John T. Singer

Education: B. A. in Biology, 1975. Denison University, Granville, Ohio.
M. S. Program in Biology, 1975-1977. University of Dayton, Dayton, Ohio.
Ph. D. in Microbiology, 1983. University of Georgia, Athens, Georgia.

Academic Training: General Microbiology, Microbial Physiology and Microbial Genetics.

Positions: Sabbatical leave 2006–2007.
Chair, Department of Biochemistry, Microbiology and Molecular Biology, 1998–2006.
Cooperating Professor of Marine Sciences, University of Maine, 1999–present.
Professor of Microbiology, University of Maine,1999–present.
Scientific Director, Maine Toxicology Institute, 1994–1995.
Associate Professor of Microbiology, University of Maine, 1991–1998.
Assistant Professor of Microbiology, University of Maine, 1985–1991.
Research Scientist, Department of Microbiology and Molecular Biology, Burroughs Wellcome Company, Research Triangle Park, NC, 1983–1985.
Graduate Research Assistant, University of Georgia, Athens, GA, 1981–1983.
Graduate Teaching Assistant, University of Georgia, Athens, GA, 1977–1980.
Graduate Teaching Assistant, University of Dayton, Dayton, OH, 1975–1977.
Undergraduate Research Assistant, Denison University, Granville, OH, summers 1973, 1974.

Professional Affiliations: American Society for Microbiology
Society for Industrial Microbiology
American Association for the Advancement of Science
American Fisheries Society
Sigma Xi

Courses Taught: AVA368 - Invited lecturer.
AVA420 - Invited lecturer.
BMB300 - General Microbiology.
BMB 400 - Molecular Genetics, Invited lecturer.
BMB 420 - Pathogenic Microbiology.
BMB430 - Microbial Physiology.
BMB480 - Undergraduate Seminar in Microbiology.
BMB491 - Undergraduate Biochemical Research.
BMB490 - Microbial Genetics Lecture and Laboratory.
BMB497 - Independent Study in Microbiology.
BMB560 - Prokaryotic Genetics and Molecular Biology.
BMB598 - Special Topics in Microbiology.
BMB680 - Graduate Seminar in Microbiology.
BMB698 - Graduate Advanced Topics in Microbiology.
BMB699 - Graduate Thesis.

College and University Committees:

NSFA Graduate Student Awards Selection Committee, Spring 2013
MAFES Maine Agricultural Center Member, 2000–present.
School of Food & Agriculture Food Microbiologist Search Committee, Spring 2016–present
Undergraduate Program Coordinator and First Year Student Advisor, Spring 2014–present
University of Maine ORSP Financial Disclosure Review Committee.
Chair, Institutional Biosafety Committee for Recombinant DNA & Infectious Agents, ~1995–present.
NSFA Safety Coordinator Search Committee, 2009.

University of Maine Financial Disclosure Review Committee, 10/07–present.
NSFA Safety Coordinator Search Committee, 2007.
Department of Biological Sciences Chair Search Committee, 2004.
NSFA University of Maine Distinguished Maine Professor Committee, 2004.
Hitchner Hall Space and Equipment Committee, Chair, 1/02–1/05.
Hitchner Hall Construction & Renovation Committees, 1999–2004.
University of Maine Distinguished Professor Committee, 2001–2002.
University Bookstore APL31 Evaluation Committee, 10/01–4/02.
UMaine Sea Grant Internal Review Panel member, 5–7/01.
College of Natural Sciences, Forestry and Agriculture Genomics Committee, 2001–present.
Genomics Initiatives Committee within NSFA: "Genomics & Biomedical Research at UMaine: A Comprehensive Plan for Near-Term Hires in the College of Natural Sciences, Forestry and Agriculture" 2001–2003.
NSFA Distinguished Maine Professor Award Committee, 2000, 2005, 2006.
College of Natural Sciences, Forestry and Agriculture Executive Committee, 1998–8/06.
College of Natural Sciences, Forestry and Agriculture Committee of Five, 1998–8/06.
College of Natural Sciences, Forestry and Agriculture Safety Committee, 1998–8/06.
MAFES Maine Agricultural Center, 2000–present.
College of Natural Sciences, Forestry and Agriculture Selection Committee for NSFA's Outstanding Teaching, Research, and Public Service Awards, 1999.
Claire S. Darling Professorships in Marine Science Selection Committee, 1999–2000, 2004.
Sea Grant Graduate Fellowship Committee, 1998–2001.
College of Natural Sciences, Forestry and Agriculture Awards Committee, 1998–2000.
College of Natural Sciences, Forestry and Agriculture Safety Committee, 1998–8/06.
Statewide Ph.D. in Molecular and Cellular Biology program committee, 1998–2000.
Committee to Identify Barriers to Research Productivity, 1998–1999.
Maine Agriculture Center Planning Committee, 1998–1999.
Committee to Draft Marine Biotechnology White Paper for State Legislature, 1997.
U. Maine Sea Grant Internal Advisory Committee, 1997–2000.
BMMB representative to College of NSFA Curriculum Committee, 1997–2001.
Acting School of Marine Sciences representative to NSFA Curriculum Committee, 1997–1999.
School of Marine Sciences Curriculum Committee Member, 1996–1997.
NSF EPSCoR Aquaculture Steering Committee, 1996–2000.
Fisheries and Aquaculture Research Group, 1988–1996.
Aquaculture EPSCoR Proposal Committee, Co-PIs Barber, Kornfield, Eckelbarger, 1995–1999.
College of Sciences Research Advisory Committee, 1995–1997.
Task Force on the Biological Sciences, 1995–1996.
Chair, UMaine-Maine Toxicology Institute Toxicologist Search Committee, 1994–1995.
UM-UNH Sea Grant Policy Advisory Committee, 1994–2000.
EPSCoR Faculty Search Committee, 1992–1994.
Graduate Faculty, 1985–present.
University Graduate Board, 1987–1990.
Program Committee for the Ph.D. in Biological Sciences, 1987–1993.
University B. A. Coordinating Committee, 1992–1995.
College of Science Academic Affairs Committee, Secretary, 1992–1993.
College of Science Academic Affairs Committee, 1991–1994.
College of Life Sciences and Agriculture Dow-Griffee Awards Selection Committee, 1988, 1989.
University Fisheries and Aquaculture Research Group (FARG), 1990–1996.
University Waste Utilization Research Group (WURG), 1988–1990.
Chair, UMaine Institutional Biosafety Committee for Recombinant DNA and Infectious Agents, 1992–present.
University Institutional Biosafety Committee, Chair Elect , 1991–1992.
University Institutional Biosafety Committee, 1987–1991.

Chair, University Radiation Safety Committee, 1987–1988.
University Radiation Safety Committee, 1986–1989.

Departmental-, College-, University-, and State Public Service:

