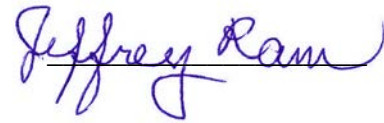


March 13, 2020



**CURRICULUM VITAE
JEFFREY L. RAM, Ph.D.**

Office Address: Department of Physiology
Wayne State University
School of Medicine
Detroit, MI 48201

Office Telephone: (313) 577-1558

Office Fax Number: (313) 577-5494

E-mail Address: jeffram@med.wayne.edu or jeffram@gmail.com

Education

California Institute of Technology. 1968-1973. Ph.D., 1974, in biochemistry and neurophysiology. Research in neurochemistry. National Science Foundation Fellow, 1968-1971. USPHS Trainee, 1971-1973.

Marine Biological Laboratory, Woods Hole. Summer, 1969. Invertebrate Zoology Course and post-course research.

Cambridge University, England. 1967-1968. Affiliated Student in History and Philosophy of Science. Thouron Scholar.

University of Pennsylvania. 1963-1967. B.A., 1967, in Physics (Honors), Magna cum laude. Research projects in biophysics and psychology.

Postgraduate Training

University of California, Santa Cruz. 1973-1977. Post-doctoral research in neurobiology and endocrinology with W.J. Davis. NIH post-doctoral fellow, 1975-1977.

Faculty Appointments

Primary: Wayne State University, Department of Physiology. Professor, 1993-present.

Wayne State University, Associate, Department of Immunology and Microbiology, 2003-2017; continued as Secondary appointment, Department of Biochemistry, Microbiology, and Immunology, 2017-present.

Wayne State University, Associate, Center for Molecular Medicine and Genetics, 1999-present.

University of Toledo, Graduate Faculty, 2019 – present (ending 2022).

Stanford University, Department of Bioengineering, visiting faculty (sabbatical), Sept. 2007 – February 2008.

Universidad Autónoma de Guadalajara, Mexico, School of Medicine International Program, February, 2007. Visiting Professor. Neuroscience.

University of Hull, Hull, UK. Honorary Professor. 2005 – 2008. 2008 – 2011.

Technion, Haifa, Israel, Department of Physiology. Visiting Professor, 1984 –1985 (sabbatical) & summer, 1987.

Wayne State University, Department of Physiology. Associate Professor, 1982-1993.

Wayne State University, Department of Physiology. Assistant Professor, 1977-1982.

Volunteer Position

Belle Isle Aquarium, Detroit, MI. Director of Science and Education, May, 2013 – 2014. Director of Science Education, 2014 – 2016. Chair, Belle Isle Aquarium Science and Education Advisory Board, 2013 – 2016. Director, Belle Isle Aquarium Field Research Laboratory, 2016 – present. Head, College and University Liaison Team, 2016 – present.

Stazione Zoologica Anton Dohrn, Naples, Italy, January – March 2018, visiting scientist (sabbatical); National Aquarium of New Zealand, Napier, NZ, March – April 2018, visiting scientist (sabbatical)

Professional Appointments

Michigan State University, MSU Center for Water Sciences, Water Fellow. 2007.

Dalhousie University, Dept. of Biophysics and Physiology, Visiting Scholar (sabbatical), 1996-97.

NIH Laboratory of Biophysics, Section on Neural Systems, at the Marine Biological Laboratory, Woods Hole. July and August, 1981.

Marine Biological Laboratory, Woods Hole. Summer, 1975. MBL-STIP Grant. Independent investigator. Research in comparative neuroendocrinology.

Professional Societies

American Society for Neuroscience

American Physiological Society

Michigan Chapter, Society for Neuroscience (elected Membership Chairperson, 1982-84; Councilor, 1986-1987; President-elect, 1987-1989; President, 1989-1991).

Society for Integrative and Comparative Biology (formerly American Society of Zoologists)

International Society of Invertebrate Reproduction and Development (Vice-President, 1995-1998; Secretary, 1998-2004; congress secretary for 2007; Chair, 2013 International Congress; President, 2014-2017; Past-President, 2018-present);

International Association for Great Lakes Research
Biophysical Society
Society for Developmental Biology
Society for Medical and Applied Malacology
Michigan Chapter American Society for Microbiology (Executive board member-at-large,
appointed April, 2005; conference chair, April, 2007)
American Society for Microbiology
American Society of Limnology and Oceanography, 2011
Michigan Science Teachers Association, 2018-2019

Honors/Awards

2020 STEM for ALL Video Showcase, Facilitators' Choice for videoon NSF project with
the Belle Isle Aquarium: <https://stemforall2020.videohall.com/presentations/1753>

Major competitive scholarships and fellowships:

Dalhousie Medical Research Foundation Picchione Visiting Scholarship, 1996-97.
Lady Davis Fellowship (for Sabbatical Year at the Technion, Haifa, Israel) 1984-85.
National Research Service Award (NIH post-doc), 1975-77.
Grass Fellowship, 1973. (Not used due to conflicting commitments).
National Science Foundation pre-doctoral fellowship, 1968-71.

Honorary Societies:

Phi Beta Delta International Scholars, 2001
Elected Fellow, American Association for the Advancement of Science, 1984.
Sigma Xi, 1972.

Wayne State University

Phi Beta Kappa Inspirational Mentor, April 2019 (named by Obadeh Mohiddin)
Phi Beta Kappa Inspirational Mentor, April 2018 (named by Nicole Farley)
School of Medicine College Teaching Award, 2017
School of Medicine College Teaching Award, 2016
Favorite Professor, 13th Annual Academic Recognition Luncheon, 2013
School of Pharmacy, Teacher of the Year Award, 2005
President's Award for Excellence in Teaching, 2003
President's Exceptional Service Award, 2001
School of Medicine College Teaching Award, 1998

Hull University

Honorary Professor, 2005 – 2008. 2008 – 2011.

Service

Wayne State University

Departmental

Head, mentoring committee for Dr. Zhibing Zhang, Assistant Professor, 2018,
2019,2020.

Head, mentoring committee for Dr. Fei Sun, Assistant Professor, 2014, 2015, 2016, 2017.

Department of Physiology, Director, PCR Core Facility, 2011, 2012, 2013, 2014, 2015, 2016.
Dept. of Physiology Space Committee, 2000 - 2008. 2015, 2016, 2017, 2018.
Department of Physiology Curriculum Committee, 2008, 2009, 2010, 2011, 2012, 2013 (ex-officio as PSL7040 director: 2014, 2015, 2016, 2017)
Dept of Physiology, Director of SURF, the Summer Undergraduate Research Fellowship program, 2004 - 2013.
Dept. of Physiology Salary Committee, 1995, 1997, 1999, 2001, 2005, 2013, 2019.
Department of Physiology Graduate Committee, 1995, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010 (ex-officio 2009, 2010).
Dept. of Physiology Promotion and Tenure Committee, 1995, 1997, 1999, 2001, 2003, 2005, 2007, 2008.
Department of Physiology, Faculty Search committee, 2006 – 2007
Dept. of Physiology Library Committee, 1995, 1996, 1997.

School of Medicine

Jack Ryan Research Award reviewer, January 2013 (description in e-mail from Dan Walz, Jan 11, 2013).
School of Medicine, Interdisciplinary Biomedical Sciences Recruiting and Admissions Committee, 1998-2000; Admissions Committee (alternate), 2001-2004; Stipend/Admissions Committee, 2004-2010.
School of Medicine Dept. of Physiology 5-Year Review Committee, 1995.

University

T-RUST (Transformative Research in Urban Sustainability and Training) Advisory Board. T-RUST is an interdisciplinary university-wide graduate program, headed by Donna Kashian (College of Liberal Arts and Sciences). 2018-present.
Co-Director or steering committee, Urban Watershed Environmental Research Group (now known as Healthy Urban Waters), 2009-present. Co-PI for NSF Planning Grant (FSML) for UWERG field stations, 2013 and infrastructure grant, 2016. Co-organized (with Carol Miller, David Pitts, and OVPR) a university-wide conference on “a water strategy for Wayne State University, 2012.
Director of RISEUP, Research Internships for a Sustainable Environment with Undergraduate Participation, 2013 – 2016. (sponsored by the Wayne State University Center for Peace and Conflict Studies)
University-wide Sabbatical leaves Committee, 2009-2010, 2010-2011, 2013-2014.
University Graduate Professional Scholarship review committee, Winter, 2012
Honors College: Fall, 2011; Spring, 2016; Winter, 2017 reviewer for undergraduate proposals for Undergraduate Research and Creative Projects Awards
University. Review Advisory Panel for the Peace and Conflict Studies Program., 2010.
University Research Grant Committee, 2009-2010.
University: Global Initiative Planning Committee (1999 - 2006), chaired by J. Kay.
University. President's Award for Excellence in Teaching Selection Committee, 2004-2005, 2018-2019.
University. Review Advisory Panel for Department of Civil Engineering, 2003.
University. Global Grants Review Committee, 2001.

University-AAUP Joint Committee on Student Evaluation of Teaching, 1997-1998.
University Teaching Evaluation Committee, 1997.

Professional

External reviewer, tenure application for the Biology Department at the University of Michigan, Flint. January 2019.

Organizer of Ballast Monitoring Practicums, held in Superior, WI, May 29-31, 2019 and Erie, PA, June 2-4, 2019. Workshops attended by equipment manufacturers, state regulators, environmentalists, port authorities, shipowners, and scientists to understand the role, use, and regulatory context for indicative biological testing, especially as affected by recent legislation, the Vessel Incidental Discharge Act of 2018.

Organizer of Michigan teacher professional development workshops about invasive species, held in Detroit (Belle Isle Aquarium) on July 20, 2017; July 18, 2018; & August 7, 2019; Mt. Pleasant, October 6, 2017; Marquette, October 13, 2017; Saginaw, November 4, 2017; and Ada (Roselle Park), November 8, 2017.

Organizing committee of the International Congress for Invertebrate Reproduction and Development, held August 28 – September 2, 2017. This included organizing two symposia: “Models for the Study of Longevity and Aging” and “Presidential Symposium on Biological Clocks, in memory of Ronald Konopka, discover of the *per* clock gene.” Also facilitated the participation of two Nobel laureates, Martin Chalfie and Tim Hunt, in the Congress. See

<http://sun.science.wayne.edu/~jram/icird.med.wayne.edu/ICIRD2017-photos.html>

Organizer of the Ballast Management Compliance Summit 2017, held at the National Museum of the Great Lakes, Toledo, OH, May 19, 2017.

Chair, Symposium on “The New Age Of Ballast Water Management In The Great Lakes” at the International Association of Great Lakes Research Annual Meeting, Detroit, May, 2017.

Co-Chair (invited), Session on “Genetic approaches and examples for understanding biodiversity and invasive species” at the International Association of Great Lakes Research Annual Meeting, Guelph, June, 2016.

President, International Society for Invertebrate Reproduction and Development, elected July 2013, to hold office 2014 – 2017.

Organize and invite speakers monthly for *Science Saturday at the Belle Isle Aquarium*, 2013 - 2017. The entire list, including a full-day Conservation Day Symposium in April 2015 and April 2016, is shown on the internet at:

<http://detroitaquarium.weebly.com/future-events.html>

Executive Board, Lake Erie Waterkeeper Alliance, 2012 – 2015.

Head, Organizing Committee for ICIRD 2013, held at Wayne State, July, 2013

Co-Chair (invited), Session on “Tools for Predicting and Managing Invasions of Potentially Harmful Species in the Great Lakes” at the 56th Annual Conference on Great Lakes Research (June 2013), International Association for Great Lakes Research

Program Committee 2010 International Congress for Invertebrate Reproduction and Development, Prague, Czech Republic. Organizer of Symposium on Genomes, Genes and Worms, August 18, 2010

Chair, contributed paper session on pheromones and hormones; International Congress for Invertebrate Reproduction and Development, Smithsonian Tropical Research Institute, Panama City, Panama, August, 2007

Head of organizing committee for Michigan branch American Society for Microbiology Spring, 2007 Conference

Chair, contributed paper session on pheromones; July, 2004, International Congress for Invertebrate Reproduction and Development, Newcastle, UK

Nitrogen excretion, and osmotic/ionic regulation (contributed paper session); January, 2003; Society for Integrative and Comparative Biology

Integrative Regulatory Biology: Regulation of Reproduction (contributed paper session); January, 2000; Society for Integrative and Comparative Biology

HOX Clusters and the Evolution of Morphology; January, 2000; Society for Integrative and Comparative Biology

Molluscan Reproduction; August, 1998, International Congress of Invertebrate Reproduction

Oocyte Maturation and Fertilization Mechanisms, August, 1995, International Congress of Invertebrate Reproduction

Organizing Committee, Seventh International Congress of Invertebrate Reproduction, 1995.

Biology, Ecology, and Physiology of Zebra Mussels, January, 1995, American Society of Zoologists

Basic and Applied Aspects of Aquatic Biotechnology, June 9, 1994, International Association of Great Lakes Research.

Community

Provided invited input to the Areas of Concern (AOC) Public Advisory Committee, about beach contamination in Lake St. Clair and Belle Isle beaches, January 14, 2019.

Featured in newsletter story “Teaching Teachers to Improve Invasive Species, Great Lakes Science Education” by Kevin Bunch in the International Joint Commission GREAT LAKES CONNECTION Newsletter, September 5, 2018.
<https://ijc.org/en/teaching-teachers-improve-invasive-species-great-lakes-science-education>

Invited member of the panel on PROMISING WORK IN DETROIT (Moderated by Dr. Joan Firestone) for the Matter of Equity Symposium, sponsored by Roper School and the Damon J. Keith Center for Human Rights. October 14, 2016.
<http://lutzlal.wixsite.com/matter-of-equity/program>

Featured in news story “DISCOVERY: \$1.2 million National Science Foundation grant to impact students’ interest in STEM” in *Wayne State, The Magazine*, Fall 2016, p. 34. <http://mydigimag.rrd.com/publication/?i=357346>

Featured in news story “Belle Isle Aquarium will Focus on Flint and Fish at Conservation Confab,” appearing on-line at WN.com. Accessed at http://article.wn.com/view/2016/04/07/Belle_Isle_Aquarium_will_focus_on_Flint_and_fish_at_conserva/, published April 7, 2016

Featured in Wayne State University Alumni Magazine, Winter, 2015 issue, by Cathy Nelson, “Go Fish!” about Jeffrey Ram and several alumni working with him at the Belle Isle Aquarium. Pp. 56 – 59. <http://mydigimag.rrd.com/publication/?i=246857>

Featured in a story in the South End: “WSU students invade Belle Isle Aquarium with new invasive species exhibits” Thursday, October 30, 2014, by Alexander Franzen (http://www.thesouthend.wayne.edu/news/article_a34c7bb2-5fbf-11e4-95ef-0017a43b2370.html)

Featured in AP story “Belle Isle publicizes invasive species fight” published in the Detroit Free Press, October 12, 2014, (<http://www.freep.com/story/news/local/michigan/2014/10/12/belle-isle-invasive-species-fight/17147569/>)

Featured in a CBS News story about “New Exhibit Showcases Invasive Lamprey At Belle Isle Aquarium,” October 11, 2014, by WWJ (<http://detroit.cbslocal.com/2014/10/11/new-exhibit-showcases-invasive-lamprey-at-belle-isle-aquarium/>)

Featured in Prognosis E-News story “WSU’s Dr. Jeffrey Ram on the front line in the battle against invasive species,” October 6, 2014, (<http://prognosis.med.wayne.edu/article/wsus-dr-jeffrey-ram-on-the-front-line-in-the-battle-against-invasive-species>)

Featured in CBC story “Invasive phragmites in Windsor sought by U.S. researchers,” June 18, 2014, <http://www.cbc.ca/news/canada/windsor/invasive-phragmites-in-windsor-sought-by-u-s-researchers-1.2679787> and <http://www.cbc.ca/news/invasive-plants-on-peche-island-1.2679342>

Featured in Detroit Jewish News story “Aquatic Gem: Jewish contributors founded and are sustaining the historic Belle Isle Aquarium,” by Barbara Lewis, May 29, 2014, (<https://www.thejewishnews.com/2014/05/29/aquatic-gem/>)

Belle Isle Aquarium Director of Science and Education. Chair of the Belle Isle Aquarium Science and Education Advisory Board, an international, multi-institutional and multidisciplinary board to advise on new research and educational programming

“Public Seminar: Asian Carp and Beyond,” for the International Joint Commission Great Lakes Priorities Seminar Series, December 1, 2010, at Wayne State University.

“Early warnings: Invaders from the deep and afar,” Western Lake Erie Waterkeepers Association, November 17, 2010, La Salle, MI.

Research advisor, Sonal Purohit high school science fair project, 2008-2009.

“Some have recovered” Letter to the Editor, Detroit Free Press, May 18, 2008. (topic was the impact of zebra mussels on the health of the Great Lakes). The published signature on the letter identified me with my department and university affiliation.

Our research on *Nereis succinea* pheromone-guided behavior featured in “Inside JEB,” by Kathryn Phillips, “Worms Follow Pheromone” Journal of Experimental Biology, 211: ii, 2008.

Chair, judging of student poster and oral presentations at the International Congress for Invertebrate Reproduction and Development, Smithsonian Tropical Research Institute, Panama City, Panama, August, 2007

Field trip leader, zebra mussel collection at Belle Isle, for Japhet School (a private middle school in Madison Heights), November 2005.

Invited (full-reimbursement) participant at WERF-sponsored workshop on Contaminant Source Tracking in San Antonio, TX, Feb. 15 – 18, 2005. Member of working groups on “Standardization” and “Immediate and Long-term Needs”

Research advisor, Jonathan Schwartz high school science fair project, 2004-05.

