMID: 18849446.

2009:

85. Daniels, JB, DR **Call**, DD Hancock, WM Sischo, K Baker, and TE Besser. 2009. The role of ceftiofur in the selection and dissemination of *bla*_{CMY-2} – mediated cephalosporin resistance in *Salmonella enterica* and commensal *Escherichia coli* isolated from cattle. *Applied and Environmental Microbiology* 75:3648-3655.
86. Davis, MA, KNK Baker, DR **Call**, LD Warnick, Y Soyer, M Wiedmann, Y Gröhn, PL McDonough, DD Hancock, and TE Besser. 2009. Multiple locus variable number of tandem repeats typing method for *Salmonella enterica* serovar Newport. *Journal of Clinical Microbiology* 47:1934-1938.
87. LaFrentz, BR, SE LaPatra, DR **Call**, GD Wiens, and KD Cain. *In press*. Proteomic analysis of *Flavobacterium psychrophilum* cultured *in vivo* and in iron-limited media. *Diseases of Aquatic Organisms*.
88. Lindstrom, NM, DR **Call**, ML House, CM Moffitt, and KD Cain. *In press*. A quantitative enzyme-linked immunosorbent assay (ELISA) and filtration-based fluorescent antibody test as potential tools for screening *Flavobacterium psychrophilum* in broodstock. *Journal of Aquatic Animal Health*.
89. Stanton, JB, DP Knowles, DR **Call**, BA Mathison, and TV Baszler. *In press*. Limited transcriptional response of ovine microglia to prion accumulation. *Biochemical and Biophysical Research Communications*.
90. Zhou, X, ME Konkel, and DR **Call**. 2009. Type III secretion system 1 of *Vibrio parahaemolyticus* induces oncosis in both epithelial and monocytic cell lines. *Microbiology* 155:837-851. PMID: 19246755.

91. Allen, JG, MW Beutel, DR **Call**, and A Fischer. *Accepted*. Effects of Oxygenation on Ammonia Oxidation Potential and Microbial Diversity in Sediment from Surface-flow Wetland Mesocosms. *Bioresource Technology*.

Manuscripts in review

1. **Call**, DR, RS Singer, D Meng, SL Broschat, LH Orfe, JM Anderson, DR Herndon, LS Kappmeyer, JB Daniels, and TE Besser. *In review*. *bla_{CMY-2}* positive Inc A/C plasmids from *Escherichia coli* and *Salmonella enterica* are a distinct component of a larger lineage of plasmids. *Antimicrobial Agents and Chemotherapy*.
2. Lloyd, SJ, SE LaPatra, KR Snekvik, KD Cain, and DR **Call**. *In review*. Quantitative PCR demonstrates a positive correlation between a *Rickettsia*-like organism and severity of strawberry disease lesions in rainbow trout (*Oncorhynchus mykiss*). *Diseases of Aquatic Organisms*.
3. Duong, T, JM Neal-McKinney, CL Larson, DR **Call**, AS Dhillon, and ME Konkel. *In review*. Probiotic treatment with *Lactobacillus crispatus* reduces colonization of chickens by *Campylobacter jejuni*. *Journal of Food Protection*.
4. Zhou, X, ME Konkel, and DR **Call**. *In review*. Vp1659 is secreted by type III secretion system 1 of *Vibrio parahaemolyticus* and is required for cytotoxicity against HeLa cells. *Journal of Bacteriology*.
5. Okubara, PA, DR **Call**, DZ Skinner. *In review*. Functional diversity in transcriptomes of stressed and non-stressed wheat roots and use in defense gene expression profiling of a wheat-*Pseudomonas* biocontrol interaction.
6. Dassanayake, RP, DR **Call**, AA Sawant, NC Casavant, GC Weiser, DP Knowles, and S Srikumaran. *In review*. *Bibersteinia trehalosi* inhibits growth of *Mannheimia haemolytica* by a contact-dependent mechanism.

Manuscripts in prep (partial list) – 2009

1. Straub, TM, RA Bartholomew, CO Valdez, NB Valentine, A Dohnalkova, RM Ozanich, CJ Bruckner-Lea and DR **Call**. *In prep*. Human norovirus infection and replication in a 3-dimensional model of large intestinal epithelium.
2. Subbiah, M and DR **Call**. *In prep*. Fitness costs conveyed by *bla_{CMY-2}* positive, IncA/C plasmids in *Escherichia coli*.
3. Zhou, X, JC Christensen, ME Konkel, L Orfe, P Friel, and DR **Call**. *In prep*. Identification of *Vibrio parahaemolyticus* type III secreted proteins using a YplA-based, genome-wide screen and proteomic tools.

4. Zhou, X, ME Konkel, and DR **Call**. In prep. ExsC directly binds ExsD to allow expression of type III secretion system 1 genes in *Vibrio parahaemolyticus*.
5. Davis, MA, JY Lim, Y Soyer, H Harbottle, YF Chang, D New, L Orfe, TE Besser, and DR **Call**. In prep. Development and validation of a resistance and virulence gene microarray targeting *Escherichia coli* and *Salmonella enterica*: intra-laboratory validity v. inter-laboratory portability.
6. Metselaar, M, KD Thompson, RML Gratacap, MJL Kik, SE LaPatra, SJ Lloyd, DR **Call**, PD Smith, and A Adams. In prep. Association of red-mark syndrome with a *Rickettsia*-like organism and its connection with strawberry disease in the USA. Diseases of Aquatic Organisms.
7. Meng, D, SL Broschat, MA Davis, A Ahmed, TE Besser, and DR **Call**. In prep. A fusion algorithm for assessing genetic relationships.
8. LaFrentz, BR, SE LaPatra, DR **Call**, and KD Cain. In prep. Immunization of rainbow trout *Oncorhynchus mykiss* (Walbaum) with a crude lipopolysaccharide extract of *Flavobacterium psychrophilum*.
9. Shah, D, L Orfe, C Cunha, N Dasgupta and DR **Call**. In prep. Acid- and bile-stress induced transcriptomes of epidemic and environmental strains of *Listeria monocytogenes*.
10. Shah, DH, ME Konkel, and DR **Call**. In prep. Virulence of *Campylobacter jejuni* is associated with genes encoding flagellar biosynthesis and the differential expression of virulence genes co-regulated with flagellar biosynthesis.

Book chapters:

1. Shah, DH, S Shringi, TE Besser, and DR Call. *Escherichia coli* O157:H7. In: Liu, D, Editor. 2009. *Molecular Detection of Foodborne Pathogens*, CRC Press, Chapter 27. In press.
2. Sadowsky, MJ, DR **Call**, and JW Santo Domingo. 2006. The Future of Microbial Source Tracking. Pages 235-277 in MJ Sadowsky and JW Santo Domingo (ed.), *Fundamentals of Microbial Source Tracking*. ASM Press, Washington DC.
3. Wesley, IV, M Borucki, DR **Call**, D Larson, and L Schroeder-Tucker. 2003. Detection and diagnosis of *Listeria* and listeriosis in animals. In: Current topics in food safety in animal agriculture. Iowa State Press.
4. LaHaye, WS, Gutiérrez, RJ and DR **Call**. 1992. Demography of an insular population of Spotted Owls (*Strix occidentalis occidentalis*). Pages 803-814 In D McCullough and R Barrett, editors. *Wildlife 2001: Populations*. Elsevier Press.