Peer Committee, 2012–present (off the cmte for 6 mo at some point, can't remember when)
Chair, MBS Instructor Search Committee, Spring 2013
NSF Algal Microbiome Post-Doctoral Search Committee, Spring 2016
Annual MBS/BMMB Unit representative for United Way Combined Charitable Appeals Drive, 2012–2013
Undergraduate Program Coordinator and First Year Student Advisor, Spring 2014–present
MBS Microbiologist Search Committee, Spring 2013
Chair, MBS Instructor Search Committee, Spring 2012
CCAUE Campaign Representative, 2011.
NSFA Graduate Student Awards Committee, 11/11–3/12.
Chair, MBS Chair Search Committee, 9/11–12/11
NSFA Graduate Student Awards Committee, 11/10–3/11.
IBC Committee Chair, 2011–2012.
IBC Committee Chair, 2010–2011.
CCAUE Campaign Representative, 2010.
IBC Committee Chair, 2009–2010.
Peer Committee Chair, 2010–2011.
CCAUE Campaign Representative, 2009.
Judge at 63rd Annual Maine State Science and Technology Fair, UMaine, 5/16/09.
REU Student Host for summer 2008
CCAUE Campaign Representative, 2008.
Judge at 62nd Annual Maine State Science and Technology Fair, UMaine, 5/17/08.
BMMB Peer Committee, 9/07–6/10.
Graduate Research Exposition Judge for Biological Sciences at the 2007 Graduate Research Exposition, UMaine, 4/07.
Undergraduate ABET Program Review for the Department of Chemical and Biological Engineering, 10/06.
BMMB Safety Coordinator, 2000–8/06.
Judge at 60th Annual Maine State Science and Technology Fair, UMaine, 5/06.
Special Awards Judge at State Maine Middle School Science Fair, Brewer HS, Brewer, ME, 5/1/05.
Judge at 59th Annual Maine State Science and Technology Fair, UMaine, 5/05.
Science Project Advisor & Judge for Leonard Middle School Science Fair, 3/05.
BMMB Display Representative at 58th Annual Maine State Science and Technology Fair, UMaine, 5/15/04.
Judge at 58th Annual Maine State Science and Technology Fair, UMaine, 5/15/04.
Special Awards Judge at State Maine Middle School Science Fair, Brewer HS, Brewer, ME, 5/1/04.
Judge at 57th Annual Maine State Science and Technology Fair, UMaine, 5/03.
Judge at 56th Annual Maine State Science and Technology Fair, UMaine, 5/11/02.
Judge at Maine State Middle School Science Fair, Brewer HS, Brewer, ME, 5/04.
Judge at Maine State Middle School Science Fair, Brewer HS, Brewer, ME, 5/03.
Judge at Maine State Middle School Science Fair, Brewer HS, Brewer, ME, 5/4/02.
Maine Learning Results Genetics Science Fair Judge, Mattanawcook Academy, Lincoln, ME, 4/03.
Maine Learning Results Genetics Science Fair Judge, Mattanawcook Academy, Lincoln, ME, 4/23/03.
Association of Graduate Students Graduate Research Exposition Judge for Biological Sciences at the 2002 Graduate Research Exposition, UMaine, 4/22/02.
BMMB Table Representative at State Math Contest, UMaine, 4/03.
BMMB Table Representative at State Math Contest, UMaine, 4/10/02.
BMMB 3D Representative, 3/27/03.
Departmental Pfizer Undergraduate Research Fellowship Committee, Spring 2002.

Leonard Middle School Technology Awards Science Fair Judge, 3/03.
Leonard Middle School Special Awards Science Fair Judge, 3/21/02.
NSF K–12 Teaching Fellows Selection Committee, UMaine, 2/16/02.
BRIN Environmental Toxicologist Search Committee Member, 2/02–9/02.
BMMB Representative and BMMB Tour Guide for All Open Houses.
Tour Host for Appropriations Committee (Sen. Mary Cathcart, Rep. Paul Tessier, Rick McCarthy from Se. Pres. Michaud's office. Impact of R&D Investments, 11/10/01.
BMMB Unit Representative for the United Way 2001, 2002 Combined Charitable Appeals Drive.
Hosted 80 6th graders for Maine State GEAR UP program, 10/9/01.
Judge at 55th Annual Maine State Science and Technology Fair, UMaine, 5/12/01.
BMMB Representative and BMMB Tour Guide for All Open Houses, Fall 00 & Spring 01.
BMMB Summer Undergraduate Research Fellowship selection committee, April 2001.
Four invited presentations on "Biotechnology at UMaine" to high school students from 8 area high schools. Region 3 Northern Maine Technical College Career Fair, Northern Maine Technical College, Lincoln, 4/25/01.
Departmental Pfizer Undergraduate Research Fellowship Committee, Spring 2001.
Association of Graduate Students Graduate Research Exposition Judge for Biological Sciences at the 2001 Graduate Research Exposition, UMaine, 4/11/01.
Developed new Biotechnology recruiting materials and display poster for BMMB and NSFA road shows; Poster materials in E-mail or hard copy format now go out to all interested potential undergraduates, April 2001.
BMMB Gift account coordinator for donations to the Ricky Fournier Memorial Fund, 11/00–present.
BMMB Unit Representative for the United Way 2000 Combined Charitable Appeals drive, 11/00.
Judge at 54th Annual Maine State Science and Technology Fair, UMaine, 5/10/00.
Judge at 53rd Annual Maine State Science and Technology Fair, UMaine, 5/8/99.
Cultivation of Class 2 pathogens for Dr. Doug McAllister at Virostat, Inc., Westbrook, ME. Grew, harvested, and inactivated 6 liters of E. coli O157:H7; 6 liters of Group B Streptococcus, Haemophilus influenzae Type B, and Streptococcus pneumoniae.
Maine Department of Marine Resources Lobster Health Technical Advisory Committee, 1998–2000.
BMMB Safety Committee, Chair, 1998-present.
School of Marine Sciences Curriculum Committee, 1996–1997.
Ad hoc School of Marine Sciences Peer Committee, 1997.
Host for Drs. Tadashi Hirano and Toshihiro Kudoh, Department of Fisheries, Aomori Prefectural Government, Japan, 9/5/97.
Biochemistry, Microbiology and Molecular Biology Biochemist Search Committee Member, 1997.
Biochemistry, Microbiology and Molecular Biology/EPSCoR Pathogenic Microbiologist Faculty Search Committee, Chair, 1997–1998.
School of Marine Sciences/EPSCoR Quantitative Geneticist Search Committee Member, 1997.
Nominated to serve on the Northeast Regional Aquaculture Center's Technical/Industry Advisory Committee, 1997.
Alternate U. Maine representative on the Maine Aquaculture Innovation Center board, 1997.
Reviewed draft copy of Inland Fisheries & Wildlife's new set of regulations for Fish Health Certification and Inspection at the request of Matthew Scott, Deputy Commissioner, IF&W, 4/17/97.
Biochemistry, Microbiology and Molecular Biology Graduate Student Admissions Committee, 1997–2000.
Upward Bound Presentation: "Microbiology Applied to Maine Aquaculture–Solving Disease Problems in Cultured Salmon", 7/22/96.
Maine Academy of Sciences & Engineering, Planning Committee member, 1996–1998.
Research and Development Forum presentation for the University of Maine Corporate Affiliate Program, 4/11/96.
Invited Occupations Days presenter at the University Chapel Preschool Program–"What are 'Germs' and What Does a Microbiologist Do?", 3/28/96.

External Referee for tenure and promotion of Dr. H. Hariharan, Atlantic Veterinary College, University of Prince Edward Island, 1995.
Internal referee for tenure and promotion of Dr. R. Van Beneden, Department of Zoology, UM, 1995.
Chair, Biochemistry, Microbiology and Molecular Biology Peer Committee, 1995–1996.
As IBC Chair, helped draft “University of Maine Policies and Procedures for Research Involving Recombinant DNA or Infectious Agents” , 1994.
Biochemistry, Microbiology and Molecular Biology EPSCoR Faculty Search Committee, 1992–1993.
Biochemistry, Microbiology and Molecular Biology Peer Committee, 1991–1996.
Biochemistry, Microbiology and Molecular Biology seminar series co-coordinator, 1990–1991.
Biochemistry, Microbiology and Molecular Biology Graduate Brochure Committee, 1990–1991.
Department of Microbiology Peer Committee, 1985–1990.
Department of Microbiology Policy Advisory Committee, 1985–1990.
Coordinated purchase of scintillation counter for LSA departments, 1988.
Coordinated teaching equipment purchases ($25,000) for Department of Microbiology, Spring 1987.
Coordinated research equipment purchases ($55,000) for Departments of Biochemistry and Microbiology, 1986–1987.
Invited seminar speaker at the Department of Microbiology Graduate Student Sponsored Seminar Series, Spring 1987.
Lecturer in MCB 300, General Microbiology, Spring 1987.
Instructor in Maine Agricultural Experiment Station summer course "Frontiers in Molecular & Cellular Biology," 1987.
Life Sciences and Agriculture Science Forum lecturer, 1986–1988.
Life Sciences and Agriculture LSA 111 Orientation lecturer, 1986–1988.
Research advisor to Ms. Eryn Cole, Katahdin High School, on her State Science Fair research project "Effect of NaCl Concentrations on Mating Frequencies of Escherichia coli and the Marine Fish Pathogen Vibrio anguillarum," 1992–1993.
Research advisor to Steve Kent, Georges Valley High School, on State Science Fair project "Comparison of Rates of Killing of E. coli with Tetracycline and Bacteriophage T4," 1988.
Council of Presidents, New England Land Grant Universities, Biotechnology Research Committee, 1991–1995.
Solicited bulk purchasing discounts for expendables with VWR, Polaroid, Rainin, Nalgene, & Corning, 1986–1987 for University.
Session organizer and Chair at Maine Biological & Medical Sciences Symposium, 1988.
Consultant for Menzie-Cura Associates, Inc., Environmental Consultants, Chelmsford, MA, 1995–1996.
Maine Toxicology Institute Search Committee Chair, 1994–1995.
Scientific Director of the Maine Toxicology Institute, 1993–1995.
Medical Advisory Committee, Board of Pesticides Control, Maine Department of Agriculture, 1993 – 1995.
State of Maine Department of Environmental Protection Sludge Research Advisory Committee (SRAC), 1989–1993.
Periodic consultant for Acadia Water Co., Ellsworth, ME, 1994–1998.
Periodic consultant for Fraser Paper Company, Matawaska, ME, 1994–1997.
Periodic consultant for Ocean Organics, Waldoboro, ME, 1993–1996.
Periodic consultant for Delta Chemical Co., Searsport, ME, 1988–1993.
Product testing and evaluation for FMC BioProducts, Rockland, ME, 1990.
Prevention of bacterial slime production in James River Co. recirculating mill water, 7/92–12/92.