Research advisor, Minority High School Science Education Program (MHSSEP), 2003-2004.

Research advisor, Detroit Public Schools, Research Apprentice Program, 2002, 2003.

Judge, Science and Engineering Fair of Metropolitan Detroit Science, 1986, 1987, 1988, 1990, 1991, 1994, 2001, 2002, 2003

Research advisor, science fair projects, Cass Technical High School, Detroit, 2002.

Judge, Intel International Science Talent Search, 2000

Career Day presentations (2), Norup Middle School, May 11, 1999.

Featured in several stories in the *Detroit News* and on WDET regarding the use of zebra mussels for environmental monitoring of bacteria; Summer, 1999.

“Zebra mussels,” Cranbrook Museum, April 20, 1997.

Judge, Royal Oak Science Expo, 1994.

Interviewed live, about zebra mussels, on CBC, Windsor, October 12, 1993.

Gave background information on zebra mussels to Judith Gerber, CNN, during February, 1993.

Interviewed by Adrian Chandler, for radio station WOMC, on "Zebra mussels," January 4, 1993.

Interviewed by Kimberly Fry, for radio station WCSX, on "Zebra mussels," Dec. 16, 1992.

Cited in *Technology Review*, July, 1992, in story on "Pests with redeeming values," 95: 15-16.

"Zebra mussels," Lansing Power Squadron, October 5, 1992.

"Zebra mussels," Cranbrook Museum, Nov. 11, 1990; April 27, 1991.

Cited in *Water Ways*, Nov./Dec., 1991, in story on "Zebra mussels: Seeking the silver bullet," 2: 4-6, 1991.

Cited in *Science News*, issue of May 4, 1991, in story on "Dreissena disaster", 139: 282-284, 1991.

Cited by *Time* magazine, issue of January 21, 1991, in story on "Invasion of the Zebra Mussels", pp. 63-64.

Live interview with Bill Bonds, Channel 7 (ABC affiliate) on "Cell culture of mature cortical neurons by Johns Hopkins investigators", May 4, 1990, Detroit.

Consulting

BRAM Products (Biological Research and Monitoring), for Western Lake Erie Waterkeepers Association, 2010-2011. Data analysis and reporting about invasive species detection in Toledo Harbor.

NIH Laboratory of Biophysics, Section on Neural Systems, at the Marine Biological Laboratory, Woods Hole. July and August, 1981. Consultant on investigations of protein synthesis and voltage dependent currents.

Scholarly Service

Grant Review Committees

NIH Cardiovascular and Renal Study Section, special reviewer, Feb., 1994; external reviewer, Oct., 1994; Visual Sciences Study Section (via H. Maisel), Oct., 1998.
Ad hoc reviewer for Agriculture Department, continuing
Ad hoc reviewer for Sea Grant proposals, continuing.
Ad hoc reviewer for NSF grants, continuing.
Consultant on NIH Site Visit for Program Project grant at the University of Texas Marine Biomedical Institute, 1979.

Service for Peer-Reviewed Journals

Editorial board, *Journal of Microbial & Biochemical Technology*, 2010 - 2016
Editorial board, *Invertebrate Reproduction and Development*, 2003-2018
Editor of issue of *Invertebrate Reproduction and Development*, featuring 10 papers on stem cells and aging research, published 2015.
Managing editor, *Malacological Review*, 1997-2003
Co-editor, *Invertebrate Reproduction and Development*, Volumes 30 & 31 on “Diversity in Invertebrate Reproduction”, December, 1996 & January, 1997.
Issue editor, *American Zoologist*, June, 1996.
Ad hoc reviewer for various journals, including *Invertebrate Reproduction and Development*, *American Journal of Physiology*, *Food Research International*, *Journal of Great Lakes Research*, *Journal of Biotechnology*, *Journal of Environmental Quality*, *Aquaculture*, *Aquatic Sciences*, *Biological Invasions*, *Journal of Microbial & Biochemical Technology*

Other Professional Service

Genbank (NIH maintained genetics database) sequences: cytochrome oxidase I barcode sequences in chironomids (2020) GenBank accession IDs MT013129--MT013141
Genbank (NIH maintained genetics database) sequences: cytochrome oxidase I barcode sequences in chironomids (2019) GenBank accession IDs MN736969- MN736973
Genbank (NIH maintained genetics database) sequences: cytochrome oxidase I barcode sequences in water mites (2018) GenBank accession IDs MG811661, MG811665, and MG811666, MG811664, MG811684, MG811685, MG773263, MG773265, MG835761, MG773264, MG811671, MG773265, MG811676, and MG835671
National Association for Research in Science Teaching (NARST), Peer-review five 5-page research papers proposed for presentation at the 2019 Annual NARST conference, equivalent to doing peer reviews of 5 peer-reviewed journal articles on original research
Internet site for the Belle Isle Aquarium: 2012 – present. I oversee and supervise student assistants maintaining a website for the Belle Isle Aquarium, located at <http://detroitaquarium.weebly.com> (now partly moved to a new web site that I created at <https://www.biaquariumstem.org/>). The site includes general information about aquarium staff and organisms and upgrades in 2017 of pages specifically targeted at kids and teachers and pages focused on invasive species, including a virtual field trip for school kids to the Belle Isle Aquarium, at <https://www.biaquariumstem.org/virtual-field-trip.html>. These pages include various activities and computer games, created under my supervision.

Genbank (NIH maintained genetics database) sequences: cytochrome oxidase I barcode sequences in aquatic snails (*Valvata* spp., KT963299 - KT963306) (2016)

Genbank (NIH maintained genetics database) sequences: cytochrome oxidase I barcode sequences in aquatic insects, accession numbers KP954634–KP954653 (adults), KR085203–KR085223 (adults) and KR085224–KR085412 (larvae) (2015)

Genbank sequences: mitochondrial cytochrome oxidase I sequences (so-called “bar code sequences”) of various oligochaetes (mainly) and other invertebrates from Toledo Harbor, accession numbers KM196596 – KM196604 (2014)

Provider of zebra mussels (shells, live animals, as appropriate) to middle school and high school science fair students, museums, etc.: 2003: Natalie Johnson, Portage, IN (several awards in regional science fair); Sarah Sandwick and Emily Bradshaw, Northeast MN Regional Science Fair (first place winners); Richard Anderson, Snyder Foundation for Animals, Baltimore, MD.

Pheromone-guided tracking behavior of male *Nereis succinea* (video of live animal responses to pure synthetic pheromone):
<http://sun.science.wayne.edu/~jram/NereisTracks.htm>

Web-based simulation software: This is the initial web-based *Nereis succinea* pheromone mating search simulation, upon which we are building our “Scientific Workflow System for Biological Simulation”
<http://paris.cs.wayne.edu/~aw6056/Simulation/Simulation.html>

Microfluidic demonstration of bacterial chemotaxis:
<http://sun.science.wayne.edu/~jram/ecolitaxis.htm>

Hormones and the electrical activity of the nervous system. A poster and demonstration presented at Cranbrook Institute of Science, April 17, 1982.

Axon Potential Simulator (Computer Program), 1986 and continuing upgrades, including a Java version now available on the World Wide Web, at
<http://www.phypc.med.wayne.edu/jeffram/axon3.htm>.

Genbank (NIH maintained genetics database) sequences: 6 sequences from the cytochrome b gene of gobioid fish, accession number U53673 to U53678 (1996).

World Wide Web site: The Zebra Mussel page.
<http://www.science.wayne.edu/~jram/zmussel.htm>
 This “page” consists of 21 “slides” plus figure captions describing zebra mussel biology and providing links to other zebra mussel resources on the World Wide Web. It includes an access counter that has consistently been showing approximately >50 accesses per day (recently about 100/day) since the page was established near the end of February, 1996. Additions and modifications were made in March, 1997 and March, 1998. Bibliography of quagga and zebra mussels, 2002-2008, added October, 2008.

Genbank sequence: zebra mussel actin, accession number AF082863 (1998).

Genbank sequence: zebra mussel cyclin A, accession number AF086635 (1998).

Genbank sequence: zebra mussel cyclin B, accession number AF086634 (1998).

Genbank sequences of zebra mussel mRNA (cDNA) of
 cyclin C, accession number AF508218 (2002)
 cyclin D, accession number AF508219 (2002)
 cdc2, accession number AF508220 (2002)
 Rad51, accession number AF508221 (2002)

DMC1, accession number AF508222 (2002)
protein phosphatase IIA, accession number AF508223 (2002)
alpha-tubulin, accession number AF508224 (2002)
Genbank sequences: multiple alleles of *E. coli* beta-glucuronidase, accession numbers AY447047 – AY447194 (2003).
Design and programming of the internet accessible RamLab Database Management System, a mySQL-based database in a JSP environment (public portions of the database are accessible at http://database.cs.wayne.edu:8080/myGCG/jsp/ramlab_database.htm)
World Wide Web site: “RamLab Project on Microbial Source Tracking” (<http://database.cs.wayne.edu:8080/myGCG/mst/home.html>)
This site consists of pages summarizing principles of microbial source tracking, links page to specific MST studies and summaries on the internet, and detailed methods used in our funded study comparing MST methods for Michigan environmental health managers.
A peer review document of the Michigan Department of Environmental Quality commented: “Disseminate project results to managers of water pollution prevention programs at local, state, and federal levels. This information is the quality control portion that has been lacking with this technology. Jeffrey Ram did an excellent job and provided all of us useful and timely information. I am glad this project was funded and completed!”
Genbank sequences: multiple alleles of *E. coli* gene *tsr*, accession numbers EU637473 - EU637575 (2008).

Teaching

At Wayne State University since 1977 (complete list of courses below).

Teaching at Wayne State University

Undergraduate courses:

Molecular Aquatic Ecology (Biology 5180), taught at the Belle Isle Aquarium, 2015, 2019. Students also include graduate students.
Human Physiology (IHS 0320), subsequently Basic Mechanisms of Human Disease (IHS 310, subsequently HIS 3100). 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2008
Special Education: Behavior Management (SED 5140), 2002, 2003
Membrane Mechanisms and Animal Behavior (Biology 506/800), 1987

Graduate courses:

Sustainability of Urban Environmental Systems (BIO7310), 2018, 2019
Biotechnology (PSL6300), 2012, 2015, 2016, 2017, 2018; 2019 together with M. Fujimoto: 2013, 2014
Physiology Laboratory (PSL7040), 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017
General Physiology, fall term (PSL 0752, subsequently PSL 752, subsequently PSL 701, subsequently PSL 7010). 1978, 1979, 1980, 1981, 1982, 1983, 1985, 1986, 1987,

1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019

Basic and Integrative Physiology (PSL 7011), 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2008, 2009, 2010, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019

Physiology Laboratory (PSL 0752, subsequently PSL 752, subsequently PSL 702, subsequently PSL 7020). 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1997 (PSL 704), 1997 (PSL 7020), 1999, 2000, 2001, 2002, 2003, 2005, 2006, 2008, 2009, 2010, 2011, 2012, 2015, 2016, 2017, 2018, 2019; together with M. Fujimoto: 2013, 2014

General Physiology, winter term (PSL7030), 2007, 2008, 2009, 2010, 2011, 2012, 2013

Basic and Integrative Physiology (PSL 7031), 2007, 2008, 2009, 2010, 2011, 2012, 2013

Exercise physiology (PSL6010/PE6310), 2001, 2002, 2003, 2004, 2005, 2006, 2008, 2009

Developmental Physiology (PSL 0750, subsequently PSL 750, subsequently PSL 7500). 1978, 1979, 1980 (twice), 1981, 1982, 1983, 1985, 1986, 1987, 1988, 1990, 1992, 1993, 1994, 1998, 2000, 2002, 2004, 2006

Interdisciplinary Cell Biology (IBS 7020), 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006

Advanced Neurophysiology (PSL 789), 1988, 1990, 1992, 1994, 2004

Neuropharmacology (PHC 753), 1997; PHC 7015, 1999

Physiology Essays (PSL 709, subsequently PSL 7090), 1991, 1992, 1993, 1994, 1995, 1997, 1998

Neuroscience Survey Course (PSL 0719, subsequently PSL 719), 1978, 1979, 1980, 1981, 1982, 1983, 1985, 1986, 1987, 1988, 1989, 1990

Advanced Physiology (PSL 0754). 1977, 1978, 1979, 1980, 1981

History of Physiology (PSL 0776), 1980

Neuroendocrine Pharmacology (PHC 761), 1979

Medical students:

Neuroscience Unit, Year I. 1979, 1980, 1981, 1982, 1983, 1984, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019

Cardiovascular Unit (later Physiology course, later Cardiopulmonary Unit), Year I, Lab Instructor. 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1986, 1987, 1988, 1989, 1990, 2008, 2009, 2010, 2011, 2012, 2013, 2015, 2016, 2017, 2018, 2019

Respiratory Unit, Year I, Lab Instructor: 2017. Cardiopulmonary pulmonary lab: 2018

Physiology Course (changed to Muskuloskeletal Unit in 2018), 1991, 1992, 1993, 1994, 1995, 1996, 2003, 2010, 2011, 2012, 2013, 2016, 2017, 2018, 2019

Respiratory Unit, Year I. 1980, 1981, 1982, 1983

Neurology Unit, Year II. 1982, 1983

Teaching at other universities

Undergraduate students

University of Detroit Mercy, (SCIE 1010, science careers), 2019

University of California, Santa Cruz, 1973-1976.

Neurochemistry (Biology 42a), 1976.

Neurophysiology Laboratory, 1974-1975.

Neurophysiology exam reader, Fall, 1973.

California Institute of Technology, 1968-1973.

Taught undergraduate tutorial on "Neurochemistry of Memory," Fall, 1971, and Winter, 1973.

Teaching assistant in Organismic Biology, 1970, 1971.

Teaching assistant in Neurophysiology Laboratory, 1968, 1969.

Medical students

Universidad Autónoma de Guadalajara, Mexico, School of Medicine International Program, February, 2007. Visiting Professor. Neuroscience, year 2 (cellular and sensory neuroscience).



Mentorship (*chronological order*):

Students and other research trainees, supervised in research (*, undergraduate, #, medical student; @, graduate student; &, post-doctoral research associate; %, resident; and +, high school teacher; ~, high school student; >, post-MS practical training)

- | | | |
|-------------------------|-----------------------|-----------------------|
| *# Gurjit Ajimal | * James Walker | * Sompong |
| @ Umesh Shukla | * Jon Mojares | Vongpunsawad |
| & Vanita Padgaonkar | @ Gary Crawford | @ Ranganath Muniyappa |
| @ Barbra Basberg | & Peter Fong | * Angelita Martinez |
| @ Reinhard Palovcik | * Darcie Wall | * Denise Moore |
| @ Dilip Gole | * Jill Duncan | @ James Selegean |
| @ Rajesh Parti | * Fadi Baidoun | * Azrael Paredes |
| * Roy Goines | * Lashawn Therell | * Sashi Putchakayala |
| # Kurt Haller | * Nilesh Patel | * Jennifer Colombo |
| # Allen Williams | * Patricia Paz | & Anne Lamers |
| * Zvi Levran | % Prakash Tirupattur | * Dan Ma |
| * Michael Kreiman | % Rama Thyagarajan | * Ahmed Elsanhoury |
| * Laurie Munday | * Haitham Abdel-Ghani | @ Jake Heiney |
| * Mita Patel | * Daniel Lessanework | @ Cecilia Speyer |
| @ Gilbert Noiro | a.k.a. Mekasha | @ Joshua Herskovic |
| * Sharon Waddell | & Jorg Hardege | # Kristi Pedler |
| *# Michelle Jednak (nee | % Jyotsna Ravi | % Sonia Hassan |
| Anderson) | * Frances Curtis | ~Natalie Ram |
| * Sushuma Patel | * Stacy Rynkowski | @ Jeremy Kendra |
| * Vincent Maribao | @ Rui Xu | @ Ralph Kusserow |
| * Steve Fletcher | @ John Dougherty | (Technical U. of |
| * Michael Cichowlas | * Jano Janoyan | Dresden) |
| @ Li-Xin Liu | + Velma Snow | * Reshma Patel |
| @ Feng Zhang | @ Juan Morales | |
| @ Paul Standley | * Bryant Haliburton | |
| * Manoj Malhotra | @ Jean Palad | |
| @# Erwin Young | @ Ali Bydon | |
| * Susan Mahaffey | & Jianben Song | |
| * Kandeel Judge | & Philip Furspan | |

*, undergraduate
#, medical student;

@, graduate student;
&, post-doctoral
research associate;
%, resident;
+, high school teacher;
~, high school student;
>, post-MS practical
training)

@ Cornel Barbat
* @ Rodrigo Merino (U.
Austr. de Chile)
* Benjamin Taylor
~ Tammy Ram
@ Melphine Ponniah
* Felicitas Gonzales
@ Raquel Ritchie
& James Simples
@ Firas Hamade
@ Jianwen Fang
@ Madan Kovur
* Erin Jellison
Thomas Kim
Sid Kerkar
@ Suhair Hammad
Zivit Javetz
~ Kimberley Eakins
~ Lauren Ramsey
* Keyona King
~ Vipul Shukla
@ Jason Blocksum
> Jinshuang Lu
Andrea Rahaley
* Kristina Fox
@ Lei Chen
~ Jazmin Philyaw
~ Hosea Walker
@ Daniel Sapeika
@ Henna Tirmizi
* Deborah Jurczynszyn
@ Brian Scheeringa
Sean Fitzgerald
@ Sijana Hotic
@ Brooke Thompson
@ Jamal Alhiyafi
@ Dapeng Liu

@ Yi Lu
Stephanie Niec
* Marcella Luercio
@ P. (Jib) Namprachan
@ Prajwalini Mehere
* Meghna Shukla
@ Kawsar Zaman
Mausumi Syamal
* Ilir Mandija
@ Cavitha Sabesan
@ Xubo Fei
* Patrick Keating (Purdue)
@ Antoinette Black
@ Scotia Roopnarine
~ * Sonal Purohit
* Aos Karim
* @ Shayef Gabasha
* Mohamed Twfik
* Ghenta Zhubi
* Pranav Jagtap
@ Payel Acharya
* @ Fady Banno
@ Laura Ruble
* Maysa Hamade
* Brianna Knoppow
* Ahsan Akram
* Eboni Reed
* Sukhdeep Brar Singh
@ Sarah Dubaisi
@ Joshua Southern
* Nataliya Sachovska
@ Sanjay Rama
@ Roxana Moniri Javid
@ Sifat Noman
* Mahum Ahmed
* Steven Kudla
@ Andrew Failla
& Masanori Fujimoto
* Julia Sosin
* Hager Alkhafaji
* Ilir Izvezaj
* Philip Biellak
* Audrey Zarb
* Ronda Safadi
* Ashwini Kamat
* Sara M. Pickard

* Gregg C. Udeh-Ubaka
* Rachel Leads
@ Adrian Vasquez
* Avik Chakravarty
& Banani Sen
* Milad Qazazi
* Jaime Gonzalez
* Hannah Fine
@ Osama Alian
* Wajeeha Jamsheed
* Noel Vitale
* Iman Mekled
* Xavier Walker
* Dion Walker
@ Mrugesh Shah
* Mario McGhee
* Anthony Costa II
* Jasmine Brockman
* Claire Plouff
* Obadeh Mohiddin
@ Rohit Raibagkar
~ D'Avionne Hill
@ Zeyu Li
@ Gina Wulff
@ Tiffany Burris
* Awet Afework
* Sonia Rafique
* Brittany Bonnici
@ Sarban Singh



Essays/Theses/Dissertations Directed:

Degree in progress:

Sarban Singh, M.S. (BMS program). Behavior analysis and electrophysiology of water mites. 2018-ongoing.