Non-peer reviewed publications

1. Elmose, Jennifer Leader and Samantha Lane and Douglas **Call**. Effects of Probe Length and Secondary Structure on DNA Microarray Hybridizations: Implications for Design of Pathogen Detection Assays. *WSU McNair Journal*. (3) Fall 2005. p 68-80.
2. **Call**, DR. 2001. DNA microarrays – their mode of action and possible applications in molecular diagnostics. *Veterinary Sciences Tomorrow*, Issue 3, Aug 2001.
3. Gutiérrez, RJ, J Verner, DR **Call**, GS Steger, WS LaHaye, and K McKelvey. 1993. Habitat relationships of the California spotted owl. *In* Verner, J and RJ Gutiérrez, (eds). *The California Spotted Owl: a technical assessment*. Pacific Southwest Forest and Range Experiment Station. Gen. Tech. Rept. Berkeley, CA.

Extramural Invited Seminars and Consultancies

Washington Innovation Summit 2009, invited to give a brief presentation on antibiotic resistance and participant in a panel discussion for the *Healthy Ecosystems* track session, Bellevue, WA, 9 April 2009.

Cornell University, Ithaca, NY. Invited seminar, 2 Dec 2008. Call, “Persistence of antibiotic resistant bacteria in the absence of drug selection.”

FDA-Rockville, MD. Invited seminar, 31 October 2007. Call, “Persistence of antibiotic resistance in agricultural environments.”

U.S. EPA Workshop on Microbial Source Tracking, Cincinnati, OH, 9-11 July 2007. Call, Broschat, and Leach. “How can we interpret BST data from library independent markers?”

WADE invited address, Washington Association for District Employees – Leavenworth, June 19-20, 2007, “Tracking fecal pollution: will the water ever clear?”

EPA Region 10 meeting, “2007 Bacteria/Microbe Conference”, May 14-15, 2007. Call, Broschat, and Leach. “Interpreting data from library dependent markers – will the water ever clear?”

WADE invited address, Washington Association for District Employees – Leavenworth, June 20-21, 2006, “The In’s and Out’s of Bacterial Source Tracking.”

National Dairy Summit, Seattle, WA, 16-17 Nov 2005. “Antibiotics and antibiotic resistance in humans and animal agriculture.”

MicroPad, A European FP5 Program, Molecular ecology workshop entitled, “Detection of microbial biodiversity in environmental samples,” Camerino,

Italy, 19-21 September 2005. "Assessing intra-specific genetic diversity for bacteria and genetic diversity between plasmids using DNA microarrays."

WA-DOE, Colville River TMDL Advisory Group, Colville, WA, 19 July 2005. "Microbial source tracking: an update on genetic markers," presentation. Invited extension activity.

U.S. Environmental Protection Agency, Cincinnati, OH, Feasibility of Using DNA/RNA Microarrays and Related Technologies for High Through-put Detection of Waterborne Pathogens, 22-23 March 2005. "A Primer on Microarrays and the Prospects and Challenges for Pathogen Detection"

Course the Marine Genomics Europe Network is organizing at AWI-Bremerhaven, Germany, 4-5 March 2005. "A general introduction on applications of microarrays for identification purposes in the marine environment," invited presentation. Adverse travel conditions (weather) precluded my ability to present this talk. I was invited to return in September 2005 to give a talk on using microarrays for phylogenetics research.

Metropolitan Water District of Southern California, San Antonio, TX, 16-18 Feb 2005. Microbial Source Tracking Workshop. My lab was invited to consult with other researchers regarding priorities and challenges in MST research.

EPA Workshop, Baltimore, MD, Oct 28-29, 2004. Virulence Factor-Activity Relationships. Participated in panel discussions about VFAR concepts.

WA-DOE, Colville River TMDL Advisory Group, Colville, WA, 22 Sep 2004. "Microbial source tracking: an update on genetic markers," presentation. Invited extension activity.

Fifth Annual General Meeting of the "Genome and Health Initiative, Montréal, Canada, 16-19 May 2004. "Application of DNA microarrays to pathogen detection and comparative genomics." Invited seminar.

WA-DOE, Colville River TMDL Advisory Group, Colville, WA, 22 Jan 2004. "Microbial source tracking: an overview," presentation. Invited extension activity.

AALVD, St. Louis, MO. D.R. "Application of DNA microarrays in diagnostic medicine and molecular epidemiology," 19 Oct 2002. First plenary session.

Dept. Pathology, University of Michigan, Ann Arbor, MI. "Applying microarrays to diagnostics and epidemiology of infectious disease," 5/08/01.

Poster and Oral Presentations (italics for presenting author)

2009

Western Regional Aquaculture Commission, *Cain and Call*, “Coldwater disease prevention and control through vaccine development and diagnostic improvements,” 7 October 2009.

VMP Research in Progress Seminar, *Call*, “Regulation and function of type III secretion systems in *Vibrio parahaemolyticus*,” 15 September 2009.

Washington State University, Inspiring a New Generation of Scholars and Scientists, seminar series, *Call*, “What is antibiotic resistance and where does it come from?” 18 Feb 2009.

Washington State University School for Molecular Biosciences, *Call*, “Regulation of *Vibrio parahaemolyticus* type III secretion systems and effector protein identification, 12 Feb 2009.

American Society for Microbiology, General Meeting, Philadelphia, PA, 18-22 May 2009.

- *Straub*, Bartholomew, *Call*, Valdez, Valentine, Dohnalkova, Bruckner-Lea. Human Norovirus Infection using a 3-D Organoid Model of Large Intestinal Epithelium, poster.
- *Wiens*, LaPatra, *Call*, Welch. Comparative genomics of the *Flavobacterium psychrophilum frp* locus, poster.

8th Intl Plant Growth-Promoting Rhizobacteria Workshop, Portland, OR, May 17-22, 2009. *Okubara*, Walter, Bonsall, *Call*, Skinner. “Cultivar-dependent rhizosphere colonization, antifungal metabolite accumulation and gene expression in the wheat-*Pseudomonas* interaction.”

NIH-NIAID Integrated Research Network, Stevenson, WA, March 30--April 1, 2009.