Laboratory Experience: NMR and IR spectroscopy, UV and visible spectrophotometry, TLC, GLC, and column chromatography, agarose and polyacrylamide gel electrophoresis, centrifugation and ultracentrifugation, cellular fractionation, autoradiography, laboratory-scale fermentations, and radiotracer methodologies, antibody preparation.

Techniques: Mutant isolation and characterization, enzyme assays, DNA isolation and purification,

genetic mapping, nick translation and nucleic acid hybridization, transpositional mutagenesis, restriction endonuclease mapping, DNA fragment isolation and purification, molecular cloning, minicell and maxicell analysis of proteins encoded by recombinant plasmids, amplification of specific gene products, protein purification, recombinant strain improvement, construction of gene fusions and operon fusions, DNA-protein binding assays, identification of cellular intermediary metabolites, immunoblotting, strain preservation.

Research Grants and Contracts:

The Macroalgal Microbiome in Space and Time–Maintaining Primary Producers in the Atlantic Rocky Intertidal Zone. PI: Susan Brawley (UMaine); Co-PI's: John Singer (UMaine), Benildo de los Reyes (Texas Tech), Hillary Morrison (MBL). NSF $1,466,534. $986,515 UMaine 1442231; $480,019 MBL 1442106. 11/15–10/18.

Explosives Tracking: A Microsystem for Detection of Bacterial Endospores. PI: Paul Millard (CBE) 40%; Co-PIs John Singer (BMMB) 30% and Mauricio Pereira Da Cunha (ECE) 30%. NSF, $6,000 supplemental award. 8/11–8/12.

Explosives Tracking: A Microsystem for Detection of Bacterial Endospores. PI: Paul Millard (CBE) 40%; Co-PIs John Singer (BMMB) 30% and Mauricio Pereira Da Cunha (ECE) 30%. NSF, $0. No cost extension through 8/12.

Explosives Tracking: A Microsystem for Detection of Bacterial Endospores. PI: Paul Millard (CBE) 40%; Co-PIs John Singer (BMMB) 30% and Mauricio Pereira Da Cunha (ECE) 30%. NSF, $399,892. 9/08–8/11.

Prevention of the IPNV Carrier State with DNA and Subunit Vaccines. USDA-Maine Agriculture and Forestry Experiment Station, $27,000. 10/07–9/10. Supplemental budget at $6,000/yr from discretionary MAFES administrative budget provided for 2011 and 2012.

Prevention of the IPNV Carrier State with DNA and Subunit Vaccines. USDA-Maine Agriculture and Forestry Experiment Station, $27,000. 10/07–9/10.

Integrated Vaccine Against Vibriosis and Aquatic Birnavirus. USDA-Maine Agriculture and Forestry Experiment Station, $27,000. 10/04–9/07.

Recombinant DNA-Based Vaccine Against Vibriosis. USDA-Maine Agriculture and Forestry Experiment Station, $18,000. 10/01–9/04.

Development of New Molecular Technologies for Disease Diagnostics in Aquaculture. PI: Singer; Co-PIs Anderson, Kim, Nicholson, Bouchard, Keleher, Millard. U. Maine Sea Grant, R/FMD-275, $120,000. 2000–2002.

Surveillance for and Control of Infectious Salmon Anemia Virus (ISAV) in the Northeast. PI: Singer; Co-PIs Anderson, Kim, Nicholson, Bouchard, Keleher, MacLean, Waterstrat, Opitz. U.S.D.A. Northeastern Regional Aquaculture Center, NRAC Code 00-3, $134,650. 2000–2003.

Computer Support at the Darling Marine Center for Semester by the Sea Undergraduates and Resident Graduate Students. J. Singer & I. Kornfield. Academic Computing Affairs Committee. $31,525 requested; funded at $19,000. 1998–1999.

Molecular Basis of Virulence of Infectious Pancreatic Necrosis Virus (IPNV). Co-Principal Investigator with B. L. Nicholson & P. W. Reno. NOAA Sea Grant Marine Biotechnology, R/FMD-269. $232,590. 1998–2000.

Multiplex Polymerase Chain Reaction (PCR) Assay for Simultaneous Rapid Detection of Three Different Fish Viruses. Co-Principal Investigator with B. L. Nicholson. NOAA Sea Grant, R/FMD-267. $51,620. 1998–1999.

Improving Research Capacity in Cold-Water, Marine Aquaculture at the University of Maine. Co-Principal Investigator with B. J. Barber, K. J. Eckelbarger, I. Hunt von Herbing, I. Kornfield, and D. W. Townsend. NSF EPSCoR Program, $1,170,566. 1997–1999.

Multiplex Polymerase Chain Reaction (PCR) Assay for Simultaneous Rapid Detection of Three Different Fish Viruses. Co-Principal Investigator with B. L. Nicholson. U. Maine/UNH Sea Grant, R/FMD-257. $30,477. 1997-1999.

Developing Research Capacity in Aquaculture at the University of Maine: The Institute of Cold-Water Aquaculture. PI, B. Barber; Co-PIs, K. Eckelbarger, I. Kornfield, J. Singer. NSF EPSCoR Program. $173,319 sponsor share. 1996–1997.

Virulence Transmission and Genetically Engineered Bivalent Vaccine Against Vibriosis and Aquatic Birnaviruses (not a separate project but an umbrella project that includes all of the PI's experiment station research). Maine Agriculture and Forestry Experiment Station. $24,600. 10/95–9/98.

Reverse Transcriptase-Polymerase Chain Reaction (RT-PCR) Assay for Detection of Aquatic Birnaviruses. Co-Principal Investigator with B. L. Nicholson. NOAA Sea Grant, R/FMD-249. $138,234. 1996–1998.

Genetically Engineered Bivalent Vaccine Against Vibriosis and Aquatic Birnaviruses. With B. L. Nicholson as Co-PI. NOAA Sea Grant, R/FMD-245. $59,230. 1995–1996.

Effect of Wood Drying Vapors on the Respiratory System of Rats. Co-Principal Investigator with Lesley Helyar, Maine Toxicology Institute, and Robert W. Rice. New England Wood Research Program–USDA /CSRS. $22,800. 1995–1996.

Biological Toxicity and Mutagenicity Testing of Wood-Drying Condensates-II. Maine Toxicology Institute and USDA Forest Service, Forest Products Laboratory. $4,560. 1993–1995.

Genetically Engineered Bivalent Vaccine Against Vibriosis and Aquatic Birnaviruses. Co-Principal Investigator. NOAA Sea Grant R/FMD-235. $120,799. 1993–1995.

Biological Toxicity and Mutagenicity Testing of Wood-Drying Condensates. Maine Toxicology Institute. $1,000. 1993.

Production of Antiserum Against Vibrio salmonicida. Co-Principal Investigator. Maine Aquaculture Innovation Center. $1,400. 1993.

Virulence Transmission and Bivalent Recombinant Vaccines Against Vibriosis and Infectious Pancreatic Necrosis Virus (IPNV). Maine Agricultural Experiment Station. $22,080. 1992–1995.

Adaptations and Evolution of Marine Organisms: Molecular Biological Approaches. Co-Principal Investigator (multidisciplinary project). National Science Foundation–EPSCoR. $3,025,682. 1992–1995.