Degrees completed:

Nathaniel T. Marshall, Ph.D., 2019. Department of Environmental Sciences, University of Toledo. M.S., 2014, University of Texas, Tyler, Texas & B.S., Ohio State University, 2010. I served as external Ph.D. dissertation committee member for research entitled: "Advancing genetic analyses and implementing eDNA metabarcoding for invasive species detection and macroinvertebrate community composition," defended April 25, 2019.

Adrian Vasquez, Ph.D., 2015 – 2017 (Physiology, with previous M.S. from Wayne State, Biological Sciences). Digestive composition and physiology of water mites. August 16, 2017.

Carrie Addis, M.S. (Department of Biological Sciences). Development of a *Dreissena* bioassay to assess the toxicity of contaminants across two life-history stages. 2016.

Kellie Cunningham, Ph.D. (College of Education) Variables that Impact the Implementation of Project-Based Learning in High School Science. 2016.

Andrew Failla, M.S. (BMS program). Chironomid taxonomy and potential as invasive species. 2013 – 2014.

Joshua Southern, M.S. (Biol. Sci.). Early detection of invasive species. 2011 – 2014

Carly Nowicki, Ph.D. (Biol. Sci.) Environmental Stressors: Pathways of Exposure and Aquatic Invertebrate Response. 2010 - 2014.

Roxana Moniri Javid, M.S. (Biomedical Eng.). Automated ballast treatment verification. 2012 – 2014.

Sanjay Rama, M.S. (BMS program). Early detection of invasive species. 2012.

Laura Ruble, M.S. (BMS program). Glutathione regulation of calcium homeostasis. 2011.

Xubo Fei, Ph.D. student (Department of Computer Sciences). Simulation modeling and analysis of mate finding in a marine polychaete (applications part of his dissertation on the design of scientific workflow management systems). Ph.D. Sept, 2011.

Jamal Alhiyafi, Ph.D. (Department of Computer Sciences). High throughput analysis of gene conversion and recombination in bacterial genomes. Ph.D., March 2010.

Scotia Roopnarine, M.S. (Department of Computer Sciences). A scientific workflow system for analysis of biological simulations. M.S., March 2009.

Sijana Dzinic (nee Hotic), Ph.D., 2008 (Physiology). Effects of host-specificity on *Escherichia coli* chemotactic behaviour, chemotaxis genes, and chemotaxis proteins expression.

Cavitha Thurairajah Sabesan, M.S., 2007 (Department of Computer Sciences). RECOMBFLOW: A scientific workflow environment for intragenomic recombination analysis.

Brooke Thompson, M.S. student (BMS program, 2004-2007). Microbial source tracking for TMDL requirements.

Yi Lu, Ph.D., 2006 (Department of Computer Sciences). Advanced data mining techniques for identifying correlation between gene expression and promoters

Henna Tirmizi, M.S. (BMS student), 2004. Comparison of ribotype specificity to sequence-based source tracking of *E. coli*

Melphine Ponniah, M.S. (BMS student), 2001. Molecular genetics of environmental *E. coli*.

Juan Morales, Ph.D. Modulatory role of extracellular high glucose on the induced synthesis of nitric oxide in rat blood vessels. Ph.D. awarded, June, 2001.

Cecilia Speyer, Ph.D., Regulation of lipopolysaccharide (LPS)-induced relaxation in rat lung pericytes. Ph.D. awarded, July, 2000.

Ranganath Muniyappa, Ph.D. Regulation of nitric oxide synthase in blood vessels, Ph.D. awarded, Nov. 1999.

Joshua Herskovic, M.S. (BMS program), 1999. Research on zebra mussel electrophysiology and potassium currents in lung pericytes.

Jake Heiney, M.S. (Physiology), 1999. Molecular biology of proteins involved in reproduction and development of the zebra mussel, *Dreissena Polymorpha*.

Rui Xu, Ph.D., 1998. Regulation of endothelial and inducible nitric oxide synthase by estradiol and glucose in endothelial cells.

John Dougherty, M.S. (Biology), 1994. mtDNA in two introduced fish species in the Great Lakes.

Feng Zhang, Ph.D., 1994. Estradiol effects on ion channel mechanisms in cultured vascular smooth muscle cells.

Cynthia Janusz, Ph.D., 1992. Research was done in the laboratory of R. Berman in Psychology. Adenosine actions in the hippocampus.

Paul R. Standley, Ph.D., 1992. Insulin effects on vascular smooth muscle calcium.

Erwin S. Young, M.S., 1990. Effects of Nutritional Status and Shock on *Aplysia* Blood Glucose and Tissue Glycogen Levels.

Li Xin Liu, M.S., 1990. Smooth muscle in *Aplysia*. 1. Ion channels. 2. Amiloride effects on contraction and ion channels.

Reinhard Palovcik (Department of Psychology), Ph.D., 1982. Serotonin and behavioral states in *Aplysia* and *Pleurobranchaea*.

George Natho, M.S., 1981. Angiotensin I-generating enzyme in human CSF.

Course or curriculum development

BIO 7310. Developed field trip to study the Areas of Concern paradigm, the Rouge River Wayne State, 2018, 2019

Physiology riddles: original riddles with a muscle physiology theme. (1) Hollywood lament riddle, (2) Pilgrim SERCA riddle, (3) turkey cross bridge riddle, (4) sugar for Indians riddle, 2017

Awarded a \$3,000 *Wayne State University Education Development Grant* in 2014 to develop BIO 5180 as an intensive 3-week combined laboratory and field course in Molecular Aquatic Ecology. The course ran with great success for the first time in Jul-Aug 2015. See course website at: <http://sun.science.wayne.edu/~jram/bio5180/>. The course was taken by 7 students, recruited from multiple institutions.

Musical physiology: original musical compositions with a physiology theme:

a. "Physiology of the Ear" (to the tune of "Dem Bones"), used in IHS3100), (c) 2000.

- b. “Synaptic Biochemistry study guide” (to the tune of “Sloop John B”) used in Year One Medical Neuroscience unit and IHS3100, (c) 2001, version 2 in IHS3100, (c) 2005.
 - c. “Cross-Bridges for Muscle Contraction” (to the tune of “It’s Hard ain’t it Hard”), used in IHS3100, (c) 2001.
 - d. “Bonds with Energy: Cell Energy study guide” (to the tune of “Let it Be”), used in IHS3100, (c) 2001.
 - e. “To Taste, to Touch, to Feel: Membrane Potential study guide” (to the tune of “Amazing Grace”), used in IHS3100, (c) 2001.
 - f. “Memories” (to the tune of “Moments to Remember”), used in IHS3100 and Year One Medical Neuroscience unit, (c) 2001.
 - g. “Bones” (to the tune of “Down in the Valley”), used in IHS3100, © 2004.
 - h. “Vestibulo-oculo reflex study guide” (to the tune of “Let it Be”), used in Year One Medical Neuroscience unit, (c) 2005; version 2, used in IHS3100, (c) 2005.
 - i. “Membrane transport study guide” original lyrics and music, used in IHS3100, (c) 2005.
 - j. “Action Potential Rock,” original lyrics and music, used in IHS3100, (c) 2005.
 - k. “Nociceptive Blues” (to the tune of St. James Infirmary), used in IHS3100, (c) 2005.
 - l. “Dinnertime” to the tune of Summertime, © 2007.
 - m. “If you go drinking and eating...” © 2007.
 - n. “Chew up your food” © 2012
- Ram, J.L. Excerpts from the movie *Memento*, illustrating hippocampal damage syndrome. 2002.
- Neurolimericks, used in Neuroscience Year I Medical School course:
- a. “The Unhappy Amine”, © 2004
 - b. “Process my Peptide”, © 2004
 - c. “Tickle my Toe”, © 2004
 - d. “With Apologies to Canadian Friends”, © 2004
 - e. Also, for PSL7030: “What William Beaumont knew”, © 2008
- Physiology games
- a. “Who wants to be a Neuromillionaire?”, used in Neuroscience Year I Medical School course, (c) 2005.
 - b. “What’s your action potential?”, used in IHS3100, (c) 2005.
- Course Director PSL7020, 2019
- Course Director PSL7040, 2006, 2007, 2008. Developed the course pack set of lab exercise summaries and lab experiments instructions given to students at the beginning of the semester (was not done this way before 2008); continuing 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017.
- Developed a new student lab on bioinformatics for PSL7040, focused on gastrointestinal tract proteins and hormones, 2007
- Course Director, PSL 7010, Fall term, 1998, 1999, 2000, 2001, 2002, 2003, 2004
- Course Director, PSL 7011, Fall term, 1999, 2000, 2001, 2002, 2003, 2004
- Course Director PSL7890, 2005, 2006
- Cytoskeleton/muscle contraction team leader, IBS 7020, 1998, 1999, 2000, 2001, 2003, 2004

Developed a new student lab on molecular techniques for the study of calcium channels, 1996-97; updated with bacterial genomics and bioinformatics, 2002; updated with allele-specific primers, 2003

Course Director, PSL 7090, Fall term, 1998

Course Director, PSL 709 (Essays in Physiology), Fall term. 1993, 1994, 1995, 1997

Course Director, PSL 701, Fall term. 1993, 1994, 1995, 1997

Programmed THE AXON POTENTIAL SIMULATOR in Java, formerly available on the World Wide Web, at <http://www.phypc.med.wayne.edu/jeffram/axon3.htm>, 1997 and continuing upgrades

Course Director, Neuroscience Unit, Year I Medical teaching. 1989, 1990, 1991, 1992, 1993.

Readings for a Neuroscience Survey Course, 1987, 1988. Collated and edited by Jeffrey L. Ram.

Course Director, PSL 719, 1982, 1986, 1987, 1988. (Continuing as member of organizing committee, 1989, 1990)

Course Director, PSL 752, Winter term. 1986, 1987, 1988

Membrane Mechanisms and Animal Behavior, 1987. (Course Pak of readings, reproduced by Kinko's), by Jeffrey L. Ram for Biology 506/800. This has also been used as reference material in a class taught by G. Dambach.

Developed "Membrane mechanisms and animal behavior" (Biology 506/800), given in 1987

Designed several new laboratories in PSL 753, including writing the computer program in Quick Basic for THE AXON POTENTIAL SIMULATOR

Visiting Professor/Lecturer:

University of Hull. Honorary Professor. Appointed 23 February 2005, for the period of February, 2005 to January, 2008, and renewed to 2011. For the purpose of collaborating with Dr. Joerg Hardege, Department Head, Biological Sciences.

Universidad Autónoma de Guadalajara, Mexico, School of Medicine International Program, February, 2007. Visiting Professor. Neuroscience.

Stanford University, Department of Bioengineering, visiting faculty (sabbatical), Sept. 2007 – February 2008.

Dalhousie University, Dept. of Biophysics and Physiology, Visiting Scholar, 1996-97.

Technion, Haifa, Israel. Department of Physiology. 1984-1985 & Summer, 1987. Visiting professor. Patch clamping and other biophysical measurements of neuronal ion channels.

Course materials--see Educational Materials under Publications.

GRANTS, CONTRACTS, AND OTHER FUNDING:

Active National/International Grants and Contracts:

Role: Jeffrey Ram, PI. Percent Effort: 5% DRL-1614187
Title: Promoting Student Interest in Science and Science Careers through a Scalable Place-Based Environmental Educational Program at a Public Aquarium
Source: NSF
Dates: 9/1/2016-8/31/20 [no cost extension to 8/31/21 is expected]
Total Direct Costs: \$1,092,932. Indirect costs: \$106,902 Total costs: \$1,199,834.00

Role: Senior Personnel (Donna Kashian, PI; Miller, Guerra-Lopez, Mohamed, Sopory, co-PIs). Percent effort: 10%
Title: Transformative Research in Urban Sustainability and Training
Source: NSF
Dates and budget: 09/01/17 - 08/31/22 Total budget \$2,999,977 (includes indirects)

Active Other Grants and Contracts:

Role: Jeffrey Ram, PI. Percent effort: 10% MISGP: IS164002
Title: Educating Educators and their Students Everywhere to Prevent New Invaders
Source: Michigan Invasive Species Grant Program
Dates: February 1, 2017 to February 29, 2020.
Total Direct Costs: \$126,057 Indirect costs: \$14,006 Total budget: \$140,063

Role: Jeffrey L Ram, Mentor; Zhibing Zhang, Mentee
Title: Research mentoring of reproductive biology research of Dr. Zhibing Zhang by mentor Dr. Jeffrey L. Ram
Source: Vice President for Research Enhancement and Development, Wayne State University
Total Direct Costs: award to mentor, \$2,000

Planned or Pending National/International Grants and Contracts:

Planned:
Role: Jeffrey Ram, PI. Percent effort: 20%
Title: "Charismatic microfauna": Biodiversity of water mites as predators of diverse aquatic insect prey and food for fish
Source: NSF
Dates and Budget: dates will be 2021 – 2025, and about \$400,000.

Role: Jeffrey Ram, PI. Submitted by Jeffrey L. Ram, Ph.D., Consulting LLC, with a planned subcontract to Wayne State University. Rejected; plan to resubmit.
Title: Transforming teacher practice: student videos to promote critical thinking and communication
Source: Gates Foundation/MISK Grand Challenge
Dates and Budget: 2019 – 2020, \$100,000.

Pending:
Role: Jeffrey Ram, Sub-award PI. Caryn Heldt (Michigan Tech Univ), PI (submitted November 2019)

Title: Increase engagement of non-traditional community college students through open ended-research

Source: NSF

Dates and Budget: Subaward: 8/15/20 – 8/14/21, \$107,347. Full grant is 8/15/20 – 8/14/25, for \$374,141.

Submitted, not funded (past year only: 2019):

Role: Jeffrey Ram, PI.

Title: Student-Created Media for Invasive Species Outreach

Source: Michigan Invasive Species Grant Program

Dates and Budget: 2020 – 2022, \$134,100

Role: Jeffrey Ram, PI; Co-investigators: Dr. Adrian Vasquez, Dr. Carol Miller, Patrick Hudson, Dr. Wendylee Stott, Dr. Edward Roseman, Steve Pothoven, Chris Olds, Dr. Scott McNaught

Title: Is there enough fish food in the Great Lakes? Molecular assessment of larval lake whitefish diets.

Source: Michigan Sea Grant

Dates and Budget: 2020-2022, \$316,213 (\$200,000 external; \$116,213 cost-share)

Previously Funded Grants and Contracts

Role: Jeffrey L. Ram, PI; Percent Effort: 15%; Project GLPF#964

Co-PI: Amar Basu,

Title: Automated Ballast Treatment Verification Project

Source: Great Lakes Protection Fund, project #964

Dates: 10/1/12 – 1/31/20

Total Direct Costs: \$747,815. Indirect costs: \$75,185. Total budget: \$823,000.

Role: Jeffrey Ram, Co-PI; Percent Effort: 4%. Cooperative Agreement #G14AC00017, then G15AC00035

(Donna Kashian, WSU Biological Sciences, PI & Nick Johnson, USGS project manager)

Title: Characterization of Spawning Inhibiting Cues to Control Dreissenid Mussels

Written in 2013, was supposed to start October 1, 2013, but due to government shutdown and other delays, the actual start date was February 1, 2014. Grant was continued at approximately same rate on February 1, 2015 with annual renewals expected until 2020 (yes, working budgets for cooperative agreements with USGS is a bureaucratic nightmare).

Source: US Geological Survey

Dates: Agreement G15AC00035 indicates a “Period of Performance of 2/1/2015 – 1/31/2020, and a budget for 2015-2016 of \$185,000. A budget of \$120,000 has been approved for 2016-2017.