- S. Shringi, D. *Call*, and TE *Besser*, “Differential virulence of enterohemorrhagic *E. coli* O157:H7 shiga toxin-encoding bacteriophage insertion site genotypes.”
- T.M. *Straub*, R.A. Bartholomew, C.O. Valdez, N.B. Valentine, C.J. Bruckner-Lea, and D.R. *Call*, “Replication of human noroviruses in a 3-D large Intestinal cell model.”
- X. Zhou, M.E. Konkel, and D.R. *Call*, “Vp1659 is secreted by type III secretion system 1 in *Vibrio parahaemolyticus* and is required for the cytotoxicity against HeLa cells.”
- D.R. *Call*, R.S. Singer, D. Meng, S.L. Broschat, L.H. Orfe, J.M. Anderson, D.R. Herndon, L.S. Kappmeyer, J.B. Daniels, and T.E. Besser, “*Bla*_{CMY-2}”

positive Inc A/C plasmids from *Escherichia coli* and *Salmonella enterica* are a distinct component of a larger lineage of plasmids.”

WSU Showcase, Pullman, WA, 27 March 2009.

- Meng, Broschat, Davis, Ahmed, Besser, Call. “A fusion algorithm for determining genetic relationships.”
- Lloyd, S, S LaPatra, K Snekvik, N Lindstrom, K Cain, and DR Call. Possible isolation in tick cell culture of a Rickettsia-like organism associated with Strawberry Disease lesions in rainbow trout.

European Workshop on PhD and Post-doctoral Fellows on Anadromous Salmonids (NoWPaS), March 19–22, 2009, Southampton, England. Metselaar, Thompson, Kik, LaPatra, Lloyd, Call, Adams. "Studies on red mark syndrome.”

Department of Homeland Security Science and Technology Directorate Chemical and Biological R&D Technologies Conference, Houston, TX, January 2009. Straub, Bartholomew, Valdez, Bruckner-Lea, Dohanlkova, Call, "Human Norovirus Infection of *In Vitro* 3-D Small and Large Intestinal Epithelial Cell Models."

VMP Research in Progress Seminar, Call, “Persistence of antibiotic resistant bacteria in the absence of drug selection,” 20 Jan 09.

Gordon Research Conference, Houston, TX on January 19, 2009. Straub, Bartholomew, Valdez, Bruckner-Lea, Dohanlkova, Call, "Human Norovirus Infection of *In Vitro* 3-D Small and Large Intestinal Epithelial Cell Models,” oral presentation

2008

9th Annual College of Veterinary Medicine Research Symposium, October 18, 2008. Posters

- Aschenbroich, S, N Lindstrom, P Friel, and DR Call. Isolation of wild-type *Salmonella* and *Escherichia coli* bacteriophage from dairy farms.
- Lloyd, S, S LaPatra, K Snekvik, N Lindstrom, K Cain, and DR Call. Possible isolation in tick cell culture of a Rickettsia-like organism associated with Strawberry Disease lesions in rainbow trout.
- Fischer, A, L Orfe, X Zhou, DR Call, C Larson, ME Konkel, and D Shah. Expression of chicken IL-8 orthologue, CXCLi2.
- Abdulkerim A, C Casavant, DR Call, and A Sawant. Dietary milk supplement does not provide a direct selective advantage to commensal SSuT *E. coli* in dairy calves.

- Subbiah, M, P Friel, and DR Call. Mechanisms of long-term persistence of large, multi-drug resistance plasmids that confer resistance to 3rd generation cephalosporins.
- Allen, J, A Fischer, H Palmer, M Beutel, and DR Call. Biological ammonia removal in oxygenated constructed treatment wetlands.

American Fisheries Society Fish Health Section Annual Meeting, Charlottetown, Prince Edward Island, June 2008.

- *Lloyd Sonja*, S LaPatra, K Snekvik, S St-Hilaire, K Cain, DR Call. Strawberry disease lesions in rainbow trout are associated with a *Rickettsia*-like organism. Oral presentation.
- Shah, D, K Cain, G Wiens, and DR Call. An alternate expression system for the production of recombinant *Flavobacterium psychrophilum* proteins for development of a cold water disease vaccine in rainbow trout.

49th Western Fish Disease Workshop, Ocean Shores, WA, June 23-25, 2008.

- *Lloyd SJ*, SE LaPatra, KR Snekvik, S St-Hilaire, KD Cain, DR Call. Strawberry disease lesions in rainbow trout are associated with a *Rickettsia*-like organism. *Oral Presentation*.
- *Snekvik KR*, S LaFrentz, DR Call. A DNA suspension microarray for the detection of infectious hematopoietic necrosis virus, viral hemorrhagic septicemia virus and infectious pancreatic necrosis virus

American Fisheries Society Washington – British Columbia Chapter (formerly North Pacific International Chapter) Annual General Meeting, Bellingham WA, 2008. *Lloyd SJ*, LaPatra, Snekvik, St-Hilaire, Cain, Call. Strawberry disease lesions in rainbow trout are associated with a *Rickettsia*-like organism. *Oral Presentation*

NIH-NIAID Integrated Research Network, Calloway Gardens, GA, April 2-3, 2008.

- Shah, Orfe, Cunha, Dasgupta, Call. Acid and bile-stress induced transcriptomes of epidemic and environmental strains of *Listeria monocytogenes*.
- Call, Orfe, Davis, LaFrentz, Kang. Impact of compounding error on strategies for subtyping pathogenic bacteria.
- Call, Besser, Singer, Kappmeyer, Anderson, Zhang, Daniels, Friel. Sequence analysis of three plasmids that convey resistance to third generation cephalosporins in *Escherichia coli* and *Salmonella enterica*.
- Xiaohui, Shah, Konkel, Call. T3SS1 genes in *Vibrio parahaemolyticus* are positively regulated by *exsA* and negatively regulated by *exsD*.

- Straub, Bartholomew, Valdez, Valentine, Warner, Bruckner-Lea, Gerba, Coghlan, Nickerson. Quantitative Evidence of Human Norovirus Replication in an *in vitro* 3-Dimensional Model of Small Intestinal Epithelium.
- Davis, Besser, Lanier, Broschat, Orfe, New, Call. Disparities between antibiotic resistance genotypes and phenotypes from calf-origin, commensal *Escherichia coli*.

WSU Showcase, Pullman, WA, 28 March 2008.

- Xiaohui, Shah, Konkel, Call. T3SS1 genes in *Vibrio parahaemolyticus* are positively regulated by *exsA* and negatively regulated by *exsD*.
- Shah, Orfe, Cunha, Dasgupta, Call. Acid and bile-stress induced transcriptomes of epidemic and environmental strains of *Listeria monocytogenes*.
- Call, Orfe, Davis, LaFrentz, Kang. Impact of compounding error on strategies for subtyping pathogenic bacteria.
- Lloyd, Snekvik, LaPatra, St-Hilaire, Cain, Call, A rickettsia-like bacterium is associated with strawberry disease lesions in rainbow trout.
- Meng, Broschat, Call. PLASMID: A tool for designing optimal plasmid microarrays.