Detection of Infectious Pancreatic Necrosis Virus (IPNV) and Related Aquatic Birnaviruses Using a Reverse Transcriptase-Polymerase Chain Reaction (RT-PCR) Assay. Co-Principal Investigator. U.S.D.A. Northeast Regional Aquaculture Center. $54,674. 1991–1993.

Molecular Mechanisms of Virulence of Vibrio anguillarum. Maine Agricultural Experiment Station. $13,000. 1989–1992.

Salmonella enteritidis: Epidemiology, Virulence Factors, and Pathogenesis. Co-Principal Investigator. U.S. Department of Agriculture. $100,000. 1989–1992.

Virulence Factors and Antibiotic Resistance Patterns of Vibrio Isolated from Moribund Atlantic Salmon, Marine Fishes or Seawater. Maine Aquaculture Innovation Center/Maine Science & Technology Commission. $2,860. 1989–1990.

Microbiological Evaluation of an Agar Substitute for Gelation of Microbiological Media. Delta Chemical Co., $1,600. 1988.

Funds to Establish a Bacterial Growth Facility. Scientific Equipment and Book Fund Committee. $16,421. 1986.

Physiology and Genetics of Marine Halophenol-Degrading Bacteria. Co-Principal Investigator. U.S. Environmental Protection Agency. $142,276. 1987–1989.

Microbial Detoxification of Chlorinated Hydrocarbons. Maine Agricultural Experiment Station. $15,000. 1986–1989.

Comparisons of Plasmids Carried by Pathogenic Marine Vibrio Species. U. Maine Faculty Research Funds Committee. $3,060. 1986.

Genetics of Alkane Utilization in Acinetobacter. NIH. $121,639. 1981–1983.

Graduate Students:

Kevin Johnson	M.P.S.	1987
Scott Earley	M.S.	1988
Donna Gronros	M.P.S.	1988
Wonkyu Choe	M.S.	1989
Mary Hall	M.S.	1991
Ines Muniz	M.S.	1991
Shobha Rao	M.S.	1991
Katherine Schmidt	Ph.D.	1993
Chenghua Ma	M.S.	1995
Jennifer Jackson	M.S.	1995
Jacqueline H. Edgar	Ph.D.	1998
Karen J. Williams	M.S.	1998
Sally Dixon Molloy	Ph.D.	2007
Joshua Peimer	M.P.S.	2010

Post-Doctoral Research Associates: Dr. Kathryn J. Boettcher, 1994–1998.
Dr. Lesley Helyar, Res. Asst. Prof., 1995–1996.

Graduate Student Awards:

Katherine A. Schmidt secured UGRA for 1989, 1990, 1991, & 1992.

Katherine A. Schmidt received 1st place award at the Atlantic Universities Graduate Biology Conference, University of New Brunswick, June 1991, for her presentation of "Virulence and

Vaccine Efficacy of Vibrio anguillarum 775 Containing Site-Specific Mutations in the Virulence Plasmid pJM1".

Katherine A. Schmidt was awarded (June 1991) a Sea Grant Association Student Research Award (one of eleven nationwide) for her research "Prevention of Vibriosis Using a Genetically Engineered Live Attenuated Vaccine".

Katherine A. Schmidt received the top student award at the 1992 Maine Biological and Medical Sciences Symposium for "Protecting Fish Against Vibriosis by Immunization with Genetically Engineered Live Attenuated *Vibrio anguillarum*."

Katherine A. Schmidt received the first place Biomedical & Biotechnical Award for "Protecting Fish Against Vibriosis by Immunization with Genetically Engineered Live Attenuated *Vibrio anguillarum*," presented at the 1992 Atlantic Universities Graduate Biology Conference, University of Prince Edward Island, P.E.I., Canada.

Sally Dixon Molloy received BMMB's Outstanding Graduate Student Research Award in 2007.

Undergraduate Research Students:

Kelly R. Morlock	B.S.	1987
Karen Cormier	B.S. (Honors)	1987
Kelly Hale	B.S.	1988
Todd Gagne	B.S.	1988
Charles Baxter	B.S.	1991
Bernd Schnitker	B.S.	1992
Amy B. Hutchings	B.S.	1992
Jennifer Jackson	B.S.	1992
Christine Earabino	B.S.	1992
David Bernard	B.S.	1992
Paul Greenlaw	B.S. (Highest Honors)	1993
Helen Pathos	B.S.	1994
Laurie Cook	B.S. (Honors)	1994
Jonna Coombs	B.S.	1994
Brendon Thompson	B.S.	1994
Daniel Gott	B.S.	1995
Joseph McIntyre	B.S.	1995
Wendy Bailey	B.S.	1995
Lisa Morill	B.S.	1996
Mark Koza	B.S.	1996
Sean Steinmetz	B.S.	1997
Marianne Menzel	B.S.	1997
Donald Smith	B.S. (Highest Honors)	1999
Daneilla Starcevic	B.S.	1998
Roger Draheim	B.S.	1998
Kristopher Curtis	B.S.	1998
Heidi Spurling	B.S.	1999
Matt Richardson	B.S.	1999
Brett Goodrich	B.S.	1999
Lisa Trefts	B.S.	2000
Tyson Tarr	B.S.	2002
Christopher Seidel	B.S.	2003
Jacob Fraser	B.S.	2004
Ryan Haulk	B.S.	2005
Jennifer Harvey	B.S.	2005
Miriam Sanchez	B.S.	2005
Caitlin Ross	B.S.	2006
Amanda Hewes	B.S.	2006
Valerie Shaffer	B.S.	2007

Laura Porter	B.S.		2009
Michelle Dullinger	B.S		2012
Shannan Shields	B.S		2012
Peirson Petropoulos		B.S.	2013
Zachary Tranchemontagne		B.S.	2013

Graduate Student Advising:

Graduate Research Committees

Mark Flint, M.S. 1993
Sheila Bennett, Ph.D. 1993
Sanju Gupta Jairath, Ph.D. 1994
Terry Alan, M.P.S. 1992
Aaron Linn, M.S. 1994
Ranjan Ekanayake, Ph.D.
Shu-Yuan Chiang, Ph.D. 1992
Katherine A. Schmidt, Ph.D. 1993, Chair
Chenghua Ma, M.S., Chair
Jacqueline H. Edgar, Ph.D., Chair
Jennifer Jackson, M.S., 1995, Chair
Min-Kuang Lee, M.S. 1995
Shi-Lan Wu, M.S. 1995
Donna Olejniczak, M.P.S. 1995
David Wright, M.P.S. 1996
David Beaudoin, M.S. 1998
Ava Sweeney, M.S. 1996
Jingya Ma, M.S. 1996
Mali Wirotesangthong, Ph.D. 1999
Maya Crosby, M.S. 1998
Karen Williams, M. S., Co-Chair
Wai-Ki Chung, Ph.D. 2001
Paul Winnard, Ph.D. 2001
Jill Calahan, M.S., Chair
Chunyu Liu, Ph.D. 2001
Li Li, M.S., 2000
Chen Lu, Ph.D. 2001
Jeffrey Piotrowski, M.S. 2002
Trent Rector, M.S. 2002
Nathan Brown, M.S. 2002
Yutao Fu, M.S. 2002
Wai-Ki Chung, Ph.D. 2003
Anthony Semirale, Ph.D. 2003
Steven Ciciotte, M.S. 2005
Christopher Bahl, M.S. 2006
Sally Dixon Malloy, Ph.D. 2007, Chair
Chad Stevens, M.S.
Matthew Sullivan, M.S.
Jeremy Charette, Ph.D.
Joshua Peimer, M.S., Chair
Ryan Phennicie, M.S.
Kim Brothers, Ph.D.
Alison Lacombe, Ph.D.
Megan Harris, M.S.
Timothy Lyford, M.S., CBE, Present