Total Direct Costs: The annual budget has averaged \$143,000, all direct costs. Assuming continued (expected) renewals at this average rate, the total direct expenditures at Wayne State will be \$856,000 by 1/31/2020.

Role: Jeffrey Ram, PI. Collaborators: Rajesh Seth, Subba Rao Chaganti, and Daniel Heath (University of Windsor)

Title: Microbial Contamination of Beaches in Huron to Erie Corridor: Investigating Dynamics and Potential Sources
Source: Healthy Urban Waters: HEART Field Station Investigator Research Award
Dates: March 1, 2017 – June 30, 2018
Total Direct Costs: \$35,000 (of which \$20,000 is a subcontract to the University of Windsor)

Role: Jeffrey Ram, Co-PI. Infrastructure grant. NSF: DBI-1624761
Carol Miller, PI; Jeffrey Ram, David Pitts, Shawn McElmurry, Donna R. Kashian, co-PIs
Title: Huron to Erie Alliance for Research and Training (HEART) Field Station
Improvements for Urban Watershed Research and Education
This project pays for various equipment purchases and infrastructure improvements at three field laboratory locations, including approximately \$100,000 in improvements at the Belle Isle Aquarium Laboratory that Dr. Ram heads.
Source: National Science Foundation
Dates: August 1, 2016 - July 31, 2017.
Total Direct Costs: \$251,996. No Indirect Costs. Total budget: \$251,996

Role: Jeffrey Ram, PI on subaward. Percent effort: 1.5% EPA-R5-GL2013-1
Title: Invasive Species Prevention and Control on Belle Isle – Detroit River
The lead organization is the Friends of the Detroit River
Source: U.S. Environmental Protection Agency (Great Lakes Restoration Initiative)
Dates and budget: 2/1/14 – 10/31/2016.
Total Direct Cost: *The Wayne State subaward is \$21,509* direct costs, out of a total budget of \$471,079, all direct costs. I am also the senior person on another subaward section of the grant that goes to the Belle Isle Conservancy, worth an additional \$41,000. Included in the \$41,000 is \$14,000 for hiring student interns (I supervise them as the volunteer Science Education Director at the Belle Isle Aquarium, equivalent time-wise to a 13.5% effort).

Role: Jeffrey Ram, co-PI. Percent effort: <1%
Other co-PIs are Rahul Mitra, Alisa Moldavanova, David Fasenfest, and Tam Perry
Title: Sustainability Scholars Forum
Source: Wayne State University Humanities Center
Dates: 12/1/2014 – 11/30/2015 & 12/1/2015 – 11/30/2016
Total Direct Costs: \$800 & \$600

Role: Jeffrey L. Ram, PI. Percent effort: No salary allowed on this conference grant, but the time expended was about 3% effort. 1U13AG46118-1
Project Title: Symposium on Model Invertebrate Systems for the Study of Stem Cells in Development and Aging
Source: NIH U-13 Symposium grant.
Dates: 7/1/13 – 6/30/15.
Total Direct Costs: \$25,684

Role: Jeffrey Ram, PI; Percent effort (not included in budget), including course planning and implementation: 15% effort
Co-PI: Donna Kashian

Title: Development of Interdisciplinary Course: Molecular Aquatic Ecology
Source: Wayne State University Educational Development Grant
Dates: 6/1/2014 – 8/31/2015
Total Direct Costs: \$3,000

Role: Jeffrey Ram, PI. Percent effort: 2%. Saperstein Fund grant.
Title: RISEUP: Research Internships for a Sustainable Environment with Undergraduate Participation
Source: WSU Center for Peace and Conflict Studies: Internal Funding of Projects Related to Science, Technology, Peace, and Public Policy
Dates and Budget (all direct costs): 9/1/13 – 10/31/14, \$40,000. 11/1/14 – 10/31/15, \$28,000.

Co-PI
Carol Miller, PI; Jeffrey Ram, Donna Kashian, and David Pitts, co-PIs
Project Title: FSML Planning Grant: HEART Field Center
National Science Foundation
6/1/13 – 9/30/14. \$25,000

PI
Jeffrey L. Ram, PI; Donna R. Kashian, co-PI
Invasives early warning systems validation in Toledo Harbor
EPA Great Lakes Restoration Initiative EPAR5-2011-1, GL00E00808-0
10/1/11 – 12/31/14, \$498,612 (\$328,028 direct; \$170,584 indirect)

PI
Verification of ballast water treatment technologies
EPA Great Lakes Restoration Initiative EPAGLNPO-2010-IS-1-374-522.
11/15/10 – 07/31/13, \$519,564 (\$359,387 direct; \$160,177 indirect)

PI
Public Outreach & Early Detection of Invasive Species in the Toledo Shipping Channel Area of Western Lake Erie
Healing Our Waters. Subcontract from Western Lake Erie Waterkeepers Association
9/15/10 – 7/31/11, \$6,400.

PI
Glutathionergic regulation of extracellular calcium receptors in kidney
WSU Research Stimulation Program for Tenured Faculty
6/1/10 - 5/31/12, \$50,000

Supervisor
Scientific Workflow Approach to Biological Simulations
Wayne State University faculty Graduate Research Assistantship
2007-2008 (awarded to Dr. Shiyong Lu and Dr. Jeffrey L. Ram, for co-supervision of Xubo Fei, Ph.D. student in the Department of Computer Sciences).

Sponsor
Medical Alumni Society Summer Research Fellowship
Wayne State University
Student recipient: Mausumi Syamal
Summer, 2006; \$2500 stipend to student. (student won award for this work for best on-going project at the annual Med Student Research day)

Sponsor
Medical Alumni Society Summer Research Fellowship
Wayne State University
Student recipient: Stephaie Niec
Summer, 2005; \$2500 stipend to student

Co-Investigator (K. Kato, PI)
Feasibility study of testing fecal DNA/RNA, and bacterial markers for population studies
WSU Research Enhancement Program
6/1/05 - 12/31/07, \$268,335, of which approximately \$135,000 flows through to the Ram lab.

PI
Analysis, Identification and Strategies for TMDL Implementation
Limno-Tech, Inc. (LTI)
11/22/04 – 5/15/06, \$33,675.

PI
Bridge funds in support of preliminary experiments for bacterial physiology grant proposals
Wayne State University
2005-2006, \$14,000

Sponsor
Medical Alumni Society Summer Research Fellowship
Wayne State University
Student recipient: Sean Fitzgerald
Summer, 2004; \$2500 stipend to student.

Sponsor
SREP Fellowship
Wayne State University
Student recipient: Brian Scheeringa (BMS student)
Summer, 2004; \$1,250 stipend to student

PI
“Bear Creek Bacterial Source Tracking
Environmental Consulting & Technology, Inc.
12/09/04 – 8/31/05, \$8,640

PI

Technical, planning, and engineering assistance
U.S. Army Corps of Engineers
July 28, 2003 – August 31, 2004. \$123,695 matching funds to above project entitled
“Microbial source tracking for Michigan Environmental Health Managers”, provided as in-
kind services (sequencing, ribotyping, antibiotic resistance analysis, shipping).

PI

Microbial source tracking for Michigan Environmental Health Managers
State of Michigan, Michigan Great Lakes Protection Fund
1/1/03-12/31/03, \$58,500; extended to 8/31/04.

PI

Technical, planning, and engineering assistance
U.S. Army Corps of Engineers, July, 2001 - February, 2002. J.L. Ram, Principal Investigator.
\$59,428 matching funds to above project entitled “Molecular genetic analysis of bacterial
sources in the Clinton River watershed”), provided as in-kind services. Of this amount,
\$47,000 was paid directly to the Wayne State University Sequencing Core facility for services
provided for the project (remainder is for administrative and publication costs).

PI

Wayne State University student exchange with Universidad Austral de Chile and faculty visits
between Wayne State and Dalhousie University
Wayne State University global grants program
10/1/00-9/30/01, \$6,000

Collaborating Investigator (K. Golden, PI)

Function of androgens on calcium homeostasis in cardiac myocytes
Dept. of Veterans Affairs

2001-2004; \$112,600, 2001; total for 3 years, \$333,200. Funded, but deferred in favor of
“The effects of androgens on calcium homeostasis in cardiac myocytes,” NIH; K. Golden,
Principal investigator; J.L. Ram, collaborating investigator; 9/1/01 - 8/31/06; \$105,513 (direct
+ indirect), year 1; \$548,119 (direct + indirect), total for 5 years.

PI

Molecular genetic analysis of bacterial sources in the Clinton River watershed
State of Michigan, Department of Community Health,
11/1/00-9/30/01, extended to 12/31/01, \$50,000

Collaborating Investigator (J.D. Marsh, PI)

Calcium channel alpha subunit expression
American Heart Association (National Center)
1/1/2000-12/31/2003, \$214,500 (total for 3 years)

PI

The use of the zebra mussel for monitoring and identifying *E. coli* in a watershed
Macomb County Office of Public Works
5/1/99-8/31/99, \$5,403

PI

Visit of Ralph Kusserow, Technical University of Dresden
Wayne State University International Visitor Grant
5/1/99-6/30/99, \$400

Co-Investigator (J.D. Marsh, PI)

Calcium channel regulation by the beta subunit
American Heart Association, Michigan Affiliate
7/1/99-6/30/01, \$100,000 (total for 2 years; superseded by AHA National grant, below).

PI

Physiology of reproduction in molluscs
NSF Int-9724918
4/1/98-3/31/02; \$26,772 (\$20,520, direct; \$6,252, indirect)

Sponsor

Regulation of spawning in zebra mussels by algae
Undergraduate Research Award (Wayne State University)
Student recipient: Jennifer Colombo, Dept. of Chemistry
Summer, 1997; \$1,000 stipend to student, \$500 supplies to lab

PI

Fisiologia de la reproduccion en moluscos
FONDAP project of CONICYT (the NSF of Chile)
1997-2000. Total budget US \$524,000, of which \$6,100 is in direct support of experiments I did in Chile.

Collaborating Investigator (D.Kepler, PI)

Role of tumor cell-secreted cystatins in endothelial nitric oxide synthase expression during progression of primary human breast cancer
Karmanos Cancer Institute Virtual Discovery Grant Program
3/1/97-8/31/98, \$72,800

PI

Chemical signals regulating spawning in zebra mussels
Michigan Sea Grant
3/1/97-2/28/99, \$30,000

PI

Serotonin regulation of spawning and oocyte maturation in zebra mussels
NSF IBN9631008
7/1/96 - 6/30/99; \$150,000 (direct + indirect).

PI

Spawning in the freshwater bivalve *Dreissena polymorpha* mussel

NATO Collaborative Research Grant, CRG.950825
M.G. Bentley (University of St. Andrews, UK), collaborating investigator
1995-1997 BF105,000 (approx. \$4,000); 1997-1999, BF214,000 (approx. \$6,000).

PI
Symposium on oocyte maturation and fertilization
NIH 1R131HD33535-01
1995, \$8,905.

PI
Symposium: Mechanisms of oocyte maturation and fertilization
NSF 9420716
1995, \$5,000

PI
Symposium on zebra mussel biology, ecology, and physiology
NSF IBN-9416907 (administered through the American Society of Zoologists).
1/1/95-12/31/95, \$5,000

PI
Neurotransmitter control of reproduction and oocyte maturation
NIH-MBRS, GM 08167
4/1/95-3/31/99, \$177,152 (direct + indirect); 4/1/95-3/31/96; \$44,288 (direct + indirect);
4/1/96-3/31/97, \$42,855, 4/1/97-3/31/98, \$32,879 (direct); 4/1/98-3/31/99, \$32,879 (direct) +
14,129 (indirect).

Co-PI (J.R. Sowers, PI)
Actions of insulin and IGF-1 on vascular smooth muscle cation and glucose metabolism
V.A. Merit 0018
10/1/94-9/30/99: \$569,800. 10/1/94- /30/95: \$121,400

PI
Molecular biology of zebra mussel gill
Michigan Sea Grant Program Development Funds
10/1/94-9/30/95. \$5,000 (direct + indirect).

PI
Mitochondrial DNA analysis of tuna
Wünsch International Ltd.
9/1/94-1/4/95, \$25,000 (direct + indirect)

PI
Male/female differences in vascular function: Ionic currents and estradiol in a sexually
dimorphic contractile response
American Heart Association (National Center) Grant-in-Aid
7/1/94-6/30/97, \$119,900 (direct cost) + \$11,990 (indirect cost) = \$131,890 total

PI

Zebra mussel gill culture system
Michigan Sea Grant Program Development Funds
9/1/93-8/31/94, \$5,000 (direct + indirect).

Co-Mentor (R.A. Brown, PI)

Mechanisms of ethanol-induced cardiac dysfunction
NIH (Minority Faculty Development Award) K14 HL02748
4/1/92-3/31/97, \$344,737 (direct + indirect). 4/1/92-3/31/93, \$65,565; 4/1/93 - 3/31/94,
\$69,454 (direct + indirect); 4/1/94 - 3/31/95, \$61,774; 4/1/95 - 3/31/96, \$70,671; 4/1/96 -
3/31/97, \$77,273.

PI

Approaches to zebra mussel control through intervention in reproduction
EPRI (Electric Power Research Institute) and MERRA
9/1/91 - 8/31/94, \$29,900 (total)

PI

Mentor for Ricardo Brown
Wayne State University Mentor Program
1991, \$2,000

PI

Approaches to zebra mussel control through intervention in reproduction
NOAA
9/1/91 - 2/28/95, \$144,300 (direct + indirect).

PI

Neurotransmitter mechanisms regulating molluscan muscle
NSF
4/1/91-9/30/92, \$20,000 (direct + indirect)
10/1/91-9/30/92, \$79,111; and same annual rate through 9/30/94

PI

Regulation of contraction in *Aplysia* smooth muscle
NIH-MBRS, GM08167
1/1/91 - 12/31/94, \$130,202 (direct cost); 1/1/91-12/31/92, \$32,243; 1/1/92-12/31/92, \$32,447
(direct cost); 1/1/93 - 12/31/93, \$35,842 (direct cost) + \$16,600 (indirect cost) and similar rate
for 1/1/94 - 12/31/94

Co-PI (J.R. Sowers, PI)

Insulin resistance, impaired calcium transport and vascular reactivity
V.A. Merit Review, 15D.
10/1/90-9/30/94; 10/1/90-9/30/91, \$112,300;
10/1/91-9/30/92, \$79,111; and same annual rate through 9/30/94

Co-PI (with A. Wakade)
Ion channel development in co-cultured sympathetic neurons
Dysautonomia Foundation, Inc.
1989-1990, \$10,000

PI
Supplemental Research Equipment Fund Award
Wayne State University
\$30,330 (with A.R. Wakade and R. Barraco)

PI
Serotonin mechanisms in motor control
NIH-MBRS
1988, \$28,812
1989, \$25,684
1990, \$29,142

PI
Role of inositol trisphosphate in vascular smooth muscle
American Heart Association of Michigan
1985-1986, \$17,462.

PI
Role of peptide activation of an identified neuron
NIH-MBRS
1985, \$22,372
1986, \$20,767
1987, \$21,657

PI
Patch clamp analysis of a hormone-sensitive neuron
Neurosciences Small Grant Program
1983-1984, \$6,000

PI
Mechanisms of peptide action on an identified neuron
NIMH MH38495
1983-1985, \$17,340

PI
Serotonin targets and mechanisms in motor control
Muscular Dystrophy Association
1982, \$15,000
1983, \$15,563

1984-1985, \$17,993
1986-1987, \$34,261
1987-1988, \$20,624
1988-1989, \$21,873.

PI

Mechanisms of serotonergic modulation of muscle contraction
Neurosciences Small Grant Program
1981-1982, \$1,460.

PI

Angiotensin-I generating enzyme in human CSF
BRSG
1979-1980, \$2,500
1980-1981, \$2,000

PI

Neuronal targets of a polypeptide hormone
NIH NS15041
1979-1983, \$183,363

PI

Neural mechanisms of hormone interactions with the nervous system
Biomedical Research Support Grant (BRSG)
1977-1978, \$5,000
1978-1979, \$3,000

PI

Cerebrospinal fluid proteins
Wayne State University Research Award Program
1977-1978, \$3,000.