2007

42nd United States–Japan Conference on Cholera and Other Bacterial Enteric Infections, Austin, Texas, 5-7 December 2008. Zhou, Konkel, and Call, “Type III secretion system 1 of *Vibrio parahaemolyticus* induces oncosis in both epithelial and monocytic cell lines.”

2nd Symposium on Antimicrobial Resistance in Animals and the Environment, Tours Centre International de Congrès de Loire, France, 17-19 December 2007. Davis, Besser, Call, Hancock and Davis, “Antimicrobial resistance in bovine-origin *Salmonella enterica* and *Escherichia coli*, Pacific Northwest, United States,” poster.

8th Annual College of Veterinary Medicine Research Symposium, October 17, 2007. Posters

- Chen, Davis, LaPatra, Cain, Snekvik, and Call, “Genetic diversity of *Flavobacterium psychrophilum* recovered from commercially raised rainbow trout and spawning Coho salmon.”
- Dobry, Daniels, Orfe, Besser, and Call, “Characterization of antimicrobial resistance in atypical *E. coli* and *Klebsiella pneumoniae*.”

- Lanier, Davis, Call, Besser, and Broschat, “Evidence for dysfunctional antibiotic resistance genes in commensal populations of *Escherichia coli*.”
- Lloyd, Snekvik, St-Hilaire, LaPatra, Cain, and Call, “A rickettsia-like organism is associated with strawberry disease lesions in rainbow trout.”
- Otto, Subbiah, Shah, Zhou, and Call. Potential of *Vibrio parahaemolyticus* as a vector for fish vaccination.”
- Zhou, Konkel, and Call, “Type III secretion system 1 in *Vibrio parahaemolyticus* induces oncosis in both epithelial and monocytic cell lines.”

WSU Center for Integrated Biotechnology, Pullman, WA, September 21, 2007.

- Meng, Call and Broschat, “PLASMID: A tool for designing optimal plasmid microarrays,” poster.
- Lanier, Davis, Call, Besser, and Broschat, “Evidence for dysfunctional antibiotic resistance genes in commensal populations of *Escherichia coli*.”

AAVLD, Reno, Nevada, Oct 2007. Daniels, Call, and Besser, “Consolidation of Virulence and Antimicrobial Resistance Genes on Plasmids of Salmonella Dublin. Dr. Daniels received the Best Graduate Student Presentation award for his oral presentation of this work.

Flavobacterium 2007, Shepherdstown, WV, 2-4 May 2007

- Call, Soule, Shah, LaFrentz, Chen, Ramsrud, Kang, LaFrentz, Cain, LaPatra, and Wiens, “*Flavobacterium psychrophilum* is composed of two distinct genetic lineages,” oral pres.
- Shah, Cain, Wiens, and Call, “Effects of codon usage bias on recombinant expression of *Flavobacterium psychrophilum* proteins in *E. coli*,” oral pres.
- Cain, Lindstrom, Hamilton, House, and Call, “A quantitative enzyme-linked immunosorbent assay (ELISA) and filtration-based fluorescent antibody test as potential tools for screening *Flavobacterium psychrophilum* in broodstock,” oral pres.
- Cain, LaFrentz, Lindstrom, LaPatra, and Call, “Electrophoretic and Western blot analysis of the lipopolysaccharide and glycocalyx of *Flavobacterium psychrophilum*,” oral pres.
- Wiens, Welch, Rexroad, LaPatra, Call, Hunnicutt, Bhattacharyya, Campbell, and Walunas, “Complete genome sequence of *Flavobacterium psychrophilum* strain CSF 259-93 and characterization of a large cluster of genes encoding leucine-rich repeats,” oral pres.
- Cain, Sudheesh, LaFrentz, Call, Siems, LaPatra, and Wiens, “Identification of potential vaccine target antigens by immunoproteomic analysis of a

virulent and a non-virulent strain of the fish pathogen *Flavobacterium psychrophilum*,” poster.

- Chen, LaFrentz, Davis, LaPatra, Cain, and Call, “Genetic variation of *Flavobacterium psychrophilum* examined by pulse-field gel electrophoresis,” poster.

WSU Showcase, Pullman, WA, 23 March 2007. Posters.

- Davis, Hancock, Call, Besser and Baker, “Emerging strain of multi-drug-resistant *Salmonella enterica* serovars Typhimurium, Northwest United States”
- Leach, Call, and Broschat, “A discrete, stochastic model and correction method for bacterial source tracking”
- Call, Kappmeyer, Kang, Daniels, Brayton, and Besser, “Defining the genetic context of blaCMY-2 beta-lactamase genes in plasmids from *Escherichia coli* and *Salmonella enterica*”
- Lloyd, Hilaire Snekvik, Cain, and Call, “Identifying the etiological agent of strawberry disease in rainbow trout.”
- Orfe and Call, “Transcriptional signatures of epidemic *Listeria monocytogenes*”
- Zhou, Konkel and Call, “Identification of Type III secretion proteins from *Vibrio parahaemolyticus*”

ASM—NW Branch meeting, March 2007. Leach, Call, and Broschat, “A discrete, stochastic model and correction method for bacterial source tracking,” poster.

WSU-Wiley Research Symposium, March 2007. Lloyd, St-Hilaire, Snekvik, Cain, and Call, “Identifying the etiologic agent of strawberry disease in rainbow trout,” poster.

Aquaculture ID-WA Research Review, Moscow, ID, January 16-17, 2007. Presentations.

- Cain and Call. “Comparative genomics and proteomics of *Flavobacterium psychrophilum*: moving toward vaccine development.” Co-presentation.
- Call, Snekvik, Cain, St. Hilaire, Lloyd, and LaPatra. “Identifying the etiologic agent of Strawberry Disease in rainbow trout.

2006

U.S.—Japan Cholera meeting, Nov 5-7, 2006, Gifu, Japan. Konkel, Zhou, Christensen, and Call. “Identification of Type III secretion proteins from *Vibrio parahaemolyticus*.”

8th Annual College of Veterinary Medicine Research Symposium, October 18, 2006. Posters.

- Kang, Besser, Hancock and Call. Fitness-associated expression changes of specific genes conserved in contemporary epidemic strains of *Salmonella enterica*.
- Zhou, Christensen, Bej, Konkel, and Call. Identification of Type III secretion proteins from *Vibrio parahaemolyticus*.
- Orfe, Orozco, and Call. Phenotypic and gene expression differences in *Listeria monocytogenes* strains under different stress conditions.
- Wan, Broschat, Call. Validation of mixed-genome microarrays as a model for genetic discrimination.
- Chen, Davis, Cain, and Call. Genetic variation of *Flavobacterium psychrophilum* examined by pulse-field gel electrophoresis.

NIH-NIAID Integrated Research Network, Lake Tahoe, CA, September 19-22, 2006. Posters.