Susan Devine, M.S., Present
Jennifer Fortier, M.S., SMS, Present
Alex Hopke, Ph.D., Present
Zachary Newman, M.S. Thesis Committee, Spring 2013
Jennifer Fortier, M.S. (Marine Biology) Thesis Committee, Spring 2013
Timothy Lyford, M.S. (BLE) Thesis Committee, Spring 2013
Alison Lacombe, Ph.D. (FSN) Committee, Spring 2013
Richard Luc, M.S. Thesis Committee, Spring 2013–present
Eric Peterman, M.S. Thesis Committee, Spring 2013
Audrey Bergeron, M.S. Thesis Committee, Spring 2014–present
Brittany Seeman, Ph.D. Committee, Spring 2014–present
Allison Scherer, Ph.D. Committee, Summer 2014–present
Juyoung Shim, Ph.D. Committee, Spring 2014–present
Charlotte Quigley, Ph.D. (Marine Biology) Committee, Summer 2014–present
Dan Makrinos, M.S. (Marine Biology) Thesis Committee, Fall 2015–present
Charlotte Royer, M.S. (Marine Biology) Thesis Committee, Fall 2015–present
Nicholas Fargnoli, M.S. (Marine Biology) Thesis Committee, Spring 2016–present

Honors Committee Member
Hannah Marquis, Spring 2008
Mary M. Clouthier, Spring 2008
Alexandra Albert, Fall 2008
Victoria Smith, Fall 2008
Helen Mattson, Fall 2008
Ankita Chowdhury, Fall 2009
Jonathan Pellitier,Fall 2010.
Aaron Perrault, Fall 2010
Eric Peterman. Fall 2011
Erica Hidu, Spring 2012
Geoffry Davis, Spring 2012
Scott Collins, Spring 2013
Amy Michaud, Spring 2013
Gabriel Vachon, Spring 2013
Siobhann Cusak, Spring 2013
Jacob Longfellow, Honors Thesis Committee, Fall 2013
Jacob Mauthe, Honors Thesis Committee, Fall 2013
Katrina Harris, Honors Thesis Committee, Spring 2015
Gwen Beacham, Honors Thesis Committee, Spring 2015
Emily Whitaker, Honors Thesis Committee, Fall 2015–present
Alexis Bowman, Honors Thesis Committee, Fall 2015–present

Indicators of Teaching Effectiveness

Katherine A. Schmidt was awarded an NRC Postdoctoral Fellowship after obtaining her Ph.D. degree in my laboratory (May 1993). She did her postdoctoral research in the Infectious Disease Unit at the Walter Reed Army Institute of Research in Washington, DC, and is now in the department of Microbiology, School of Public Health, Johns Hopkins University. While in my lab Kathy received numerous first-place research awards in several student competitions (see above) and was one of only eleven students in the US to receive a National Sea Grant Student Research Award.

Jennifer Jackson obtained her MS degree (May 1995) and accepted a research position at the Dana-Farber Cancer Research Institute in Boston, MA.

Chenghua Ma was offered research positions at Mt. Sinai Medical Center, Columbia Medical School, Harvard Medical School, Genome Therapeutics in Waltham, MA and The Jackson Laboratory.

Katherine J. Boettcher, a postdoctoral research associate in my laboratory, was one of only twelve applicants selected worldwide to attend "Mechanisms of Microbial Adaptation", The Ohio State University's International Summer Course in Microbial Physiology, 1995.

Lisa Morrill, a senior research student in the laboratory, received the 1996 E. Reeve Hitchner Award for the Outstanding Senior in Microbiology and accepted a position at Genome Therapeutics in Waltham, MA.

Sally Dixon Molloy received BMMB's Outstanding Graduate Student Research Award in 2007.

Kate Chambers awarded Eddie McVay King scholarship in Microbiology, April, 2009.

Hosted **Alois Cariou**, a technical school intern student from France, April, May, June 2011.

Invited Presentations, Seminars, and Other Professional Activities:

Interactions of viral fish pathogens infectious salmon anemia virus and infectious pancreatic necrosis virus with mussels Mytilus edulis. Aquaculture America 2011, World Aquaculture Society, New Orleans, LA, February 28–March 3.

Mussels as a barrier to infectious salmon anemia transmission in salmon on integrated multi-trophic aquaculture farms. 35th Annual Eastern Fish Health Workshop, Shepherdstown, WV, May 24–28, 2010.

Introduction of plasmid DNA into Geobacillus glucosidasius. 2010. Chambers, K., J. Peimer, and J. T. Singer. Capstone Celebration, May 21, UMaine, Orono.

Specific resistance to Pseudomonas aeruginosa infection is mediated by the cystic fibrosis transmembrane conductance regulator. 2010. 37th Maine Biological and Medical Sciences Symposium, Mount Desert Island Biological Laboratory, Salisbury Cove, ME. April 23–24, 2010.

Do mussels help spread or eliminate disease on an integrated muylti-trophic aquaculture farm? Aquaculture America 2010, World Aquaculture Society, San Diego, CA, March 1–5.

The zebrafish as a model for cystic fibrosis. 109th Annual Meeting of the American Society for Microbiology, Philadelphia, PA. May 16–21, 2009.

Broad host range plasmids for RFP labeling of Gram-negative bacteria. 109th Annual Meeting of the American Society for Microbiology, Philadelphia, PA. May 16–21, 2009.

Pseudomonas aeruginosa, CFTR and the zebrafish innate immune system. 1st Annual Meeting of the Graduate School of Biomedical Sciences, University of Maine, Orono, ME May 19, 2008.

Pseudomonas aeruginosa, CFTR and the zebrafish innate immune system. 35th Maine Biological and Medical Sciences Symposium, Mount Desert Island Biological Laboratory, Salisbury Cove, ME April 25–26, 2008.

Pseudomonas aeruginosa, CFTR and the zebrafish innate immune system. University of Maine Graduate Student Research Exposition, April 16, 2008.

Broad-host-range, low-copy-number plasmids for RFP labeling of Gram-negative bacteria. BMMB Departmental Seminar, December 10, 2007.

Construction of a DNA vaccine against infectious pancreatic necrosis virus. 105th Annual Meeting of the American Society for Microbiology, Atlanta, GA, June 5–9, 2005.

DNA vaccine against infectious pancreatic necrosis virus. 32nd Maine Biological and Medical Sciences Symposium, Mount Desert Island Biological Laboratory, Salisbury Cove, ME April 29–30, 2005.

Development of a Combined Subunit Vaccine and DNA Vaccine Against Vibriosis and Infectious Pancreatic Necrosis. Mount Desert Island Biological Laboratory, Salisbury Cove, ME, April 30, 2004.

The "Technology" in Biotechnology. Invited staff development presentation to the University of Maine Cooperative Extension concerning recombinant DNA technology and related extension issues. Orono, ME, December 16, 1999.

Multiplex PCR Assay for the Simultaneous Detection of More Than One Virus. John Singer & Bruce Nicholson. Invited Environmental Microbiology Seminar & Demonstration (3 hr) at the 34th Annual Meeting of The American Society for Microbiology, Northeast, Connecticut Valley, Eastern New York and New York City Branches, The Worcester Centrum Centre, Worcester, MA, October 26–28, 1999.

New Techniques for the Rapid Detection of Fish Viruses and Control of Viral Diseases in Aquaculture. Bruce Nicholson & John Singer. Invited Environmental Microbiology Symposium Presentation at the 34th Annual Meeting of The American Society for Microbiology, Northeast, Connecticut Valley, Eastern New York and New York City Branches, The Worcester Centrum Centre, Worcester, MA, October 26–28, 1999.

Expression of Viral Capsid Proteins from Infectious Pancreatic Necrosis Virus (IPNV) in the Marine Bacterium Vibrio anguillarum. Invited Environmental Microbiology Symposium Presentation at the 34th Annual Meeting of The American Society for Microbiology, Northeast, Connecticut Valley, Eastern New York and New York City Branches, The Worcester Centrum Centre, Worcester, MA, October 26–28, 1999.

Aquaculture Research with Commercial Applications at UMaine–2nd Annual Biotechnology Symposium, KVTC, Fairfield, ME, September 30–October 1, 1999.

Bioremediation–Where We Are and the Problems that Must Be Solved in the Future. Two-hour presentation to Mrs. Pellegrino's 7–8th grade Biology Lab at the William S. Cohen School, Bangor, 5/21/99.

Bacteria, Yeasts, and Molds–What a Microbiologist Does for Work. Two-hour laboratory presentation to Miss Milheron's 1st grade class at Herbert Gray School. 3/8/99.

All Microbes Aren't Germs! Two-hour laboratory presentation to Mrs. Daniel's 3rd grade class at Herbert Gray School. 3/3/99.