PI

Interactions of egg-laying and feeding behavior in *Busycon*
MBL-STIP grant
Summer 1975, \$2,000

Publications

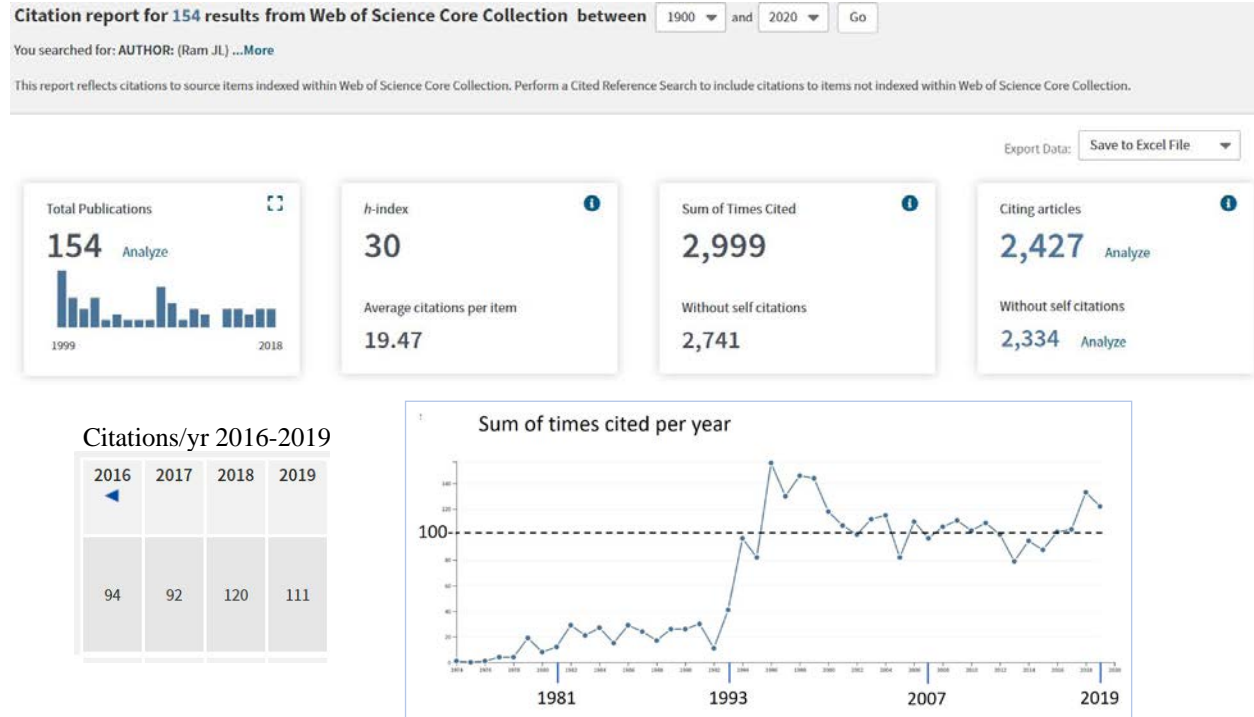
Roles in publications indicated by the following symbols:

@ study design; # data collection; = software development; % statistical analysis; & data interpretation; + manuscript preparation; > literature search; < subject recruitment or sample collection; \$ funds collection. * indicates any co-author who is a student or trainee.

This information is provided for only the last nine years of publications.

Note: The most recent 10 years of publications are listed in reverse chronological order. After that the previously used chronological order is used for the list. With regard to impact: Dr. Ram's H-index* calculated by *Web of Science* is 30. He has an average citation count per year of approximately 100/year since at least the year 2000 and trending upward the last 5 years. His average number of citations per article of 19.5. Fewer than 10% of the citations are self-citations.

(*The h-index was developed by J.E. Hirsch and published in *Proceedings of the National Academy of Sciences USA* 102 (46): 16569-16572 November 15 2005.)



Peer-Reviewed Publications Reports of Original Work

1. Vasquez, A. A., Carmona-Galindo, V., Qazazi, M. S., Walker, X. N. and Ram, J. L. (2020). Water mite assemblages reveal diverse genera, novel DNA barcodes and transitional periods of intermediate disturbance. *Experimental and Applied Acarology*: 17 pages. DOI 10.1007/s10493-10020-00476-10494.

2. Boegehold, AG; Johnson, NS; **Ram, JL**; Kashian, DR (2018) Cyanobacteria reduce quagga mussel (*Dreissena rostriformis bugensis*) spawning and fertilization success. *Freshwater Science*. 37: 510-518 DOI: 10.1086/698353
3. Nicole J. Farley, Adrian A. Vasquez, Richard Kik IV, Solomon R. David, Arjun S. Kataliha, Xavier N. Walker, **Jeffrey L. Ram** (2018). Primer designs for identification and eDNA detection of gars (*Lepisosteidae*). *Transactions of the American Fisheries Society*. 147: 687-695. <https://onlinelibrary.wiley.com/doi/abs/10.1002/tafs.10043>
4. Adrian A. Vasquez, Milad S. Qazazi, J. Ray Fisher, Andrew J. Failla, Sanjay Rama & **Jeffrey L. Ram** (2017). New molecular barcodes of water mites (Trombidiformes: Hydrachnidia) from the Toledo Harbor region of Western Lake Erie, USA, with first barcodes for *Krendowskia* (Krendowskiidae) and *Koenikea* (Unionicolidae). *International Journal of Acarology*. 494-498. <http://dx.doi.org/10.1080/01647954.2017.1349178>
5. Kato I, Vasquez AA, Moyerbrailean G, Land S, Djuric Z, Sun J, Lin H-S, **Ram JL** (2017): Nutritional Correlates of Human Oral Microbiome, *Journal of the American College of Nutrition*. 36: 88-98. DOI: <http://dx.doi.org/10.1080/07315724.2016.1185386>
6. Vasquez AA, Hudson PL, Fujimoto M, Keeler K, Armenio PM, Ram JL (2016) *Eurytemora carolleeae* in the Laurentian Great Lakes revealed by phylogenetic and morphological analysis. *Journal of Great Lakes Research*. 42: 802-811. Ref: GLR-D-15-00172R1. <http://dx.doi.org/10.1016/j.jglr.2016.04.001>
7. Kato I, Vasquez AA, Moyerbrailean G, Land S, Sun J, Lin, H-S, Ram JL (2016). Oral microbiome and history of smoking and colorectal cancer. *Journal of Epidemiological Research*. Vol 2, No 2, at <http://www.sciedu.ca/journal/index.php/jer/article/view/9047> ISSN 2377-9306(Print) ISSN 2377-9330(Online)
8. Failla AJ, Vasquez AA, Hudson P, Fujimoto M, **Ram JL** (2016) Morphological identification and COI barcodes of adult flies help determine species identities of chironomid larvae (Diptera, Chironomidae). *Bulletin of Entomological Research*. 106: 34-46. Published online: 15 June 2015, http://journals.cambridge.org/repo_A97CJrIjFf79FU DOI: <http://dx.doi.org/10.1017/S0007485315000486>
9. Akram AC, Noman S, Moniri-Javid R, Gizicki JP, Reed EA, Singh SB, Basu AS, Banno F, Fujimoto M, **Ram JL** (2015) Development of an Automated Ballast Water Treatment Verification System Utilizing Fluorescein Diacetate Hydrolysis as a Measure of Treatment Efficacy. *Water Research* 70: 404-413. <http://dx.doi.org/10.1016/j.watres.2014.12.009>
10. Fujimoto M, Moyerbrailean GA, Noman S, Gizicki JP, Ram ML, Green PA, **Ram JL** (2014) Application of Ion Torrent sequencing to the assessment of the effect of alkali ballast water treatment on microbial community diversity.

11. **Jeffrey L. Ram**, Fady Banno, Richard R. Gala, Jason P. Gizicki, and Donna R. Kashian (2014). Estimating sampling effort for early detection of non-indigenous benthic species in the Toledo Harbor region of Lake Erie. *Management of Biological Invasions* (2014) Volume 5, Issue 3: 209-216 (http://www.reabic.net/journals/mbi/2014/3/MBI_2014_Ram_etal.pdf , published on-line July 2014)
12. Jennifer K. Adams, Elizabeta Briski, **Jeffrey L. Ram**, Sarah A. Bailey (2014) Evaluating the response of freshwater organisms to vital staining. *Management of Biological Invasions* (2014) Volume 5, Issue 3: 197-208. http://www.reabic.net/journals/mbi/2014/3/MBI_2014_Adams_etal.pdf (published on line July 2014).
13. Jamal Alhiyafi, Shiyong Lu, and **Jeffrey L. Ram** (2012) Scientific workflows composition in heterogeneous environments. *International Journal of Intelligent Information Processing*. 3: 25-36. doi: 10.4156/IJIP.vol3.issue1.3 http://www.aicit.org/IJIP/ppl/03_IJIP-125.pdf
14. **Jeffrey L. Ram**, Sonal Purohit, Bi-min Zhang, Teresa J. Cutright. Evaluation of the natural product antifoulant, zosteric acid, for preventing the attachment of quagga mussels – A preliminary study. *Natural Product Research* - http://www.tandfonline.com/doi/abs/10.1080/14786419.2010.541873?url_ver=Z39.88-2003&rft_id=ori:rid:crossref.org&rft_dat=cr_pub%3dpubmed#preview In print: (2012) 26: 580-584. DOI: 10.1080/14786419.2010.541873.
15. **Jeffrey L. Ram**, Aos S. Karim, Fady Banno, and Donna R. Kashian (2012) Invading the invaders: Reproductive and other mechanisms mediating the displacement of zebra mussels by quagga mussels. *Invertebrate Reproduction and Development*. 56: 21-32. DOI: 10.1080/07924259.2011.588015.
16. **Jeffrey L. Ram**, Aos S. Karim, Payel Archarya, Pranav Jagtap, Sonal Purohit, and Donna R. Kashian. (2011) Reproduction and Genetic Detection of Veligers from Changing *Dreissena* Populations in the Great Lakes. *Ecosphere* 2(1):art3. 16 pages. doi:10.1890/ES10-00118.1 (on-line journal)
17. **Jeffrey L. Ram**, Aos S. Karim, Edward D. Sandler, and Ikuko Kato. (2011). Strategy for microbiome analysis using 16S rRNA gene sequence analysis on the Illumina sequencing platform. *Systems Biology in Reproductive Medicine*. 57:162-70.
18. Lu, Yi and **Ram, Jeffrey L**. (2011) Predictions of flexible C-terminal tethers of bacterial proteins with the FLEXTAIL bioinformatics pipeline. *International Journal of Data Mining and Bioinformatics*.5: 174-188.

19. Ikuko Kato@#%&+>\$, Jordan M. Nechvatal#>, Sijana Dzinic#>, Marc D. Basson#&+\$, Adhip P. Majumdar#&+\$, **Jeffrey L. Ram**@#%&+>\$ (2010) Smoking and other personal characteristics as potential predictors for fecal bacteria populations in humans. *Medical Science Monitor* 16:CR1-7.
20. Alhiyafi J@#=%&+>*, Sabesan C@#=%&+>*, Lu S@, **Ram JL**@#=%&+>< (2009) RECOMBFLOW: A scientific workflow environment for intragenomic gene conversion analysis in bacterial genomes, including the pathogen *Streptococcus pyogenes*. *International Journal of Bioinformatic Research and Applications*. 5:1-19. PMID: 19136361
21. Wang L@=#&+>\$, Lu S@+, Fei X.&*, Chebotko A&*, Bryant HV@, **Ram JL**@+<. (2009) Atomicity and provenance support for pipelined scientific workflows. *Future Generation Computer Systems*. 25: 568-576. [doi:10.1016/j.future.2008.06.007](https://doi.org/10.1016/j.future.2008.06.007)
22. Alhiyafi J@#=%&+>*, Sabesan C@#=%&+>*, Lu S@, **Ram JL**@#=%&+>< (2009) Association analysis between intragenomic gene conversions and pathogenicity in genomes of *Escherichia coli* and *Shigella* spp.: a scientific workflow approach. *Int. J. Functional Informatics and Personalised Medicine* 2:57-76. DOI: 10.1504/IJFIPM.2009.022837. http://www.inderscience.com/search/index.php?action=record&rec_id=22837&prevQuery=&ps=10&m=or
23. Jamal Alhiyafi @#=%&+>*, Shiyong Lu @+, and **Jeffrey L. Ram** @#=%&+>< (2009) Simulation of genomic recombination and the influence of DNA sequence diversity on cluster formation and detectability of recombination: A scientific workflow method. *Int. J. of Computational Biology and Drug Design* 2: 81-99.
24. Seth T. Walk@#=%&+>*, Elizabeth W. Alm#&<, David M. Gordon, **Jeffrey L. Ram**#&<\$, Gary A. Toranzos, James M. Tiedje@, and Thomas S. Whittam@\$ (2009). Cryptic lineages of the *Escherichia* genus. *Applied and Environmental Microbiology* 75: 6534-6544 Published: OCT 15 2009.
25. Ikuko Kato\$@%+><, Kawsar Z. Badsha #*, Susan Land #, Jordan M. Nechvatal #&*, Larry H. Matherly\$@, Adi L. Tarca %, Adhip P. Majumdar\$@, Marc D. Basson < and **Jeffrey L. Ram** \$@%&+> (2009). DNA/RNA markers for colorectal cancer risk in preserved stool specimens: a pilot study. *Tumori*, 95: 753-761 (actual publication date was 2010).
26. **Ram, Jeffrey L**@+> and Lu, Yi=@>. Bioinformatics pipeline for identification of binding motifs of flexible protein tethers. Full length peer-reviewed publication in the Proceedings of the IEEE International Conference on Bioinformatics & Biomedicine, Nov 1 - 4, 2009. Washington D.C. (<http://www.itc.ku.edu/bioinformatics/BIBM09/home.php>). [65% of submitted papers were rejected; fewer than one in five submissions were accepted for publication as full-length papers].
27. Nechvatal JM#%+*, **Ram JL**\$@%&+>=, Basson MD<, Namprachan P&*, Niec SR&*, Badsha KZ#&*, Matherly LHS@, Majumdar AP\$@, Kato IS@%+><. (2008) Fecal

collection, ambient preservation, and DNA extraction for PCR amplification of bacterial and human markers from human feces. *J Microbiol Methods*. 72:124-132.

28. **Ram JL**, Fei X, Danaher SM, Lu S, Hardege JD, Breithaupt T (2008) Finding females: Pheromone-guided reproductive tracking behavior by male *Nereis succinea* in the marine environment. *J. Exp. Biol.* 211: 757-765.
29. Yu YJ, Majumdar APN, Nechvatal JM, **Ram JL**, Basson MD, Heilbrun LK, Kato I (2008). Exfoliated cells in stool: A source for reverse transcription-PCR-based analysis of biomarkers of gastrointestinal cancer. *Cancer Epidemiology, Biomarkers, & Prevention*. 17: 455-458.
30. Dzinic SJ, Shukla M, Mandija I, Ram TS, **Ram JL** (2008). Variable length tandem repeat polyglutamine sequences in the flexible tether region of the Tsr chemotaxis receptor of *Escherichia coli*. *Microbiology* 154: 2380-2386.
31. Fei X, Lu S, Breithaupt T, Hardege JD, and **Ram JL** (2008) Modeling mate-finding behavior of the swarming polychaete, *Nereis succinea*, with TangoInSilico, a scientific workflow based simulation system for sexual searching. *Invertebrate Reprod. Devt.* 52: 69–80.
32. Dzinic SH, Luercio M, **Ram JL** (2008) Bacterial chemotaxis differences of *Escherichia coli* isolated from different hosts. *Can. J. Microbiology* 54(12):1043-1052.
33. Alhiyafi J, Sebesan C, Lu S, Harriott M, Jurczyn D, Ritchie RP, Gonzales FS, and **Ram JL** (2007) Computational methods for analysis of “Cryptic Recombination” in the performance of genomic recombination detection software. Proceedings of the IEEE 21st International Conference on Advanced Information Networking and Applications. Peer-reviewed full length paper, published as AINA Workshops (1) 2007: 707-712
DOI Bookmark: <http://doi.ieeecomputersociety.org/10.1109/AINAW.2007.124>
34. Wang L, Lu S, Fei X, **Ram J** (2007) Dataflow-Oriented Atomicity and Provenance System for Pipelined Scientific Workflows. Peer-reviewed full length paper published in: International Conference on Computational Science 2007, Beijing, China. ICCS, Part III, LNCS 4489, pp. 244-252. DOI: 10.1007/978-3-540-72588-6_42 <http://www.springerlink.com/content/cp6203105412t783/fulltext.pdf>.
35. **Ram JL**, Thompson B, Turner C, Nechvatal J, Sheehan H, Bobrin J (2007) Identification of pets and raccoons as sources of bacterial contamination of urban storm sewers using a sequence-based bacterial source tracking method. *Water Research* 41: 3605-3614.

From this point on, the papers are shown in chronological order.

36. **Ram, Jeffrey L.** Autoradiographic studies on the incorporation of ^3H -leucine into identified neurons of *Aplysia californica*. *Brain Res.*, 81: 576-582, 1974.
37. **Ram, Jeffrey L.** High K^+ effects on the molecular weight distribution of proteins synthesized in *Aplysia* nervous tissue. *Brain Res.*, 76: 281-296, 1974.
38. **Ram, Jeffrey L.** Hormonal control of reproduction in *Busycon*: Laying of egg capsules caused by nervous system extracts. *Biol. Bull.*, 152: 221-232, 1977.
39. **Ram, Jeffrey L.**, Salpeter, S.R. and Davis, W.J. *Pleurobranchaea* egg-laying hormone: Localization and partial purification. *J. Comp. Physiol.*, 119: 171-194, 1977.
40. Davis, W.J., Pinneo, J.M., Mpitsos, G.J. and **Ram, J.L.** Plasticity in the behavioral hierarchy of the mollusk *Pleurobranchaea*. I. The effects of satiation. *J. Comp. Physiol.*, 117: 99-125, 1977.
41. **Ram, Jeffrey L.** and Ehrlich, Y. Cyclic GMP-stimulated phosphorylation of membrane-bound proteins from nerve roots of *Aplysia californica*. *J. Neurochem.*, 30: 487-491, 1978.
42. **Ram, Jeffrey L.** Nervous system plasticity in development and regeneration. *Trends in Neurosci.*, 3(8): IV-VI, 1980.
43. **Ram, Jeffrey L.** Multiple versus single modulatory targets in motor control circuits. *Persp. Biol. Med.*, 25: 126-135, 1981.
44. Ajimal, G.S. and **Ram, J.L.** *Aplysia* gastrointestinal tract motility: spontaneous activity and pharmacological sensitivity. *Comp. Bioc. Physiol.*, 68C: 133-144, 1981.
45. **Ram, Jeffrey L.**, Shukla, U.A. and Ajimal, G.S. Serotonin has both excitatory and inhibitory modulatory effects on feeding muscles in *Aplysia*. *J. Neurobiol.*, 12: 613-621, 1981.
46. **Ram, Jeffrey L.** Interspecific induction of egg laying in Hawaiian aplysiids. *Gen. Comp. Endoc.*, 47: 522-528, 1982.
47. Goudsmit, E.M. and **Ram, Jeffrey L.** Stimulation of *Helix pomatia* albumen gland galactogen synthesis by putative neurohormone (galactogenin) and by cyclic AMP analogues. *Comp. Bioc. Physiol.*, 71B: 417-422, 1982.
48. **Ram, Jeffrey L.** *Aplysia* egg-laying hormone increases excitatory input into a retractor muscle of the buccal mass. *Brain Res.*, 236: 505-510, 1982.
49. **Ram, Jeffrey L.**, Ram, Michal L. and Davis, Jonathan P. Hormonal control of reproduction in *Busycon*. II. Laying of egg-containing capsules caused by nervous

system extracts and further characterization of the substance causing capsule laying. Biol. Bull., 162: 360-370, 1982.