- Duricka and Call. “A multi-probe, high-throughput suspension array for subtyping *Listeria monocytogenes*.”
- Call, Konkel and Bej. “Identification of Type III secretion proteins from *Vibrio parahaemolyticus*.”
- Call, Besser, Brayton, Kang, Daniels, and Kappmeyer. “Defining the genetic context of *bla*_{CMY-2} β -lactamase genes in plasmids from *Escherichia coli* and *Salmonella enterica*.”
- Orfe and Call. “Transcriptional signatures of epidemic *Listeria monocytogenes*.”

5th International Symposium on Aquatic Animal Health, San Francisco, CA, September 2-6, 2006. LaFrentz, Lindstrom, LaPatra, Call, and Cain. “Analysis of *Flavobacterium psychrophilum* carbohydrate antigens and their potential role in protective immunity.” Poster.

WSU Center for Integrated Biotechnology, Moscow, ID, September 22, 2006.

- Call. “Development and testing of library-independent genetic markers for bacterial source tracking.” Presentation.

- Wan, Broschat, and Call. “Validation of mixed-genome microarray as a method for genetic discrimination.” Poster.

47th Western Fish Disease Workshop, Victoria, BC, June 26-28, 2006.

LaFrentz, Lindstrom, LaPatra, Call, and Cain. “An analysis of *Flavobacterium psychrophilum* carbohydrate antigens and their potential role in protective immunity.” Poster.

WSU Showcase, Pullman, WA, March 24, 2006. Posters.

- Call, Kang, Daniels, and Besser. “Assessing genetic diversity in plasmids from *Escherichia coli* and *Salmonella enterica* using a mixed-plasmid microarray.”
- Satterwhite, LaFrentz, and Call. “Coupling multiplex PCR with suspension arrays to detect genetic markers of fecal pollution.”
- Kang, Besser, and Call. “Identification of genetic elements in *Escherichia coli* and *Salmonella enterica* plasmids that confer resistance to expanded-spectrum cephalosporins.”

Northwest Branch ASM meeting, University of Washington, Seattle, WA, March 10-12, 2006. Posters.

- Call, Kang, Daniels, and Besser. “Assessing genetic diversity in plasmids from *Escherichia coli* and *Salmonella enterica* using a mixed-plasmid microarray.”
- Satterwhite, LaFrentz, and Call. “Coupling multiplex PCR with suspension arrays to detect genetic markers of fecal pollution.”

Aquaculture ID-WA Research Review, Pullman, WA, March 8-9, 2006. Cain and Call. “Comparative genomics and proteomics of *Flavobacterium psychrophilum*: moving toward vaccine development.” Co-presentation.

USDA-CSREES Water and Watershed Program meeting, San Antonio, TX, Feb 6-8, 2006. Call, Plescia, Kuhn and Soule. “A field test of library-independent genetic markers for bacterial source tracking.” Poster.

2005:

7th Annual College of Veterinary Medicine Research Symposium (20 Oct 2005). Posters.

- Wan, Broschat, and Call. Using mixed-genome microarrays to derive intra-specific, phylogenetic relationships for bacteria.

- *Kang, Besser, and Call. Identification of genetic elements in Escherichia coli and Salmonella enterica plasmids that confer resistance to expanded-spectrum cephalosporins.*
- *Elmose, Zhou, Broschat, and Call. Survival of wildtype and hlyA mutant Listeria monocytogenes after ingestion by Acanthamoeba castellanii.*
- *Khachatryan, Hancock, Besser, and Call. Introduction of antimicrobial susceptible Escherichia coli in newborn calves does not impact the prevalence of antimicrobial resistant commensal E. coli.*
- *Zhou, Elmose, Broschat, and Call. Evolution of Listeria monocytogenes virulence.*

Research-in-progress seminar, Department of Veterinary Microbiology and Pathology, WSU, Pullman, WA, 13 September 2005. *Call, "Flavobacterium psychrophilum: Etiologic agent of the "other" CWD." Presentation.*

WSU Center for Integrated Biotechnology, annual retreat, Moscow, ID, 9 September 2005. Posters.

- *Call, Plescia, Kuhn, and Soule. "Microbial source tracking on the Colville River watershed—a test of library-independent genetic markers."*
- *Kang, Besser, and Call. "Identification of genetic elements in Escherichia coli and Salmonella enterica plasmids that confer resistance to expanded-spectrum cephalosporins."*
- *Leach, Call, and Broschat. "Isolation of genetic markers for tracking Canada geese fecal contamination in water."*

American Fisheries Society/Fish Health Section, Minneapolis, MN, 27-29 July 2005. *Cain, PS Sudheesh, SE LaPatra, GD Weins, BR LaFrentz and DR Call, "Identification and expression of an immuno-reactive heat shock protein from Flavobacterium psychrophilum," presentation.*

WSU and UI Center for Reproductive Biology, Annual Retreat, 24-25 June 2005. *Khachatryan, Hancock, Besser, and Call, "Introduction of antimicrobial susceptible Escherichia coli in newborn calves does not impact the prevalence of antimicrobial resistant commensal E. coli," poster.*

Western Fish Disease Workshop, Boise, ID, 27-29 June 2005. *Soule, LaFrentz, Cain, LaPatra, and Call, "Combining suppression subtractive hybridization and microarrays to map the intra-specific phylogeny of Flavobacterium psychrophilum," presentation.*

ASM Annual meeting, Atlanta, Georgia, June 2005. *Khachatryan, Hancock, Besser, and Call, "Introduction of antimicrobial susceptible Escherichia coli in newborn calves does not impact the prevalence of antimicrobial resistant*

commensal *E. coli*,” poster. Art received an ASM Graduate Student travel award for his abstract.

CVM Annual Conference, Pullman, WA, 15 April 2005. Call, “Syndrome specific diagnostics,” presentation.

Annual Northwest Reproductive Sciences Symposium, Seattle, WA, 22-23 April 2005. Soule, LaFrentz, Oatley, Krug, LaFrentz, Cain and Call. Comparative genetics of virulent and avirulent strains of *Flavobacterium psychrophilum*, etiological agent for cold water disease in salmonids,” poster.

WSU Academic Showcase, Pullman, WA, 1 April 2005, posters presented.