Expression of Capsid Proteins from Infectious Pancreatic Necrosis Virus (IPNV) in the Marine Bacterium Vibrio anguillarum. Fourth International Marine Biotechnology Conference–IMBC '97, Sorrento, Paestum, Otranto, and Pugnochiuso, Italy, September 22–29, 1997.

Improving Research Capacity in Cold-Water, Marine Aquaculture at the University of Maine–Need for a Pathogenic Microbiologist Specializing in Fish/Shellfish Diseases. Presentation to the Research Excellence Partnership, MSTF, and NSF EPSCoR Representatives. Waterville, ME, 6/5/97.

Bacteria, Yeasts, and Molds–What a Microbiologist Does for Work. Herbert Gray School 1st grade, 5/20/97.

VACCINES: Live and Inactivated, Attenuated, Mutant and Subunit Vaccines & Vaccination Response. 2-Hour Guest Lecture in AVA420 Fish Health Management. March 27, 1997.

Use of New Techniques for Detection of Fish Viruses. Invited speaker at the 5th Annual New England Farmed Fish Health Management Workshop, Eastport, ME, April 4, 1997.

Vibrio anguillarum as an expression host for bivalent vaccines against vibriosis and infectious pancreatic necrosis virus. Feb. 18, 1997. Invited presentation for site visit by Ron Baird, National Sea Grant Director.

Bioproducts and Marine Resources: exploring applications of technology in the utilization of marine natural resources, April 11, 1996. Research and Development Forum presentation for the University of Maine Corporate Affiliate Program.

Recombinant Vaccines and Fish Vaccination. Invited lecture in AVA420, Fish Health Management. March 30, 1995.

Polymerase chain reaction (PCR) assay for identification of aquatic birnaviruses. Blake, S., J. T. Singer, and B. L. Nicholson. 1993. International Congress of Virology, Glasgow, Scotland, August 1993. (Nicholson).

Use of a polymerase chain reaction (PCR) assay for detection of aquatic birnaviruses. Blake, S., J. T. Singer, and B. L. Nicholson. 1993. Biennial Conference of the European Association of Fish Pathologists, Brest, France, September 1993. (Nicholson).

Toxicological effects of condensates generated during kiln drying of common species of timber. 13th Annual Symposium in Molecular Biology, "Molecular and Cellular Mechanisms of Toxicity, Penn State Univ., University Park, PA, August 4–7, 1994.

Vaccines and Vaccination of Fish. Invited lecture in AVA368, Fish Health Management. March 2, 1993.

Genetically Engineered Bivalent Vaccine Against Vibriosis and Aquatic Birnaviruses. U. Maine / UNH Sea Grant Site Visit, Sept. 30 – Oct. 2, 1992. Portland Regency, Ptld, ME.

Virulence of Vibrio anguillarum for Marine Fishes. Invited Seminar at Department of Environmental Sciences, University of Massachusetts-Boston, October 1991.

Epidemiology of Salmonella enteritidis infection in commercial laying hens. Invited paper presented at the 12th Biannual Congress Latinoamericano de Avicultura. Quito, Ecuador. October 1991. (Opitz).

Salmonella enteritidis in laying flocks: significance and epidemiology. Invited paper presented at the Meeting of the Asociacon Nacional de Especialistas en Ciencias Avicolas de Mexico, Mexico City, Mexico, October 1991. (Opitz).

A Salmonella enteritidis control program. Invited paper presented at the Meeting of the Asociacon Nacional de Especialistas en Ciencias Avicolas de Mexico, Mexico City, Mexico, October 1991. (Opitz).

Molecular mechanisms of virulence of Vibrio anguillarum: prevention of vibriosis with genetically engineered vaccines. Invited seminar in the Environmental Sciences Program, University of Massachusetts, Boston, MA, March 1991.

Virulence of Vibrio anguillarum for economically important cultured marine fishes. Invited seminar in the Comparative Pathology Seminar Series, Department of Pathobiology, University of Connecticut, Storrs, CT, February 1991.

Virulence of Vibrio anguillarum for marine fishes: use of a genetically engineered live attenuated vaccine against vibriosis. University of New Hampshire Sea Grant Site Visit, The New England Center, Durham, NH, September 1990.

Chemotherapy and recombinant DNA-based vaccines against vibriosis in Atlantic salmon. Invited Symposium presentation at The New England Regional Biotechnology Conference, Galilee, RI, May 1990.

Regulation of the recA analog of the marine fish pathogen Vibrio anguillarum 775. Invited paper presented at The New England Regional Biotechnology Conference, Galilee, RI, May 1990.

Virulence factors, plasmid profiles, and antibiotic resistance patterns of Vibrio isolated from marine fish and shellfish. Maine Aquaculture Innovation Center Invited Symposium Lecture, 14th Annual Maine Fisherman's Forum, Samoset Conference Ctr, Rockland, ME, March 1990.

Regulation of the deo operon: In vitro binding characteristics of the deoR-encoded repressor from E. coli. Invited speaker at The Jackson Laboratory, Bar Harbor, ME, February 1987.

Potential uses of genetically constructed bacteria for degradation of pesticide wastes. 46th Annual Meeting of the Acadian Entomological Society. Bangor, ME, 1986.

Manuscript and Research Grant Reviews:

Review manuscripts for:

- Proceedings of the International Symposium on Diseases in Marine Aquaculture, October 1998, Fish Pathology, Vol. 33, No. 4. Japanese Society of Fish Pathology.
- Journal of Microbiological Methods, Editorial Board Member, 1991–9/06.
- Journal of Virological Methods
- Journal of Bacteriology
- Canadian Journal of Microbiology
- FEMS Microbiology Ecology
- All Maine Toxicology Institute-supported research publications
- Forest Products Journal
- Journal of Aquatic Animal Health
- Diseases of Aquatic Organisms
- Environmental Monitoring and Assessment

Review research proposals for:

- Hawaii Sea Grant, 2008
- Sigma Delta Epsilon, Graduate Women in Science Research Fellowships
- N.O.A.A. Sea Grant
- National Sea Grant Biotechnology Program
- Louisiana Sea Grant Program
- Maryland Sea Grant Program
- Rhode Island Sea Grant Program
- Texas A&M Sea Grant Program
- N.O.A.A. National Marine Fisheries Service Saltonstall-Kennedy Program
- National Science Foundation, Cellular Biochemistry program
- National Science Foundation, Microbial Genetics program
- NSF Instrumentation & Instrumentation Development program
- USDA NRI
- USDA SBIR
- Maine Agricultural Experiment Station
- Maine Science & Technology Commission / National Science Foundation / EPSCoR program.
- MSTC / NSF / EPSCoR Faculty Enhancement
- Maine Toxicology Institute
- State of Maine DEP's Sludge Research Advisory Council.

Publications:

Published Abstracts of Papers at Regional, National, and International Meetings:

Cruze, J. A., J. T. Singer, and W. R. Finnerty. 1979. Transformation in Acinetobacter calcoaceticus. American Society for Microbiology Annual Meeting, Los Angeles, CA.

Odom, J. M., J. T. Singer, and H. D. Peck, Jr. 1980. Localization of dehydrogenases and reductases in the sulfate-reducing bacterium, Desulfovibrio gigas. American Society for Microbiology Annual Meeting, Miami Beach, FL.

Singer, J. T., and W. R. Finnerty. 1981. Transpositional mutagenesis in Acinetobacter. American Society for Microbiology Annual Meeting, Dallas, TX.

Singer, J. T., and W. R. Finnerty. 1982. Potential cloning vectors for use in Acinetobacter. American Society for Microbiology Annual Meeting, Atlanta, GA.

Singer, J. T., and W. R. Finnerty. 1983. Behavior of Tn5 in Acinetobacter. American Society for Microbiology Annual Meeting, New Orleans, LA.

Singer, J. T. 1986. Potential uses of genetically constructed bacteria for degradation of pesticide wastes. Proceedings of the 46th Annual Meeting of the Acadian Entomological Society. Bangor, ME.

Singer, J. T. 1987. Plasmid-mediated virulence factors among marine Vibrio strains. Maine Biological and Medical Sciences Symposium, Bowdoin College, Brunswick, ME.

Earley, S., and J. T. Singer. 1988. Cloning and expression of iron-uptake genes from Vibrio anguillarum 775. Maine Biological and Medical Sciences Symposium, University of Maine, Orono, ME.