50. Palovcik, R.A., Basberg, B.A. and **Ram, J.L.** Behavioral state changes induced in *Pleurobranchaea* and *Aplysia* by serotonin. Behav. Neur. Biol., 35: 383-394, 1982.
51. **Ram, Jeffrey L.**, Gole, D., Shukla, U. and Greenberg, L. Serotonin-activated adenylate cyclase and the possible role of cyclic AMP in modulation of buccal muscle contraction in *Aplysia*. J. Neurobiol., 14: 113-121, 1983.
52. Padgaonkar, V.A. and **Ram, Jeffrey L.** Atrial gland activation of neuronal input into a buccal mass muscle of *Aplysia*. Comp. Bioc. Physiol., 74C: 387-391, 1983.
53. **Ram, Jeffrey L.** Neuropeptide activation of an identifiable buccal ganglion motoneuron in *Aplysia*. Brain Res., 288: 177-186, 1983.
54. **Ram, Jeffrey L.** Forskolin activation of an identified peptide-sensitive motoneuron in *Aplysia*. Brit. J. Pharm., 79: 631-633, 1983.
55. **Ram, Jeffrey L.**, Shukla, U.A., Parti, R. and Goines, R.L. Extracellular calcium dependence of contracture and modulation by serotonin in buccal muscle E1 of *Aplysia*. J. Neurobiol., 15: 197-206, 1984.
56. **Ram, J.L.**, Ajimal, G.S., Gole, D., Haller, K.A. and Williams, A. Serotonin and forskolin enhance both magnitude of contraction and relaxation rate of *Aplysia* dorsal extrinsic muscle independently of acetylcholine receptor. Comp. Bioc. Physiol., 79C: 455-459, 1984.
57. **Ram, J.L.** and Parti, R. Regulation of calcium influx into buccal muscles of *Aplysia* by acetylcholine and serotonin. J. Neurobiol., 16: 57-68, 1985.
58. **Ram, J.L.**, Haller, K.A. and Levran, Z. Sensitivity of a peptide-activated neuron in *Aplysia* to serotonin and cyclic AMP-relevant agents. Comp. Bioc. Physiol., 83C: 279-283, 1986.
59. **Ram, J.L.** and Dagan, D. Inactivating and non-inactivating outward current channels in cell attached patches of *Helix* neurons. Brain Res. 405: 16-25, 1987.
60. **Ram, Jeffrey L.**, Kreiman, M.A. and Gole, D. LY165163 and 8-OH-DPAT have agonist effects on a serotonin responsive muscle of *Aplysia*. Eur. J. Pharm. 139: 247-250, 1987.
61. Gole, D., Munday, L., Kreiman, M. and **Ram, J.L.** Caffeine effects on buccal muscles of *Aplysia*. Comp. Bioc. Physiol. 88C: 313-318, 1987.

62. Alkon, D., Bank, B., Naito, S., Chen, S. and **Ram, J.** Inhibition of protein synthesis prolongs Ca²⁺-mediated reduction of K⁺ currents in molluscan neurons. Proc. Nat. Acad. Sci., USA 84: 6948-6952, 1987.
63. **Ram, J.L.**, Noirot, G., Waddell, S. and Anderson, M.A. Singleness of action in the interactions of feeding with other behaviors in *Hermisenda crassicornis*. Behavioral and Neural Biology 49: 97-111, 1988.
64. **Ram, J.L.** and Ram, M.L. Synthetic egg-laying hormone of *Aplysia*: Quantitative studies of induction of egg-laying in *Stylocheilus* and of the activation of *Aplysia* buccal neuron B16. Comp. Bioc. Physiol. 92C: 131-134, 1989.
65. **Ram, J.L.** and Patel, S. Skinned muscle fibers of *Aplysia*: Potentiation of contraction by "background" calcium and lack of effect of cyclic AMP. Comp. Bioc. Physiol. 93A: 745-749, 1989.
66. Liu, L.X., Anderson, M.A., Patel, S., Maribao, V. and **Ram J.L.** Amiloride inhibits contraction and serotonin modulation of *Aplysia* muscle. Comp. Bioc. Physiol. 96C: 71-76, 1990.
67. Fletcher, S.D. and **Ram, J.L.** High temperature induces reversible silence in *Aplysia* R15 bursting pacemaker neuron. Comp. Bioc. Physiol. 98A: 399-405, 1991.
68. **Ram, J.L.**, Zhang, F., and Liu, L.-X. Contraction, serotonin-elicited modulation, and membrane currents of dissociated fibers of *Aplysia* buccal muscle. Biol. Bull. 180: 276-283, 1991.
69. Standley, P.R., Zhang, F., **Ram, J.L.**, Zemel, M.B., and Sowers, J.R. Insulin attenuates vasopressin-induced calcium transients and a voltage-dependent calcium response in rat vascular smooth muscle. J. Clin. Inv. 88: 1230-1236, 1991.
70. Young, E.S., Malhotra, M., Capo, T.R., and **Ram, J.L.** High levels of polysaccharides in *Aplysia* hepatopancreas and penis: differential effects of nutrition and development. Comp. Bioc. Physiol. 100A: 607-612, 1991.
71. **Ram, Jeffrey L.** and Liu, L.-X. Voltage dependent calcium current in dissociated smooth muscle cells of the buccal mass of *Aplysia*. J. Comp. Physiol. 161: 626-634, 1991.
72. **Ram, J.L.** and Young, E.S. Shock induces a long-lasting elevation of blood glucose in *Aplysia*. Experientia 48: 14-18, 1992.
73. **Ram, J.L.**, Fong, P., Croll, R.P., Nichols, S.J. and Wall, D. The zebra mussel (*Dreissena polymorpha*), a new pest in North America: Reproductive mechanisms as possible targets of control strategies. J. Inv. Reprod. Devel. 22: 77-86, 1992.

74. **Ram, J.L.**, Crawford, G.W., Walker, J.U., Mojares, J.J., Patel, N., Fong, P.P., and Kyojuka, K. Spawning in the zebra mussel (*Dreissena polymorpha*): Activation by internal or external application of serotonin. *J. Exp. Zool.* 265: 587-598, 1993.
75. Standley, P.R., **Ram, J.L.** and Sowers, J.R. Insulin attenuation of vasopressin-induced calcium responses in arterial smooth muscle from Zucker rats. *Endocrinology* 133: 1693-1699, 1993.
76. Fong, P.P., Noordhuis, R. and **Ram, J.L.** Dopamine reduces intensity of serotonin-induced spawning in the zebra mussel *Dreissena polymorpha* (Pallas). *J. Exp. Zool.* 266: 79-83, 1993.
77. Tirupattur, P.R., **Ram, J.L.**, Standley, P.R. and Sowers, J.R. Regulation of Na⁺ K⁺ ATPase gene expression by insulin in vascular smooth muscle cells. *Am. J. Hypertension* 6: 626-629, 1993.
78. **Ram, J.L.** and Walker J.U. Effect of deionized water on viability of the zebra mussel, *Dreissena polymorpha*. *Comp. Bioc. Physiol.* 105C: 409-414, 1993.
79. Fong, P.P., Wall, D.M. and **Ram, J.L.** Characterization of serotonin receptors in the regulation of spawning in the zebra mussel *Dreissena polymorpha* (Pallas). *J. Exp. Zool.* 267: 475-482, 1993.
80. **Ram, J.L.**, Fares, M.A., Standley, P.R., Therrell, L.L., Thyagarajan, R.V., and Sowers, J.R. Insulin inhibits vasopressin-elicited contraction of vascular smooth muscle cells. *J. Vasc. Biol. Med.* 4: 250-255, 1993.
81. **Ram, J.L.**, Judge, K. and Jednak, M.A. Antagonists of cholinergic and serotonergic responses of *Aplysia* buccal muscle. *Comp. Bioc. Physiol.* 107C: 235-242, 1994.
82. Fong, P.P., Duncan, J. and **Ram, J.L.** Inhibition of sex specific induction of spawning by serotonergic ligands in the zebra mussel *Dreissena polymorpha* (Pallas). *Experientia* 50: 506-509, 1994.
83. Walker, J.U. and **Ram, J.L.** Effects of deionized water on sensitivity of zebra mussels (*Dreissena polymorpha*) to toxic chemicals. *Comp. Bioc. Physiol.* 107C: 353-358, 1994.
84. Zhang, F., **Ram, J.L.**, Standley, P.R., and Sowers, J.R. 17-beta-estradiol attenuates voltage-dependent Ca²⁺ currents in A7r5 vascular smooth muscle cell line. *Amer. J. Physiol.* 266: C975-C980, 1994.
85. Liu, L.-X. and **Ram, J.L.** Ionic mechanisms mediating the acetylcholine-elicited contraction in *Aplysia* buccal muscle. *Comp. Bioc. Physiol.* 108A: 503-514, 1994.

86. Fong, P.P., Kyozyuka, K., Abdelghani, H., Hardege, J.D., and **Ram, J.L.** *In vivo* and *in vitro* induction of germinal vesicle breakdown in a freshwater bivalve, the zebra mussel *Dreissena polymorpha* (Pallas). *J. Exp. Zool.* 269: 467-474, 1994.
87. Zhang, F., Sowers, J.R., **Ram, J.L.**, Standley, P.R., and Peuler, J.D. Effects of pioglitazone on L-type calcium channels in vascular smooth muscle. *Hypertension* 24: 170-175, 1994.
88. Simpson, L.L., Zhang, F., Standley, P.R., **Ram, J.L.**, Weir, M.R., and Sowers, J.R. Antiproliferative effects of verapamil enantiomers on vascular smooth muscle cells. *Journal of Vascular Medicine and Biology* 5: 46-53, 1994.
89. Fong, P.P., Hardege, J.D., and **Ram, J.L.** Long-lasting, sex-specific inhibition of serotonin-induced spawning by methiothepin in the zebra mussel, *Dreissena polymorpha* (Pallas). *J. Exp. Zool.* 270: 314-320, 1994.
90. Ravi, J., Mantzoros, C.S., Prabhu, A.S., **Ram, J.L.** and Sowers, J.R. *In vitro* relaxation of phenylephrine and angiotensin II contracted aortic rings by β -estradiol. *Amer. J. Hypertens.* 7: 1065-1069, 1994.
91. Miller, R.L., Mojares, J.J., and **Ram, J.L.** Species-specific sperm attraction in the zebra mussel, *Dreissena polymorpha*, and the quagga mussel, *Dreissena bugensis*. *Canadian Journal of Zoology* 72: 1764-1770, 1994 .
92. Raman, B.B., Standley, P.R., Rajkumar, V., **Ram, J.L.**, and Sowers, J.R. Effects of estradiol and progesterone on platelet calcium responses. *Amer. J. Hypertens.* 8: 197-200, 1995.
93. Mojares, J.J., Stachecki, J.J., Kyozyuka, K., Armant, D.R., and **Ram, J.L.** Characterization of zebra mussel (*Dreissena polymorpha*) sperm morphology and their motility prior to and after spawning. *J. Exp. Zool.* 273: 257-263, 1995
94. Fong, P.P., Kyozyuka, K., Duncan, J., Rynkowski, S., Mekasha, D., and **Ram, J.L.** The effect of salinity and temperature on spawning and fertilization in the zebra mussel *Dreissena polymorpha* from North America. *Biol. Bull.* 189: 320-329, 1995.
95. Dougherty, J.D., Moore, W.S. and **Ram, J.L.** Mitochondrial DNA analysis of round goby (*Neogobius melanostomus*) and tubenose goby (*Proterorhinus marmoratus*) in the Great Lakes basin. *Can. J. Fish. Aqua. Sci.* 53: 474-480, 1996.
96. Song, J., Standley, P.R., Zhang, F., Joshi, D., Gappy, S., Sowers, J.R., and **Ram, J.L.** Tamoxifen (estrogen antagonist) inhibits voltage-gated calcium current and contractility in vascular smooth muscle from rats. *J. Pharm. Exp. Ther.* 277: 1444-1453, 1996.

97. **Ram, J.L.**, Ram, M.L., and Baidoun, F. Authentication of canned tuna and bonito by sequence and restriction site analysis of polymerase chain reaction (PCR) products of mitochondrial DNA. *J. Agricultural and Food Chem.* 44: 2460-2467, 1996.
98. Standley, P.R., Zhang, F., Ravi, J., **Ram, J.L.** and Sowers, J.R. Effects of SCN⁻ substitution for Cl on tension, intracellular free calcium, and ionic currents in vascular smooth muscle. *Life Sciences* 59: 739-752, 1996.
99. Song, J., **Ram, J.L.**, Furspan, P., and Freedman, R.R. Differences in alpha-2-adrenoceptor modulation of calcium channels in vascular smooth muscle cells of male and female rats. *Pflugers Archiv.* 433: 212-214, 1996.
100. Song, J., Walsh, M.F., **Ram, J.L.**, Igwe, R., Barazi, M., Dominguez, L.J., and Sowers, J.R. Troglitazone reduces contraction by vascular smooth muscle Ca²⁺ channel inhibition not endothelial nitric oxide. *Diabetes* 46: 659-664, 1997.
101. Morales, J.A., **Ram, J.L.**, Song, J.B., and Brown, R.A. Acetaldehyde inhibits current through voltage-dependent calcium channels. *Toxicol. Appl. Pharmacol.* 143: 70-74, 1997.
102. Hardege, J.D., **Ram, J.L.**, and Bentley, M.G. Activation of spawning in zebra mussels by algae-, cryptomonad-, and gamete-associated factors. *Experimental Biology Online* 2: <http://www.springerlink.com/content/t515701tv7x02610/fulltext.pdf>, 1997.
103. **Ram, J.L.**, Baidoun, F., Ram, M.L., and Croll, R.P. Cholinergic and peptidergic regulation of siphon/mantle function in the zebra mussel, *Dreissena polymorpha*. *Comp. Bioc. Physiol.* 117C: 275-282, 1997.
104. Hardege, J.D., Duncan, J., and **Ram, J.L.** Tricyclic antidepressants suppress spawning and fertilization in the zebra mussel, *Dreissena polymorpha*. *Comp. Biochem. Physiol.* 118C: 59-64, 1997.
105. Muniyappa, R., Walsh, M.F., Rangi, J.S., Standley, P.R., Zayas, R., **Ram, J.L.**, and Sowers, J.R. IGF-1 increases vascular smooth muscle cell nitric oxide production. *Life Sciences* 61: 925-931, 1997.
106. Muniyappa, R., Srinivas, P.R., **Ram, J.L.**, Walsh, M.F., and Sowers, J.R. Calcium and protein kinase C mediate high glucose-induced inhibition of inducible nitric oxide synthase in vascular smooth muscle cells. *Hypertension* 31: 289-295, 1998.
107. **Ram, J.L.**, Gallardo, C.S., Ram, M.L., and Croll, R.P. Reproduction-associated immunoreactive peptides in the nervous systems of prosobranch gastropods. *Biological Bulletin* 195: 308-318, 1998.

108. Lamers, A.E., Heiney, J.P., and **Ram, J.L.** Isolation and characterization of a cDNA encoding an actin protein from the zebra mussel, *Dreissena polymorpha*. *J. Shellfish Res.* 17: 1215-1217, 1998.
109. Lamers, A.E., Heiney, J.P., and **Ram, J.L.** Cloning and sequence analysis of two cDNAs encoding Cyclin A and Cyclin B in the zebra mussel *Dreissena polymorpha*. *Biochim. Biophys. Acta* 1448: 519-524, 1999.
110. Speyer, C.L.S., Steffes, C.P., and **Ram, J.L.** Effects of vasoactive mediators on the rat lung pericyte: Quantitative analysis of contraction on collagen lattice matrices. *Microvascular Research* 57: 134-143, 1999.
111. Xu, R., Morales, J.A., Muniyappa, R., Skafar, D.F., **Ram, J.L.**, and Sowers, J.R. Interleukin-1 beta-induced NO production in rat aortic endothelial cells: inhibition by estradiol in normal and high glucose cultures. *Life Sciences* 64: 2451-2462, 1999.
112. **Ram, J.L.**, Muller, C.T., Beckmann, M., and Hardege, J.D. The spawning pheromone cysteine-glutathione disulfide ("Nereithione") arouses a multicomponent nuptial behavior and electrophysiological activity in *Nereis succinea* males. *FASEB Journal* 13: 945-952, 1999.
113. **Ram, J.L.**, Moore, D., Putchakayala, S., Paredes, A.A., Ma, D., and Croll, R.P. Serotonergic responses of the siphons and adjacent mantle tissue of the zebra mussel, *Dreissena polymorpha*. *Comparative Biochemistry and Physiology* 124C: 211-220, 1999.
114. Putchakayala, S. and **Ram, J.L.** Toxic and excitatory effects of the molluscicide metaldehyde on the biofouling bivalve *Dreissena polymorpha*. *Pest Management Science* 56: 39-42, 2000.
115. Speyer, C.L., Steffes, C.P., Tyburski, J.G., and **Ram, J.L.** Lipopolysaccharide induced relaxation in lung pericytes by a nitric oxide-independent mechanism. *American Journal of Physiology* 278: L880-L887, 2000.
116. Muniyappa, R., Xu, R., **Ram, J.L.**, and Sowers, J.R. Inhibition of Rho protein stimulates iNOS expression in rat vascular smooth muscle cells. *American Journal of Physiology* 278: H1762-H1768, 2000.
117. **Ram, J.L.**, Gallardo, C., Ram, M.L., Merino, R. and Navarro, J. Neural extract induction of egg-laying and subsequent embryological development in hard and soft egg capsules of the prosobranch snail, *Chorus giganteus*. *Journal of Shellfish Research* 19: 905-911, 2000.
118. Selegan, J.P.W., Kusserow, R., Patel, R., Heidtke, T.M., and **Ram, J.L.** Using zebra mussels to monitor *Escherichia coli* in environmental waters. *Journal of Environmental Quality*. 30: 171-179, 2001.