- Broschat, S, DR Call, F Loge, and E Kuhn, “A comparison of the reflectance assay with the Crystal Violet assay for the measurement of biofilm formation”
- Call, DR, MS Kang, J Daniels, T Besser, “Assessing genetic diversity within and between plasmids from *Escherichia coli* and *Salmonella enterica* using a mixed-plasmid microarray”
- Kang, MS, T Besser, and DR Call, “Identification of a genetic element in *Escherichia coli* and *Salmonella enterica* plasmids that confers resistance to expanded-spectrum cephalosporins”
- Khachatryan, A, T Besser, D Hancock, DR Call, “Role of calf-adapted *Escherichia coli* in maintenance of antimicrobial drug resistance in dairy calves”
- Kuhn, E, M Soule, F Loge, J Gay, DR Call, “Identifying host-specific markers of fecal pollution using mixed-genome microarrays”
- LaFrentz, S, N Lindstrom, K Cain, M Soule, DR Call, “Development of a sandwich ELISA for detection of *Flavobacterium psychrophilum*, etiological agent of Bacterial Coldwater Disease in salmonids”
- Leader Elmoose, J, and DR Call, “Effects of probe length variation on DNA microarray hybridizations”
- Lloyd, S, DR Call, T Besser, D Hancock, and R Cobbold, “Molecular epidemiology of plasmids that are harbored by shigatoxigenic *Escherichia coli*”
- Reynolds, J, DR Call, T Ward, B Page, J Kadushin, and DR Call, “Suspension microarrays for direct and high throughput subtyping of *Listeria monocytogenes* genomic DNA”
- Soule, M, S LaFrentz, K Cain, S LaPatra, and DR Call, “Combining suppression subtractive hybridization and microarrays to map the intra-specific phylogeny of *Flavobacterium psychrophilum*”

USDA-CREES National Water Quality Conference, 7 Feb—9 Feb, 05. San Diego, CA. Call, Soule, Loge, and Gay, “Identifying host-specific markers of fecal pollution using mixed-genome microarrays,” presentation.

Aquaculture, ID-WA Research Review, Pullman, WA, Feb 2005.

- Call, Cain, and Snekvik, “Development of a quantitative ELISA to detect *Flavobacterium psychrophilum* for broodstock management,” presentation.
- Cain, Call, Sudheesh, LaFrentz, LaPatra, and Soule, “Comparative genomics and proteomics of *Flavobacterium psychrophilum*,” presentation.

Research-in-progress Seminar, VMP, 25 Jan 2005: Khachatryan, "Role of calf-adapted *Escherichia coli* in maintenance of antimicrobial drug resistance in dairy calves."

2004:

6th Annual College of Veterinary Medicine Research Symposium (14 Oct 2004)

- Elmore, Lane and Call. Effects of probe length and secondary structures on DNA microarray hybridizations.
- Kang, Davis, Hancock, Besser, and Call. Characterization of *Salmonella enterica* serovar Newport isolated from Cattle.
- Khachatryan, Hancock, Besser, and Call. The role of calf-adapted *Escherichia coli* in maintenance of antibiotic resistance in dairy calves.
- Lane, Cain, and Call. Development of monoclonal antibodies for detection of the fish pathogen *Flavobacterium psychrophilum*.
- Lloyd, Call, Besser, Hancock, and Cobbold. Plasmid Ecology of Shigatoxigenic *Escherichia coli* from human and bovine sources in Washington State.
- Soule, LaFrentz, Oatley, Krug, LaFrentz, Cain and Call. Comparative genetics of virulent and avirulent strains of *Flavobacterium psychrophilum*, etiological agent for cold water disease in salmonids.

Bacterial Coldwater Disease Working Group, Seattle, WA, FLAVO meeting, Seattle, 8 Sept 04. Soule, Cain, LaFrentz, and Call. Virulent and avirulent *Flavobacterium psychrophilum* strains compared using suppression subtractive hybridization and microarrays,” oral presentation.

Center for Integrated Biotechnology Retreat, Moscow, ID, 3 Sep 04. Soule, LaFrentz, Oatley, Krug, LaFrentz, Cain and Call, “Comparative genetics of virulent and avirulent strains of *Flavobacterium psychrophilum*, etiological agent for coldwater disease in salmonids,” poster.

WSU & UI Center for Reproductive Biology, Annual Retreat, ID, June 2004.

- *Khachatryan, Hancock, Besser and Call. "Loss of antibiotic resistance genes from calf-adapted E. coli results in enhanced competitive advantage over wild-type E. coli," poster.*
- *Warsen, A., D. Stanek, M. Krug, S. LaFrentz, F. Loge, and D. R. Call. Pathogen detection using 16S PCR and DNA microarrays*
- *Soule, LaFrentz, Oatley, Krug, LaFrentz, Cain and Call. "Comparative genetics of virulent and avirulent strains of Flavobacterium psychrophilum, etiological agent for cold water disease in salmonids," poster.*

ZRU Diagnostics Workshop, Cornell University, Cornell, NY, 28-29 June 04.
Lead discussion section on nucleic acid-based diagnostic platforms.

ASM Annual meeting, New Orleans, LA, May 2004.

- *Besser and Call. "Shared genetic content of Escherichia coli and Salmonella enterica plasmids encoding extended spectrum cephalosporin resistance revealed by mixed plasmid microarray," poster*
- *Borucki, Kim, Reynolds, Orozco, Call, Smole, and Pagotto. "Discrimination of Listeria monocytogenes epidemic subtypes using a mixed genome DNA microarray," poster.*
- *Khachatryan, Hancock, Besser and Call. "Loss of antibiotic resistance genes from calf-adapted E. coli results in enhanced competitive advantage over wild-type E. coli," poster.*
- *Soule, LaFrentz, Oatley, Krug, LaFrentz, Cain and Call. "Comparative genetics of virulent and avirulent strains of Flavobacterium psychrophilum, etiological agent for cold water disease in salmonids," poster.*

AAAS Annual meeting, Seattle, WA 2004. *Soule, LaFrentz, Oatley, Krug, Cain and Call "Virulent and avirulent strains of Flavobacterium psychrophilum compared using suppression subtractive hybridization," poster.*

RIP Seminar, VMP, 10 Feb 2004. *Khachatryan (Graduate student), "The role of calf-adapted Escherichia coli in maintenance of antibiotic resistance in dairy calves"*

Bacterial Coldwater Disease Workgroup, USGS Western Fisheries Research Center, Seattle, WA, 5 Feb 2004. *Call and Cain, "Comparative genomics and proteomics for identification of virulence and immunogenic antigens.*

Aquaculture, ID-WA Research Review, Moscow, ID, 4 Feb 2004.

- *Call and Cain, "Comparative genomics and proteomics for identification of virulence and immunogenic antigens.*
- *Call, "Sensitivity and specificity of a DNA microarray detector for Renibacterium salmoninarum."*

WSU-CRB-Seminar, 21 Jan 04. *Khachatryan*, “What makes antibiotic resistant *E. coli* calf-adapted and why should we care?” (lab graduate student), presentation.

CVM-VMP-RIP seminar, 20 Jan 04. *Soule*, “Virulent and avirulent strains of *Flavobacterium psychrophilum* compared using suppression subtractive hybridization” (lab postdoc), presentation.

USDA-CSREES National Water Quality Conference, Clearwater, FL, January 2004. *Call*, *Soule*, *Loge*, and *Gay*. “Identifying host-specific markers of fecal pollution using mixed-genome microarrays,” presentation.

2003:

CRWAD meeting, Chicago, IL, November 2003.