Singer, J. T., and P. W. Reno. 1988. Survey of plasmids and potential plasmid-mediated virulence factors among fish and shellfish pathogens isolated from Maine. Annual Eastern Regional Fish Health Workshop, University of Maine, Orono, ME.

Singer, J. T., and S. Earley. 1988. Expression of cloned virulence determinants carried by Vibrio anguillarum 775. Annual Eastern Regional Fish Health Workshop, University of Maine, Orono, ME.

Singer, J. T., and S. Earley. 1988. Expression of polypeptides from cloned pJM1 DNA isolated from Vibrio anguillarum 775. AFS/FHS International Fish Health Conference, Vancouver, B.C., Canada.

Singer, J. T. 1989. Isolation and characterization of the recA gene from Vibrio anguillarum 775. American Society for Microbiology Annual Meeting, H258, p. 212. New Orleans, LA.

Choe, W., C. Hopper, K. Schmidt, and J. T. Singer. 1989. Virulence plasmid pJM1 prevents the conjugal entry of plasmid DNA into Vibrio anguillarum 775. American Society for Microbiology Annual Meeting, H280, p. 216. New Orleans, LA.

Singer, J. T. 1989. Cloning, mapping, and biological characterization of the recA gene from the marine fish pathogen Vibrio anguillarum 775. Maine Biological and Medical Sciences Symposium, CB1, p. 22. University of Southern Maine, Portland, ME.

Singer, J. T., W. Choe, C. Hopper, and K. Schmidt. 1989. Virulence plasmid pJM1 restricts plasmid DNA in Vibrio anguillarum 775. Maine Biological and Medical Sciences Symposium, PO4, p. 40. University of Southern Maine, Portland, ME.

Singer, J. T., and C. A. Hopper. 1990. Regulation of the recA analog of Vibrio anguillarum 775. American Society for Microbiology Annual Meeting, H238, p. 194. Anaheim, CA.

Singer, J. T., C. A. Hopper, and K. A. Schmidt. 1990. Site-specific mutations in virulence plasmid pJM1 that block iron uptake by Vibrio anguillarum 775. American Society for Microbiology Annual Meeting, H175, p. 183. Anaheim, CA.

Singer, J. T., and C. A. Hopper. 1990. Characterization and regulation of the recA analog of the marine fish pathogen Vibrio anguillarum 775. Maine Biological and Medical Sciences Symposium, The College of the Atlantic, Bar Harbor, ME.

Schmidt, K. A., C. A. Hopper, and J. T. Singer. 1990. Site-specific mutations in virulence plasmid pJM1: effects on iron uptake and virulence of the marine fish pathogen Vibrio anguillarum 775. Maine Biological and Medical Sciences Symposium, The College of the Atlantic, Bar Harbor, ME.

Singer, J. T., and P. W. Reno. 1990. Detection of virulent Vibrio anguillarum strains using virulence-specific DNA and antibody probes. Eastern Regional Fish Health Workshop, University of Prince Edward Island, Charlottetown, P. E. I., New Brunswick, Canada.

Singer, J. T., H. M. Opitz, M. Gershman, M. Hall, I. Muniz, and S. Rao. 1991. Characterization of Salmonella enteritidis isolates from the Northeast. American Society for Microbiology Annual Meeting, C198, p. 375. Dallas, TX.

Schmidt, K. A., C. A. Hopper, and J. T. Singer. 1991. Virulence and vaccine efficacy of Vibrio anguillarum 775 containing site-specific mutations in the virulence plasmid pJM1. Atlantic Universities Graduate Biology Conference, University of New Brunswick, Fredricton, N.B., 6/91.

Singer, J. T., H. M. Opitz, M. Gershman, M. Hall, I. Muniz, and S. Rao. 1991. Molecular characterization of Salmonella enteritidis in the Northeast. 63rd Northeastern Conference on Avian Diseases, p. 16. Cornell University College of Veterinary Medicine, Ithaca, NY, 6/91.

Schmidt, K. A., C. A. Hopper, and J. T. Singer. 1991. Virulence and vaccine efficacy of Vibrio anguillarum 775 containing site-specific mutations in the virulence plasmid pJM1, P63, p. 89. Second International Marine Biotechnology Conference–IMBC '91, Baltimore, MD, October 2–5, 1991.

Opitz, H. M., D. J. Henzler, J. T. Singer, and D. J. Beane. 1991. Salmonella enteritidis: a three-year epidemiological study of laying flocks. 63rd Northeastern Conference on Avian Diseases, p. 14. Cornell University College of Veterinary Medicine, Ithaca, NY, 6/91.

Opitz, H. M., J. T. Singer, D. J. Henzler, and D. J. Beane. 1991. Epidemiology of Salmonella enteritidis infection in commercial laying hens. Invited paper presented at the 12th Biannual Congress Latinoamericano de Avicultura. Quito, Ecuador. Oct. 3.

Opitz, H. M., J. T. Singer, D. J. Henzler, D. Dineen, and D. J. Beane. 1991. Salmonella enteritidis in laying flocks: significance and epidemiology. Invited paper presented at the Meeting of the Asociacon Nacional de Especialistas en Ciencias Avicolas de Mexico, Mexico City, Oct. 10.

Opitz, H. M., J. T. Singer, D. J. Henzler, D. Dineen, and D. J. Beane. 1991. A Salmonella enteritidis control program. Invited paper presented at the Meeting of the Asociacon Nacional de Especialistas en Ciencias Avicolas de Mexico, Mexico City, Oct. 11.

Schmidt, K. A., Hopper, C. A., Singer, J. T. 1991. Virulence and vaccine efficacy of Vibrio anguillarum 775 containing site-specific mutations in the virulence plasmid pJM1, 1208-4Q3, p. 54. Aquatic Sciences and Fisheries Association (ASFA) Mar. Biotechnol. Abst. 3(4):54.

Singer, J. T., and K. A. Schmidt. 1992. Protecting fish against vibriosis by immunization with genetically engineered live attenuated Vibrio anguillarum. Maine Biological and Medical Sciences Symposium, Univ. of New England, Biddeford, ME, May 2.

Singer, J. T., K. A. Schmidt, and C. A. Hopper. 1992. Protecting fish against vibriosis by immunization with genetically attenuated live Vibrio anguillarum. American Society for Microbiology Annual Meeting, E73, p. 156. New Orleans, LA, May 26–30.

Schmidt, K. A., and J. T. Singer. 1992. Protecting fish against vibriosis by immunization with genetically engineered live attenuated Vibrio anguillarum. Annual Atlantic Universities Graduate Biology Conference, Univ. of P.E.I., Charlottetown, P.E.I., Canada, May 15–17.

Blake, S., J. T. Singer, and B. L. Nicholson. 1993. Polymerase chain reaction (PCR) assay for identification of aquatic birnaviruses. International Congress of Virology, Glasgow, Scotland, August 1993.

Blake, S., J. T. Singer, and B. L. Nicholson. 1993. Use of a polymerase chain reaction (PCR) assay for detection of aquatic birnaviruses. Biennial Conference of the European Association of Fish Pathologists, Brest, France, September 1993.

Blake, S., M.-K. Lee, J. Singer, and B. Nicholson. 1993. Polymerase chain reaction (PCR) for identification of EEV and other Asian strains of aquatic birnaviruses, OP 51. Second Symposium on Diseases in Asian Aquaculture, Fish Health Section, Asian Fisheries Society, Phuket, Thailand, October 25–29.

Mark, H. F. L., R. Naram, J. Singer, R. Rice, B. Bastan, L. Beauregard, and P. H. LaMarche. 1994. An in vitro cytotoxicity and genotoxicity study of southern yellow pine condensate. N. Engl. Assoc. Cancer Res. February 11.

Singer, J. T., J. A. Jackson, and R. W. Rice. 1994. Microbiological detection of potential mutagens in wood drying condensates using the SOS Chromotest. American Society for Microbiology Annual Meeting, N-29, p. 320. Las Vegas, NV, May 23–27.

Singer, J. T., J. A. Jackson, and R. W. Rice. 1994. Ames testing of wood drying condensates. American Society for Microbiology Annual Meeting, N-30, p. 321. Las Vegas, NV, May 23–27.

Singer, J. T., J. H. Edgar, and E. Cole. 1994. Effect of NaCl Concentration on conjugal transfer of RP4 from E. coli to Vibrio anguillarum. American Society for Microbiology Annual Meeting, N-163, p. 344. Las Vegas, NV, May 23–27.