119. Xu, R., Sowers, J.R., Skafar, D.F., and **Ram, J.L.** Hydrocortisone modulates the effects of estradiol on endothelial nitric oxide synthase mRNA levels in human endothelial cells. *Life Sciences* 69: 2811-2817, 2001.
120. Morales, J., Dunbar, J.C., and **Ram, J.L.** Effect of aldose reductase inhibition on interleukin-1-beta-induced nitric oxide synthesis in vascular tissue. *Int. J. Exp. Diabetes Research*. 3: 11-20, 2002.
121. Speyer, C.L., Steffes, C.P., Tyburski, J.G., Homan, R., and **Ram, J.L.** Lipopolysaccharide-induced secretory phospholipase A2 activity in pericytes: A possible mechanism for mediating relaxation. *Microvascular Research* 63: 239-242, 2002.
122. Lamers, A.E., Heiney, J.P., and **Ram, J.L.** cDNA sequence analysis of proteins involved in reproduction and cell cycle of the zebra mussel, *Dreissena polymorpha*. *Inv. Reprod. Develop.* 41: 41-52, 2002.
123. Herskovic, J.J., Speyer, C.L., Simples, J.E., Steffes, C.P., and **Ram, J.L.** Lipopolysaccharide (LPS) enhancement of outward current in lung pericytes. *Lung* 180 (4): 215-220, 2002
124. Vail, J.H., Morgan, R., Merino, C.R., Gonzales, F, Miller, R., and **Ram, J.L.** Enumeration of waterborne *Escherichia coli* using Petrifilm plates: Comparison to standard methods. *J. Env. Quality*. 32: 368-373, 2003.
125. **Ram J.L.**, Ritchie R.P., Fang J., Gonzales, F.S., and Selegan, J.P. Sequence-based source tracking of *Escherichia coli* based on genetic diversity of beta-glucuronidase. *J. Env. Quality*. 33: 1024-1032, 2004.
126. Chen, L., Lu, S., **Ram, J.L.** Compressed Pattern Matching in DNA Sequences, in Proc. of the IEEE Computational Systems Bioinformatics Conference (CSB'2004), pp. 62-68, Stanford, CA, USA (peer-reviewed full-length paper), August, 2004.
127. **Ram JL**, Shukla, F., and King, K.N. Zebra mussels at the freshwater/sea interface: Ionic and osmotic challenges to oocyte integrity. *Inv. Reprod. Devt.* 45: 83-89, 2004.
128. **Ram JL** and Hardege JD. *Nereis succinea* nuptial behavior: Does size matter? *Inv. Reprod. Devt. Inv. Reprod. Devt.* 48: 89-94, 2005.
129. Lu Y@=%&+*, Lu S@&, and **Ram JL**\$@=%&+>. 2006. Fast Search in DNA sequence databases using punctuation and indexing. Proceedings of International Conference on Advances in Computer Science and Technology (peer-reviewed full length paper), pp. 351-356, Puerto Vallarta, Mexico, January, 2006. Link to the paper: <http://delivery.acm.org/10.1145/1170000/1166505/p351-lu.pdf?key1=1166505&key2=4830679611&coll=&dl=acm&CFID=15151515&CFTOKEN=6184618> .

Submitted and presently in revision for another journal:

125. Jörg D. Hardege, **Jeffrey L. Ram**, Helga D. Bartels-Hardege, and Thomas Breithaupt
Thiol-based pheromones as honest chemical signals.
126. **Ram, Jeffrey L.** Extracellular calcium receptor as a target for glutathione and its derivatives.

Review Articles

1. Trebitz AS, Hoffman JC, Darling JA, Pilgrim EM, Kelly JR, Brown EA, Chadderton WL, Egan SP, Grey EK, Hashsham SA, Klymus KE, Mahon AR, **Ram JL**, Schultz MT, Stepien CA, Schardt JC. (2017) Early detection monitoring for aquatic non-indigenous species: Optimizing surveillance, incorporating advanced technologies, and identifying research needs. *J Environ Manage.* 2017 Nov 1;202(Pt 1):299-310. doi: 10.1016/j.jenvman.2017.07.045. Epub 2017 Jul 22. Review. PMID: 28738203
2. Daley M>+, **Ram JL**>+ (2016) Keeping it in Trim: Ballast and Great Lakes Shipping. *Inland Seas.* 72(4): 292-318. <http://glpf.org/wp-content/uploads/2012/10/Inland-Seas-Daley-and-Ram-Keeping-it-in-Trim.pdf>
3. Murthy M@>+, **Ram JL**\$+@ (2015) Invertebrates as model organisms for research on aging biology. *Invertebrate Reproduction & Development*, 59:sup1, 1-4, DOI: <http://dx.doi.org/10.1080/07924259.2014.970002>
4. Failla AJ*@>&+, Vasquez AA*&+, Fujimoto M*&+, and **Ram JL**\$>&+ (2015) The ecological, economic and public health impacts of nuisance chironomids and their potential as aquatic invaders. *Aquatic Invasions* 10(1): 1-15. <http://dx.doi.org/10.3391/ai.2015.10.1.01> & http://www.aquaticinvasions.net/2015/AI_2015_Failla_et al.pdf
5. Kato I@>+, Startup J*>+, **Ram JL**>+ (2014) Fecal biomarkers for research on dietary and lifestyle risk factors in colorectal cancer etiology. *Current Colorectal Cancer Reports.* 10-114-131 DOI 10.1007/s11888-013-0195-0 (published on line, November 12, 2013).
6. **Ram JL**>&+, Karim AS*>#<, Twfik ML*#, Zhubi G*#, Kashian DR+ (2009) Overview of US invasion by zebra and quagga mussels: Predicted and actual impacts. *Water Quality Technology Conference Proceedings* (full length paper), pp. 1 –20.
7. **Ram JL**@&+> and Palazzolo SM>* (2008) Globalization of an aquatic pest: Economic costs, ecological outcomes, and positive applications of zebra mussel invasions and expansions. *Geography Compass* (on-line peer-reviewed journal: <http://www3.interscience.wiley.com/cgi-bin/fulltext/121478977/PDFSTART?CRETRY=1&SRETRY=0> doi: 10.1111/j.1749-8198.2008.00168.x.).
8. **Ram, J.** (1999) *Experimental Biology '99. Investigational Drugs Weekly Highlights.* May 5, 1999: 29-31.
9. Kaseta, J.R., Skafar, D.F., **Ram, J.L.**, Jacober, S.J., and Sowers, J.R. (1999) Cardiovascular disease in the diabetic woman. *J. Clin. Endoc. Metab.* 84: 1835-1838.

10. **Ram, Jeffrey L.** Drug evaluation: Avitriptan. ID Research Alerts, Serotonin 2: 263-265, 1997.
11. Skafar, D.F., Xu, R., Morales, J., **Ram, J.** and Sowers, J.R. Female sex hormones and cardiovascular disease in women. J. Clin. Endoc. Metab. 82: 3913-3918, 1997.
12. **Ram, J.L.**, Ram, M.L., Smith, S., and Croll, R.P. Peptidergic and serotonergic mechanisms regulating spawning and egg-laying behavior in gastropods and bivalves. Malacological Review 30: 1-20, 1997.
13. **Ram, J.L.** and Hoshi, M. Introduction to the symposium on oocyte maturation and fertilization. Inv. Reprod. Devel. 30: 1-5, 1996.
14. **Ram, J.L.** and McMahon, R. Introduction to the symposium on the biology, physiology, and ecology of zebra mussels. Amer. Zool. 36: 239-243, 1996. (Introduction to a special symposium issue of the journal).
15. **Ram, J.L.** Basic and applied aspects of aquatic biotechnology research. Molecular Marine Biology and Biotechnology 4: 304-305, 1995. (This is the introduction to a 51 page special section of the journal containing chapters from a symposium chaired by the author).
16. **Ram, J.L.**, Fong, P.P., and Kyojuka, K. Serotonergic mechanisms mediating spawning and oocyte maturation in the zebra mussel, *Dreissena polymorpha*. Inv. Reprod. Devel. 30: 29-37, 1996.
17. **Ram, J.L.**, Fong, P.P., and Garton, D. Physiological aspects of zebra mussel reproduction: Maturation, spawning, and fertilization. American Zool. 36: 326-338, 1996.
18. **Ram, J.L.** and Fong, P.P. The use of serotonin and related agents for stimulating spawning in zebra mussels. *Dreissena polymorpha* Inf. Rev. 5: 10-11, 1994.
19. Sowers, J.R., Standley, P.R., **Ram, J.L.**, Jacober, S., Simpson, L. and Rose, K. Hyperinsulinemia, insulin resistance and hyperglycemia: Contributing factors in the pathogenesis of hypertension and atherosclerosis. Am. J. Hyperten. 6: 260S-270S (1993).
20. Sowers, J.R., Standley, P.R., **Ram, J.L.**, Zemel, M.B. and Resnick, L.M. Insulin resistance, carbohydrate metabolism, and hypertension. Amer. J. Hypertension 4: 466S-472S, 1991.
21. **Ram, Jeffrey L.** Nervous system plasticity in development and regeneration. Trends in Neurosci., 3(8): IV-VI, 1980.

22. **Ram, Jeffrey L.** Membrane organization and function in nervous tissue. In *Brain Research Institute Tenth Anniversary Symposia* (Los Angeles: Brain Information Service), pp. 53-61, 1972.
23. **Ram, Jeffrey L.** Functioning brains mirrored in man-machine interactions. In *Brain Research Institute Tenth Anniversary Symposia* (Los Angeles: Brain Information Service), pp. 19-25, 1972.

Letters to the Editor

Ram, J.L. "Some have recovered" Letter to the Editor, Detroit Free Press, May 18, 2008. (topic was the impact of zebra mussels on the health of the Great Lakes). The published signature on the letter identified me with my department and university affiliation.

Patents

U.S. Patent Application. Provisional patent application #61/663,389, filed 6/22/2012, entitled AUTOMATED VIABILITY TESTING SYSTEM, Jeffrey L. Ram (75%) and Alice Hudder (25%).
 WSU ref: 12-1109 Improvement (Or please provide)
 Our ref: 5006.017USP1
 US Provisional Patent App No. 61/932,688 for: AUTOMATED VIABILITY TESTING SYSTEM, filed January 28, 2014.
 International Filing, AUTOMATED VIABILITY TESTING SYSTEM. International Filing Date, 21 June, 2013. PCT/US2013/047136.

Related to the same patent:

Patent application title: AUTOMATED VIABILITY TESTING SYSTEM
 Inventors: Jeffrey Ram (Huntington Woods, MI, US) Alice Hudder (Erie, PA, US)
 IPC8 Class: AC12Q104FI
 Publication date: 2015-07-30
 Patent application number: 20150211043
 See <http://www.patentsencyclopedia.com/app/20150211043#ixzz40Eho5wSP>

Patent application title: AUTOMATED VIABILITY TESTING SYSTEM
 Inventors: Jeffrey Ram (Huntington Woods, MI, US) Alice Hudder (Erie, PA, US)
 IPC8 Class: AC12Q104FI
 USPC Class: 435 39
 Class name: Involving viable micro-organism determining presence or kind of micro-organism; use of selective media quantitative determination
 Publication date: 2015-11-26
 Patent application number: 20150337350
 See <http://www.patentsencyclopedia.com/app/20150337350#ixzz40EizvhZW>

U.S. Provisional Patent Application S.N. 60/994,436 filed on September 19, 2007, entitled **Device for Collection of Tissue or Stool Samples**, by Jeffrey L. Ram (45%), Jordan Nechvatal (45%), and Ikuko Kato (10%), co-inventors.

U.S. Patent Application Publication: US 2010/0311165 A1, published December 9, 2010, entitled **Device for Collection of Tissue or Stool Samples**, by Jeffrey L. Ram, Jordan Nechvatal, and Ikuko Kato.

Books, Authorships, Editorships, and Chapters

1. **Ram, Jeffrey L.** Do behaviorally active polypeptide hormones act at crucial "command" sites or at many sites, from "command" down to "final common paths?" *Adv. Exptl. Med. Biol.*, 116: 27-39, 1979.
2. **Ram, Jeffrey L.** Gastropod egg-laying hormones. In: Lever, J. and Boer, H.H. (eds.) *Molluscan Neuroendocrinology*, (Amsterdam: North Holland Pub. Co., 1983) pp. 94-101.
3. **Ram, Jeffrey L.**, Barmatoski, S., Liu, L.-X. and Mahaffey, S.C. Structure contraction, and electrophysiological properties of intact and dissociated smooth muscle fibers of *Aplysia*. In: *Frontiers in Smooth Muscle Research* (ed. N. Sperelakis and J.D. Wood), *Progress in Clinical and Biological Research* 327: 651-658, 1990.
4. **Ram, Jeffrey L.** and Ram, M.L. Gastropod egg-laying hormones. In: *Advances in Invertebrate Reproduction 5* (ed. M. Hoshi and O. Yamashita) (Amsterdam: *Proceedings of the Fifth International Congress on Invertebrate Reproduction, Elsevier*) pp. 257-264, 1990.
5. **Ram, J.L.**, Standley, P.R., Sowers, J.R. Calcium function in vascular smooth muscle and its relationship to hypertension. Invited chapter in *Calcium Antagonists in Clinical Medicine*, (ed. M. Epstein), Hanley & Belfus, Inc., pp. 29-48, 1992.
6. **Ram, J.L.**, and Nichols, S.J. Chemical induction of spawning in the zebra mussel (*Dreissena polymorpha*) and other bivalves. Invited chapter in *Zebra Mussels: Biology, Impact and Control* (ed. D.W. Schloesser and T.F. Nalepa), Lewis Pub., 307-314, 1993.
7. **Ram, J.L.**, Standley, P.R., Sowers, J.R. Hypertension, insulin function, and calcium. Invited chapter in *Diabetes and Atherosclerosis - Molecular Basis and Clinical Aspects* (ed. B. Draznin and R. Eckel), Elsevier Sci. Pub., pp. 291-305, 1993.
8. **Ram, J.L.**, Mojares, J.J., and Baidoun, F.F. Effects of potassium on the electrocardiogram of the zebra mussel, *Dreissena polymorpha*. Invited chapter in *Proceedings: Third International Zebra Mussel Conference* (EPRI TR-102077), pp. 3/249-3/260, 1993.
9. Sowers, J.R., Standley, P.R., **Ram, J.L.**, Jacober, S., Simpson, L. and Rose, K. Hyperinsulinemia, insulin resistance and hyperglycemia: Contributing factors in the pathogenesis of hypertension and atherosclerosis. *Am. J. Hyperten.* 6: 260S-270S, 1993.
10. Fong, P.P., Duncan, J., Hardege, J.D., and **Ram, J.L.** "Birth Control" in zebra mussels: Inhibition and sex specific activation of spawning by high affinity serotonergic ligands. *Proceedings: Fourth International Zebra Mussel Conference*, pp. 61-72, 1994.
11. **Ram, J.L.**, Walker, J.U., and Fong, P.P. Enhanced toxicity of zebra mussel control chemicals in pure water. *Proceedings: Fourth International Zebra Mussel Conference*, pp. 119-126, 1994.