- *Bae*, *Kaya*, *Hancock*, *Call*, *Park*, and *Besser*. “Prevalence and antimicrobial resistance of thermophilic *Campylobacter* sp. isolated from cattle farms in the northwestern United States,” presentation.
- *Besser* and *Call*. “Analysis of plasmid structure and content using a mixed plasmid DNA microarray,” presentation.
- *Pruiett*, *Call*, *Hancock*, and *Besser*. “Identification and characterization of cattle-origin *E. coli* with reduced susceptibility to ceftazidime,” presentation.

ASM Biofilm meeting, Vancouver, BC, November 2003.

- *White*, *Peppin*, *Loge*, *Broschat*, and *Call*. “A rapid reflectance-based assay for bacterial biofilms on opaque and non-opaque surfaces,” poster.
- *Peppin*, *White*, *Loge*, *Broschat*, and *Call*. “Analysis of differential biofilm invasion of *Salmonella enterica* isolates,” poster.

Tacoma-Pierce County Task Force on Antimicrobial Resistance, FARMER grant advisory board, Seattle, WA, 24 October 2003. *Hancock* and *Call*, “The case against medicated milk replacers,” presentation.

5th Annual College of Veterinary Medicine Research Symposium (9 Oct 2003)

- *Foreyt*, *A.*, *E. Kuhn*, *D. White*, *S. Broschat*, *D. R. Call*, and *F. Loge*. Using reflectance to detect *Enterococcus faecalis* biofilm and biofilm components.
- *Kang*, *M.*, *D. D. Hancock*, *D. H. Rice*, *T. E. Besser*, and *D. R. Call*. Genetic diversity and clonality of *Salmonella enterica* serovar Newport in Cattle populations.
- *Khachatryan*, *A. R.*, *D. D. Hancock*, *T. E. Besser*, and *D. R. Call*. Experimental demonstration of elevated fitness for antibiotic resistant *E. coli* both in rich media and in the intestinal lumen of dairy calves.

- *Kime, S. H., E. Orozco, J. Reynolds, Y. H. Park, D. R. Call, K. Bayles, and Monica Borucki. Genetic characterization of *Listeria monocytogenes* using DNA microarrays.*
- *Lane, S., J. Evermann, F. Loge, and D. R. Call. Amplicon secondary structure interferes with microarray hybridizations.*
- *Odunayo, A., D. Bradway, F. Rurangirwa, T. McElwain, and D. R. Call. Testing the specificity of 16S oligonucleotide probes using a planar microarray: Phase I of a bead detection system for *Mycoplasma* pathogens.*
- *Pacheco, S. Y. Zhang, T. E. Besser, and D. R. Call. Microarray analysis of plasmid sequences shared between *Enterobacter* and *E. coli/Salmonella* strains.*
- *Borucki, M., J. Peppin, D. White, F. Loge, and D. R. Call. Variation in biofilm formation among strains of *Listeria monocytogenes*.*
- *Pruiett, C., D. R. Call, D. D. Hancock, and T. E. Besser. Identification and characterization of cattle-origin *E. coli* with reduced-susceptibility to ceftazidime.*
- *Soule, M., S. LaFrentz, M. Oatley, M. Krug, K. Cain, and D. R. Call. Virulent and avirulent strains of *Flavobacterium psychrophilum* compared using suppression subtractive hybridization.*
- *Warsen, A., D. Stanek, M. Krug, S. LaFrentz, F. Loge, and D. R. Call. Pathogen detection using 16S PCR and DNA microarrays.*
- *White, D., J. Peppin, F. Loge, S. Broschat, and D. R. Call. A rapid reflectance-based assay for bacterial biofilms on opaque and non-opaque surfaces.*

Dept. of Statistics, WSU, Pullman, “An introduction to DNA microarrays: what are they, how are they applied and what are some of the challenges?” 16 Sept 2003.

Dept. of Chemical Engineering, WSU, Pullman, Application of DNA microarrays to pathogen detection and comparative genomics, 3 Mar 03.

WSU Center for Integrated Biotechnology, Moscow, ID, 11-12 September 2003.

- *White, Peppin, Loge, Broschat, and Call. “A rapid reflectance-based assay for bacterial biofilms on opaque and non-opaque surfaces,” poster.*
- *Soule, LaFrentz, Oatley, Krug, Cain, and Call. “Virulent and avirulent strains of *Flavobacterium psychrophilum* compared using suppression subtractive hybridization,” poster.*

- Call, Soule, Oatley, Krug, LaFrentz, Loge, and Gay. “Identifying host-specific markers of fecal pollution using mixed-genome microarrays,” poster.
- Peppin, White, Loge, Call, and Borucki. “Investigation of intraspecific variation in biofilm formation among *Listeria monocytogenes*,” poster.

WSU & UI Center for Reproductive Biology, Annual Retreat, ID, June 2003.

Khachatryan, Hancock, Besser, and Call. “Experimental demonstration of elevated fitness for antibiotic resistant *E. coli* in broth media and in neonatal dairy calves.”

International Association for Food Protection (IAFP), New Orleans, Aug 2003.

Submitted abstract. Panicker, Call and Bej. “Detection of total and pathogenic *Vibrio vulnificus* using PCR and DNA-array hybridization,” poster.

AFS-FHS Annual meeting, Seattle, WA, Jul 2003. *Warsen*, Stanek, Krug, Wallace, Loge, and Call. “Simultaneous detection of multiple fish pathogens using DNA microarrays,” poster.

American Fisheries Society, Propagated fish in resource management, Boise, ID, 16 Jun 2003. *Warsen*, Stanek, Krug, Wallace, Loge, and Call. “Simultaneous detection of multiple pathogens using DNA microarrays,” poster.

ASM, Washington D.C., May 2003.

- *Panicker*, Lee, Bej and Call. “Detection of pathogenic bacteria in shellfish using multiplex PCR followed by Covalink™ NH and DNA-array hybridizations.”
- *Peppin*, White, Loge, Call, and Borucki. “Investigation of intraspecific variation in biofilm formation among *Listeria monocytogenes*.”
- *Call*, Lane, Krug and Gonzalez. “Amplicon secondary structure interferes with microarray hybridizations.”
- *Khachatryan*, Hancock, Besser, and Call. “Experimental demonstration of elevated fitness for antibiotic resistant *E. coli* in broth media and in neonatal dairy calves.”
- *Bakko*, Krug, Roberts and Call. “Identification of antibiotic resistance genes using DNA microarrays.”
- *Warsen*, Stanek, Krug, Wallace, Loge, and Call. “Simultaneous detection of multiple fish pathogens using DNA microarrays.”

WSU Water Quality Research & Extension Colloquium, Pullman, WA, 24 Apr 2003. Call, “Source tracking fecal pollution: An overview of potential advances with microarray technology.”