Singer, J. T., J. A. Jackson, and R. W. Rice. 1994. Toxicological effects of condensates generated during kiln drying of common species of timber, p. 32. 13th Summer Symposium in Molecular Biology, “Molecular and Cellular Mechanisms of Toxicity”, Penn State University, University Park, PA, August 4–7.

Mark, H. F. L., R. Naram, J. Singer, B. Bastan, L. Beauregard, and P. H. LaMarche. 1994. An in vitro cytotoxicity and genotoxicity study of southern yellow pine condensate. New England Association for Cancer Research, Boston, MA, February 11, 1994.

Mark, H. F. L., R. Naram, J. Singer, B. Bastan, L. Beauregard, and P. H. LaMarche. 1994. An investigation into the in vitro cytotoxicity and genotoxicity of Southern Yellow Pine condensate. Annual Meeting of the Genetics Society of America.

Naram, R., J. Singer, R. Rice, B. Bastan, L. J. Beauregard, P. H. LaMarche, and H. F. L. Mark. 1994. Genotoxic and cytotoxic evaluation of Southern Yellow pine condensate in CHO-WBL cells and human lymphocytes. 2nd Annual Rhode Island Hospital-Brown University School of Medicine Research Poster Day, Rhode Island Hospital, Providence, RI, October 6.

Naram, R., J. Singer, R. Rice, and H. F. L. Mark. 1995. Condensate from Douglas fir induced cytotoxic and genotoxic effects in vitro. Abstracts of the 45th Annual Meeting of the American Society of Human Genetics, October 24–28, Minneapolis, MN.

Nicholson, B. L., M.-K. Lee, S. Blake, and J. T. Singer. 1995. Molecular biological assays for detection and identification of aquatic birnaviruses. Fourth Asian Fisheries Forum, Beijing, China, October 15–20.

Naram, R., J. Singer, R. Rice, and H. F. L. Mark. 1996. Cytotoxic and genotoxic effects induced in vitro by the condensate from Douglas-fir, Abst. #190. 3rd Joint Clinical Genetics Meeting–27th Annual March of Dimes Clinical Genetics Conference & 3rd Annual Meeting of the American College of Medical Genetics, San Antonio, TX, March 11–14, p. 141.

Singer, J. T., and C. Ma. 1996. Construction and characterization of a Vibrio anguillarum recA mutant. American Society for Microbiology Annual Meeting. New Orleans, LA, May 19–23.

Boettcher, K. J., and J. T. Singer. 1996. Cloning of the Vibrio anguillarum phrB and uvrA analogs. American Society for Microbiology Annual Meeting. New Orleans, LA, May 19–23.

Helyar, L., J. T. Singer, and R. W. Rice. 1996. In vitro toxicity of wood drying condensates generated from the drying of commercially important species of wood. 22nd Annual Maine Biological and Medical Sciences Symposium, Univ. of Maine, Orono, ME, May 30–31.

Singer, J. T., and C. Ma. 1996. Construction and characterization of a Vibrio anguillarum recA mutant. 22nd Annual Maine Biological and Medical Sciences Symposium, Univ. of Maine, Orono, ME, May 30–31.

Boettcher, K. J., and J. T. Singer. 1996. Cloning of the Vibrio anguillarum phrB and uvrA analogs. 22nd Annual Maine Biological and Medical Sciences Symposium, Univ. of Maine, Orono, ME, May 30–31.

Edgar, J. H., and J. T. Singer. 1997. Expression of capsid proteins from infectious pancreatic necrosis virus (IPNV) in the marine fish pathogen Vibrio anguillarum. Maine Aquaculture Conference '97. The Samoset Resort, Rockland, ME, March 15.

Nicholson, B. L., and J. T. Singer. 1997. New biotechnologies for the detection of fish viruses and control of virus diseases in aquaculture. Maine Aquaculture Conference '97. The Samoset Resort, Rockland, ME, March 15.

Edgar, J. H., and J. T. Singer. 1997. Expression of capsid proteins from infectious pancreatic necrosis virus (IPNV) in the marine bacterium Vibrio anguillarum. American Society for Microbiology Annual Meeting. Miami Beach, FL, May 4–8.

Boettcher, K. J., and J. T. Singer. 1997. Characterization of the phrB and uvrA genes from the marine fish pathogen Vibrio anguillarum. 23rd Maine Biological and Medical Sciences Symposium, Colby College, Waterville, ME, May 29–30.

Edgar, J. H., and J. T. Singer. 1997. Expression of capsid proteins from infectious pancreatic necrosis virus (IPNV) in the marine fish pathogen Vibrio anguillarum. 23rd Maine Biological and Medical Sciences Symposium, Colby College, Waterville, ME, May 29–30.

Helyar, L., R. W. Rice, and J. T. Singer. 1997. Effects of exposure to wood drying vapors on rat lung macrophage function. 23rd Maine Biological and Medical Sciences Symposium, Colby College, Waterville, ME, May 29–30.

Singer, J. T., J. H. Edgar, and B. L. Nicholson. 1997. Expression of capsid proteins from infectious pancreatic necrosis virus (IPNV) in the marine bacterium Vibrio anguillarum, p. 126. Abstracts of the Fourth International Marine Biotechnology Conference–IMBC '97, Sorrento, Paestum, Otranto, and Pugnochiuso, Italy, September 22–29, 1997.

Sweeney, A., S. Blake, J. T. Singer, and B. L. Nicholson. 1997. Multiplex polymerase chain reaction (PCR) assay for simultaneous detection of aquatic birnaviruses and infectious pancreatic necrosis virus. International Symposium of the European Society of Fish Pathologists, Edinburgh, Scotland.

Sweeney, A., S. Blake, J. T. Singer, and B. L. Nicholson. 1997. Detection and identification of infectious pancreatic necrosis virus (IPNV) and infectious hematopoietic necrosis virus (IHNV) by polymerase chain reaction (PCR). International Workshop on New Approaches to Viral Disease of Aquatic Animals. National Research Institute of Aquaculture, Nansei, Watarai, Mie, Japan.

Williams, K., A. Sweeney, S. Blake, J. T. Singer, and B. L. Nicholson. 1998. Multiplex polymerase chain reaction (PCR) assay for simultaneous detection of different fish viruses. 24th Annual Maine Biological and Medical Sciences Symposium, University of Nerw England, Biddeford, ME, May 14–15.

Williams, K., A. Sweeney, S. Blake, J. T. Singer, and B. L. Nicholson. 1998. Multiplex polymerase chain reaction (PCR) assay for simultaneous detection of different fish viruses, C-127. 1998. American Society for Microbiology Annual Meeting. Atlanta, GA, May 17–21.

Williams, K., A. Sweeney, S. Blake, J. T. Singer, and B. L. Nicholson. 1998. Multiplex polymerase chain reaction (PCR) assay for simultaneous detection of different fish viruses. Fifth Asian Fisheries Forum, Chiang Mai, Thailand, November, 1998.

Williams, K., A. Sweeney, S. Blake, J. T. Singer, and B. L. Nicholson. 1998. Multiplex polymerase chain reaction (PCR) assay for simultaneous detection of different fish viruses. Abstracts of the first Annual Northeast Aquaculture Conference and Exposition. November, Rockport, ME.

Boettcher, K. J., B. J. Barber, and J. T. Singer. 1999. The potential involvement of two species of a-proteobacteria in the susceptibility of the Eastern oyster (Crassostrea virginica) to juvenile oyster disease (JOD), C29, p. 66. American Society for Microbiology Conference on Microbial Biodiversity, August 5–8, Chicago, IL.

Singer, J. T., and B. L. Nicholson. 1999. New techniques for the rapid detection of fish viruses and control of Viral diseases in aquaculture. The 34th Annual Meeting of The American Society for Microbiology, Northeast, Connecticut Valley, Eastern New York and New York City Branches, The Worcester Centrum Centre, Worcester, MA, October 26–28, 1999.

Molloy, S. D., and J. T. Singer. 2004. Development of a combined subunit vaccine and DNA vaccine against vibriosis and infectious pancreatic necrosis. 31st Maine Biological and Medical Sciences Symposium, Mount Desert Island Biological Laboratory, Salisbury Cove, ME, April 30–May1.

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