2003 Northwest Reproductive Sciences Symposium, Moscow, ID, 18 Apr 2003. Call, "Application of DNA microarrays to pathogen detection and comparative genomics."

Northwest Scientific Association, Forks, WA, 27 Mar 2003. Call, Warsen, Stanek, Krug, Wallace and Loge, "Simultaneous detection of multiple fish pathogens using DNA microarrays."

NW Fisheries Science Center – Washington State University and University of Idaho Cooperative Science Program on Salmon Recovery, Seattle, WA, Mar 20-21, 2003. Call, "Simultaneous detection of fish pathogens using DNA microarrays."

Advocates of Critical Thinking, Spokane, WA, 3 Mar 2003. Call, "The fundamentals of evolution – one biologist's perspective."

Aquaculture Idaho-Washington Research Review, Moscow, ID, 29 Jan 03.

- Cain and Call. "Comparative genomics and proteomics of *Flavobacterium psychrophilum*."
- Call, Cain and Loge. "Development of signature-tagged mutagenesis system: the pathogenesis of *Flavobacterium* species."

Research in progress seminar, VMP, Pullman, WA. Call, "From surf to turf: Pathogen detection and gene hunting with DNA microarrays," Jan 28, 2003

2002:

CVM Student Research Symposium, Pullman, WA, 8 Oct 2002, posters.

- Bakko, Krug, and Call. "Identification of resistance genes using DNA microarrays"
- Lane, Evermann, and Call. "Optimizing assay design for detecting PCR amplicons with DNA microarrays"
- Warsen, Call, Stanek and McElwain. "Simultaneous detection of multiple salmonid pathogens using a DNA microarray"
- Khachatryan, Hancock, Besser and Call. "The role of calf-adapted *Escherichia coli* in maintenance of antibiotic resistance in dairy calves"
- Lahmers, McNabb, Wu, Labeit, Call and Granzier. "Titin splice variants in muscle development"
- Peppin, White, Loge and Call. "Investigation of cellular and molecular interactions in developing *Enterococcus faecalis* biofilm"

F.A.R.M.E.R. Project Advisory Board, Seattle, WA. Call. "Background on antimicrobial resistance and antibiotic use in animal agriculture," seminar, 18 Sep 2002.

WSU & U of I Center for Reproductive Biology, summer retreat, Jun 2002, posters.

- *Warsen*, Call, Stanek and McElwain. “Simultaneous detection of multiple salmonid pathogens using a DNA microarray”
- *Khachatryan*, Hancock, Besser and Call. “The role of calf-adapted *Escherichia coli* in maintenance of antibiotic resistance in dairy calves”

International Association for Food Protection (IAFP), *Borucki* and Call “Subtyping *Listeria monocytogenes* using DNA microarrays,” seminar, Jul 2002.

School of Biological Sciences, WSU, Pullman. “The multifaceted role of DNA microarrays in pathogen detection,” 01/02.

ASM, Salt Lake City, UT, May 2002, posters.

- *Khachatryan*, Hancock, Besser, Call. “The Role of Calf-adapted *Escherichia coli* in Maintenance of Antibiotic Resistance in Dairy Calves.” Recipient of ASM student travel award for high quality abstract submission.
- *Borucki*, Muraoka, Krug, Reynolds, Call. “Discrimination among *Listeria monocytogenes* isolates using a mixed genome DNA microarray.”
- *Small*, Wunschel, Straub, Daly, Call, Chandler. “Demonstrating a microarray-based fingerprinting method using *Salmonella* isolates.”

Salmon Recovery Symposium, Moscow, ID. *Call*. “Simultaneous detection of multiple salmonid pathogens using DNA microarrays,” Mar 2002. Seminar and poster presentations.

Columbia Basin Fish & Wildlife Authority, project proposal presentations, Wenatchee, WA. Loge, *Call* and Barber. “Salmonid pathogens in the Columbia Cascade Province,” proposal presentation, Feb 02.

2001:

DARPA, Washington, DC, Dec 2001.

- *Call* and *Borucki*. “Mixed genome microarrays – a powerful tool for identifying genomic variation within species,” seminar.
- *Call*. Served as member of panel discussion on “Genotyping: Technology Issues and Opportunities.”

Food Safety Farm To Table Conference, Moscow, ID. “A primer/refresher on the genetic mechanisms of antibiotic resistance,” 5/01.

WSU & UI Salmon Recovery Program and National Marine Fisheries Service Meeting, Spokane, WA. *Call* and *McElwain*. “Microarray detection of multiple pathogens in managed and wild salmon populations,” Nov 2001.

CVM Student Research Exposition, Pullman, WA. Oct 2001, posters.

- *Davis*, Hancock, Call and Besser. "Evaluation of Pulsed Field Gel Electrophoresis for Studying the Molecular Epidemiology of *Escherichia coli* O157:H7"
- *Lahmers*, Wu, Labeit, Call and Granzier. "The Titanic Chip: Characterizing exon splicing events and titin isoform expression in dilated cardiomyopathy with an exon microarray."

6th International Veterinary Immunology Symposium, Uppsala, Sweden.

Davies, Reynolds and Call. "Microarray based MHC typing for cattle," July 2001.

ASM, Orlando, FL. May 2001, posters.

- *Small*, Zachara, Straub, Call and Chandler. "Detection of unamplified 16S RNA from soil bacteria using microarrays."
- *Straub*, Call, Kingsley, and Chandler. "Using DNA Microarrays to fingerprint *Escherichia coli* and *Xanthomonas axonopodis* pv. *Citri*."

The National Food Safety and Toxicology Center, East Lansing, MI, May 2001, posters.

- *Call* and Roberts. "Detecting antibiotic resistance using DNA microarrays."
- Hancock, Besser, *Call*, Lejeune, Davis, Gay, Gay, and Rice. "Investigations of the role of animal feed hygiene in the epidemiology of foodborne diseases in humans."

2000:

ASM, Los Angeles, CA, May 2000, posters.

- *Call*, Chandler, Brown, Stottlemeyer, Jutras and Brockman. "Detecting and genotyping pathogens using low-density microarrays."
- *Jutras*, Call, Brockman and Chandler. "Microbial community profiling using 16S microarrays."

Exp. Biology, San Diego, CA. Bolgos, Ebong, Newcomb, Nemzek, Call and Remick, "TNF-SR + IL-1RA therapy improves sepsis survival," poster, April 2000.

Northwest Scientific Association, Moscow, ID. *Call*, Chandler, Brockman, "Distinguishing between closely related bacterial isolates using a fingerprinting microarray," seminar, Mar 2000.

Pacific Northwest National Laboratory, Richland, WA, OBER Life Science Review. *Call*, Chandler, and Brockman, "Development and application of microarrays to environmental epidemiology," poster, Feb 2000.

Washington State University, Veterinary Microbiology and Pathology. *Call.*
“Genetic characterization of food borne pathogens using oligonucleotide
microarrays,” seminar, Feb 2000.