12. Standley, P.R., **Ram, J.L.** and Sowers, J.R. The vasculature as an insulin-sensitive tissue: implications of insulin and insulin-like growth factors in hypertension, diabetes, atherosclerosis and arterial smooth muscle growth. In: *Calcium Regulating Hormones and Cardiovascular Disease* (eds. M.F. Crass III and L.V. Avioli). CRC Press, Boca Raton, Fl. pp. 275-293, 1995.
13. Sowers, J.R., Standley, P.R., Tuck, M., and **Ram, J.L.** Calcium and calcium-regulatory hormones in hypertension. In: *Hypertension: Pathophysiology, Diagnosis and Management* (eds. J.H. Laragh and B.M. Brenner). Raven Press, New York, pp. 1155-1168, 1995.
14. Song, J. and **Ram, J.L.** Ionic mechanisms of peptide-induced responses in vascular endothelial cells. In: *Endocrinology of the Vasculature* (ed. J.R. Sowers). Humana Press Inc., Totowa, NJ, pp. 21-36, 1996.
15. **Ram, J.L.** Bivalvia: Invasion of North America by zebra mussels. In: *McGraw Hill 1998 Yearbook of Science & Technology*. McGraw-Hill Co., New York, pp. 29-31, 1997.
16. **Ram, J.L.** Oviposition in molluscs. In: *Encyclopedia of Reproduction*. Academic Press, San Diego, CA. Volume 3, pp. 598-605, 1999.
17. **Ram, J.L.**, Moore, D.M., Putchakayala, S.M., Paredes, A.A., Morales, J.A., Hershkovic, J.J. Possible pesticide targets: Neuromuscular and reproductive pharmacology of zebra mussels. In: *Recent Advances in Marine Biotechnology, Volume III*, (eds. M. Fingerman, R. Nagabhushanam, and M.-F. Thompson), Science Publishers, Inc.: Enfield, NH. pp. 127-146, 1999.
18. **Ram, J.L.** "Heart and Circulation," In *Biology, Vol. 2* (R. Robinson, ed.), Macmillan Reference USA, New York. pp. 172-176, 2002.
19. Kashian, D.R. and **Ram, J.L.** Chemical Regulation of Reproduction in Dreissenids. *Quagga and Zebra Mussels: Biology, Impact and Control* (ed. D.W. Schloesser and T.F. Nalepa), CRC Press, New York. Pp. 461-469, 2013.
20. Ram, J.L. & Murthy, M. (guest editors, 2015). Special issue: Aging and stem cells in invertebrate model systems. *Invertebrate Reproduction and Development*. 59, Supplement 1: 1 -61. Consists of an introductory chapter and 10 review articles, all peer reviewed.
21. Ram, J.L. and Conn, P.M. (editors). *Conn's Handbook of Models for Human Aging, 2nd Edition* (2018) Published May 2018. London: Elsevier, Academic Press. 80 chapters, 1218 pages in length. It includes one chapter by me:

22. Ram, J.L. and Costa II, A. J. (2018) Invertebrates as model organisms for research on aging biology. Chapter 32 In *Conn's Handbook of Models for Human Aging, 2e* – published May 2018. Elsevier, Academic Press. Pp. 445 – 452.
23. Vasquez AA*, Ram JL*, Qazazi MS, Sun J, Kato I. 2018. Oral microbiome; Potential link to systemic disease and oral cancer. Book chapter. In J. Sun, P.K. Dudeja (eds.), *Mechanisms Underlying Host-Microbiome Interactions in Pathophysiology of Human Diseases*, Physiology in Health and Disease, American Physiological Society. Pp. 195-246. https://doi.org/10.1007/978-1-4939-7534-1_9 *Both authors contributed equally to this work.
24. Cangelosi AA, Balcer M, Reavie ED, Ram JL, Ballast Management in the Great Lakes: Priorities and Technologies for Indicative Testing. Lansing, MI: electronic: https://ballastwater.org/wpcontent/uploads/2020/02/Priorities-and-Technologies-for-Indicative-Testing_Ballast_Water_Dr_Ram.pdf and printed published by Qubic Marketing Agency; 2019. 40 pages.

Other Scholarly Products

Other: Popular Science and organizational newsletters

1. Ram, J. Eyes on the Volta Lake. *New Scientist* 39: 540-541, 1968.
2. Ram, Jeffrey. Dial a Mood. *New Society* 12: 806, 1968.
3. Jeffrey Ram, “Educating Students about Invasive Species” Michigan Science Teachers Association, Volume 69.2, page 28 (Spring, 2017). https://c.ymcdn.com/sites/msta-mich.site-ym.com/resource/resmgr/newsletter_pdfs/1000517_MSTA_SPRING_NEWSLETT.pdf
4. Jeffrey Ram and Joan Chadde, “Educating Students about Invasive Species” MEOAEgram electronic newsletter, Summer, 2017. Summer MAEOEgram 27 (3): 6-7, on line at https://drive.google.com/file/d/0BwJ8_zkn5nM_SzVmcFdntW5DenM/view?usp=sharing
5. Ram, J.L. (2017) An historical note on Ron Konopka’s discovery of the *per* circadian clock gene. *Science*. Response to Erik Stokstad, Gretchen Vogel. Revelations about rhythm of life rewarded. *Science* 06 Oct 2017: Vol. 358: 18. DOI: 10.1126/science.358.6359.18
<http://science.sciencemag.org/content/358/6359/18/tab-e-letters>

Internet accessible data and documents

Internet site for the Belle Isle Aquarium: 2012 – present. I oversee and supervise student assistants maintaining a website for the Belle Isle Aquarium, located at <http://detroitaquarium.weebly.com> . The site includes general information about aquarium staff and organisms and upgrades in 2017 of pages specifically targeted at kids and teachers and pages focused on invasive species. These pages include various activities and computer games, created under my supervision.

Pheromone-guided tracking behavior of male *Nereis succinea* (video of live animal responses to pure synthetic pheromone): <http://sun.science.wayne.edu/~jram/NereisTracks.htm>

Web-based simulation software: This is the initial web-based *Nereis succinea* pheromone mating search simulation, upon which we are building our “Scientific Workflow System for Biological Simulation” <http://paris.cs.wayne.edu/~aw6056/Simulation/Simulation.html>

Microfluidic demonstration of bacterial chemotaxis:
<http://sun.science.wayne.edu/~jram/ecolitaxis.htm>

Axon Potential Simulator (Computer Program), 1986 and continuing upgrades, including a Java version now available on the World Wide Web, at
<http://sun.science.wayne.edu/~jram/axonsim.htm>

Genbank (NIH maintained genetics database) sequences: 6 sequences from the cytochrome b gene of gobioid fish, accession number U53673 to U53678 (1996).

World Wide Web site: The Zebra Mussel page.
<http://www.science.wayne.edu/~jram/zmussel.htm>

This “page” consists of 21 “slides” plus figure captions describing zebra mussel biology and providing links to other zebra mussel resources on the World Wide Web. It includes an access counter that has consistently been showing approximately >50 accesses per day (recently about 100/day) since the page was established near the end of February, 1996. Additions and modifications were made in March, 1997 and March, 1998. Bibliography of quagga and zebra mussels, 2002-2008, added October, 2008 (URL listed below).

Genbank sequence: zebra mussel actin, accession number AF082863 (1998).

Genbank sequence: zebra mussel cyclin A, accession number AF086635 (1998).

Genbank sequence: zebra mussel cyclin B, accession number AF086634 (1998).

Genbank sequences of zebra mussel mRNA (cDNA) of
 cyclin C, accession number AF508218 (2002)
 cyclin D, accession number AF508219 (2002)
 cdc2, accession number AF508220 (2002)
 Rad51, accession number AF508221 (2002)
 DMC1, accession number AF508222 (2002)
 protein phosphatase IIA, accession number AF508223 (2002)
 alpha-tubulin, accession number AF508224 (2002)

Genbank sequences: multiple alleles of *E. coli* beta-glucuronidase, accession numbers AY447047 – AY447194 (2003).

Design and programming of the internet accessible RamLab Database Management System, a mySQL-based database in a JSP environment (public portions of the database are accessible at
http://database.cs.wayne.edu:8080/myGCG/jsp/ramlab_database.htm

World Wide Web site: “RamLab Project on Microbial Source Tracking”
<http://database.cs.wayne.edu:8080/myGCG/mst/home.html>)

This site consists of pages summarizing principles of microbial source tracking, links page to specific MST studies and summaries on the internet, and detailed methods used in our funded study comparing MST methods for Michigan environmental health managers.

A peer review document of the Michigan Department of Environmental Quality commented: “Disseminate project results to managers of water pollution prevention programs at local, state, and federal levels. This information is the quality control

portion that has been lacking with this technology. Jeffrey Ram did an excellent job and provided all of us useful and timely information. I am glad this project was funded and completed!”

Genbank sequences: multiple alleles of *E. coli* gene *tsr*, accession numbers EU637473 - EU637575 (2008).

Bibliography of zebra mussel and quagga mussel papers, ~2002 – early 2008, put on the RamLab Zebra Mussel page (<http://sun.science.wayne.edu/~jram/ZM-all-2002-2008.htm>)

Ram, Jeffrey L., Nechvatal, Jordan M., and Kato, Ikuko. (2009) (WO/2009/038763) Device for collection and preservation of tissue or stool samples. World Intellectual Property Organization. Published International Patent Application: http://www.wipo.int/pctdb/en/fetch.jsp?SEARCH_IA=US2008010891&DBSELECT=PC T&C=10&TOTAL=1&IDB=0&TYPE_FIELD=256&SERVER_TYPE=19-10&SORT=41242445-KEY&QUERY=%28FP%2Fdevice+AND+FP%2Ffor+AND+FP%2Fcollection+AND+FP%2Fpreservation+AND+FP%2Fof+AND+FP%2Ftissue+AND+FP%2Fstool+AND+FP%2Fsamples%29+&START=1&ELEMENT_SET=B&RESULT=1&DISP=25&FORM=SEP-0%2FHITNUM%2CB-ENG%2CDP%2CMC%2CAN%2CPA%2CABSUM-ENG&IDOC=1608118&IA=US2008010891&DISPLAY=STATUS

Genbank (NIH maintained genetics database) sequences: cytochrome oxidase I barcode sequences in aquatic insects, accession numbers KP954634–KP954653 (adults), KR085203–KR085223 (adults) and KR085224–KR085412 (larvae).(2015)

Genbank sequences: mitochondrial cytochrome oxidase I sequences (so-called “bar code sequences”) of various oligochaetes (mainly) and other invertebrates from Toledo Harbor, accession numbers KM196596 – KM196604 (2014)

GenBank sequences: Cytochrome oxidase I barcode sequences in water mites, accession numbers KX139041 – KX139059, KY111434, and KY111435 (2016).

Museum exhibits

1. Ram JL (content by Daley M & Ram JL; design by Rhee E). (2016) Ballast Technology: Saving Ships, Lives, & the Environment. At the National Museum of the Great Lakes, Toledo, OH, on exhibit from February, 2017 to September, 2017.
2. Ram JL (content by Daley M & Ram JL; design by Rhee E). (2019) Ballast Technology: Saving Ships, Lives, & the Environment (revised: 2nd edition). At the Lake Erie Maritime Museum in Erie, PA, on exhibit from April, 2019 and continuing.

Video Productions

1. “Ballast Monitoring Practicums: The role of indicative testing,” by Jeffrey Ram and Allegra Cangelosi. Produced by Qubic Agency. First presented publicly at the BWMTech North America conference, Fort Lauderdale, September 24, 2019.
2. “Why Ballast?” written and edited by Joe Aloisio (2016). Produced by Joe Aloisio and Jeffrey L Ram. Showing at the National Museum of the Great Lakes, Toledo OH (ship technology display area) and online at: https://www.youtube.com/watch?v=79zJJ7_3oDc

3. “RAMLAB Ballast Verification” written and edited by Joe Aloisio (2016). Produced by Joe Aloisio and Jeffrey L Ram. Showing at the National Museum of the Great Lakes, Toledo OH (ship technology display area) and online at:
<https://www.youtube.com/watch?v=LPGjGGcOk3Y>
4. “Ballast Water Verification,” directed and edited by Kelly Donnellan (2015). Produced by Jeffrey L Ram, with assistance from Hager Alkhafaji. Showing at the Belle Isle Aquarium (invasive species display area) and online at:
https://www.youtube.com/watch?t=16&v=8_MLX94Jy6E
5. “Ballast Water Verification Treatment Workshop,” produced by H. Alkhafaji, Kelly Donnellan, Sandra Turner, Julia Sosin, and Jeffrey L. Ram (2014). On line at:
<http://verifyballast.med.wayne.edu/2014bvmwsummary.php>
6. Crawford, G.W., Walker, J.U., Mojares, J.J., and Ram, J.L. (edited by Mojares, J.J. and Neuman, D.). Zebra Mussel Spawning. 1991.
7. Ram, J.L. Dissociated Muscle Fibers of *Aplysia*. 1990.

Published Abstracts (last 15 years):

38. Amy Emmert, June Teisan, Sandra Yarema (their work and presentation was sponsored and directed by the NSF grant on which Jeffrey Ram is the PI). Using Field Trips to Ignite Student Interest in STEM. Presented March 6, 2020, Michigan Science Teachers Association. Published on-line at <https://msta2020.sched.com/event/ZYXQ/using-field-trips-to-ignite-student-interest-in-stem>
37. Maria Siciliano, Sara Forbing, **Jeffrey Ram**, Jessica Wagenmaker (2019). Hands-on and creative teacher-developed invasive species lessons to achieve Michigan science standards Presented March 2, 2019, Michigan Science Teachers Association. Published on-line at <https://msta2019.sched.com/event/JNjU/hands-on-and-creative-teacher-developed-invasive-species-lessons-to-achieve-michigan-science-standards> .
36. SL Yarema, **JL Ram**, AJ Emmert, JS Chadde, MJ Tate (2019) Promoting Student Interest in STEM and STEM-Related Careers via a Place-Based Environmental Educational Program at a Public Aquarium. Presented January 3, 2019. Published in https://theaste.org/wp-content/uploads/2018/01/ASTE-Conference-Program_2019_12-17-2140.pdf
35. Joan F. Chadde and **Jeffrey Ram**, Wayne State University. Teacher-Created Innovative Invasive Species Lessons to Achieve State Science Standards. IAGLR 2019, Presented June 14, 2019.
<https://www.xcdsystem.com/iaglr/program/qTDAZr0/index.cfm?pgid=455>

34. Gina Wulff, Adrian Vasquez, Mario McGhee, Jr., Tiffany Burris, Jasmine Brockman, Zeyu Li, Katherine Gurdziel, Obadeh Mohiddin, **Jeffrey Ram**. High throughput sequencing, habitat, and behavioral studies to analyze the role of oligochaetes in the diet of *Lebertia* water mites. May 2018 poster. Society for Freshwater Science. <https://sfsannualmeeting.org/SearchAll.cfm?pg=2> last name search term=Wulff.
33. **Jeffrey Ram**, Subba Rao Chaganti, Claire Plouff, Abdolrazagh Hashemi Shahraki, Mohammad Madani, Adrian Vasquez, Rajesh Seth, Daniel Heath. High throughput sequencing for the study of microbial contamination of beaches in the Huron to Erie corridor: Investigating dynamics and potential sources. May 21, 2018. Society for Freshwater Science. https://sfsannualmeeting.org/Schedule/grid_details.cfm?aid=8842
32. Adrian Vasquez, Patrick Hudson, Katherine Gurdziel, Divya Yerramsetty, **Jeffrey Ram**. Predator - prey interactions of water mites from the Laurentian Great Lakes are revealed by next generation sequencing, classic taxonomy, and DNA barcoding. May 2018 poster. Society for Freshwater Science. <https://sfsannualmeeting.org/SearchAll.cfm?pg=2> last name search term=Gurdziel
31. AG Boegehold, NS Johnson, **Ram JL**, Kashian DR (2017) Quagga mussel (*Dreissena rostriformis bugensis*) spawning and veliger mortality is influenced by cyanobacteria. International Congress for Invertebrate Reproduction and Development, August 2017. Published in <http://sun.science.wayne.edu/~jram/icird.med.wayne.edu/abstracts.pdf>
30. Vasquez, A.A., Burris, T., Qazazi, M. and **Ram, J.L.** (2017). Molecular gut contents of water mites from Belle Isle's Blue Heron Lagoon, Detroit, Michigan http://iaglr.org/conference/abstracts/pub_abstract_view.php?abstract_id=1484239719 International Association of Great Lakes Research, June, 2017.
29. **JL Ram**, MP Shah, AJ Gruber, OM Alian (2017) New technology to ascertain compliance with the IMO's Ballast Water Convention, http://iaglr.org/conference/abstracts/pub_abstract_view.php?abstract_id=1484313692) International Association of Great Lakes Research, June, 2017.
28. Farley N, Vasquez AA, Kik IV R, David S, and **Ram JL** (2016) Primer designs for identifying seven species of gar and potential hybrids at the Belle Isle Aquarium. American Fisheries Society, Kansas City, MO August 2016.
27. **Ram JL**, Vasquez AA, Hudson PL, Fujimoto M, Qazazi MS, Failla AJ (2016) Digging Deeper into Benthic Biodiversity. For: The International Association of Great Lakes Research Annual Meeting, Guelph, ONT, June 2016 http://www.iaglr.org/conference/abstracts/viewabstract.php?abstract_id=1454096254
26. Alian OM, Alkhafaji HN, Fine HM, Vasquez AA, Sen B, **Ram JL** (2016) Automated Measurement of Enzymatic Activity for Monitoring Live Organisms in Ballast Water. The International Association of Great Lakes Research Annual Meeting, Guelph, ONT, June 2016 http://www.iaglr.org/conference/abstracts/viewabstract.php?abstract_id=1454097590

25. Vasquez AA, Hudson PL, Fujimoto M, Keeler K, Armenio PM, **Ram JL** (2016) Biogeography of *Eurytemora carolleeae* in the Great Lakes revealed by phylogeny and morphology. The International Association of Great Lakes Research Annual Meeting, Guelph, ONT, June 2016.
http://www.iaglr.org/conference/abstracts/viewabstract.php?abstract_id=1452872338
24. Qazazi MS, Vasquez AA, Failla AJ, Rama S, Randall SJ, **Ram JL** "Genetic Diversity of Water Mites in Western Lake Erie" The International Association of Great Lakes Research Annual Meeting, Guelph, ONT, June 2016.
http://www.iaglr.org/conference/abstracts/viewabstract.php?abstract_id=1454094218
23. Masanori Fujimoto, Josh Southern, Sanjay Rama, Andrew Failla, Adrian Vasquez, Donna Kashian, Jeffrey Ram (2014) A strategy for the early detection of invasive species in the Great Lakes. Society for Conservation Biology, North America Congress for Conservation Biology, July 13 – 16, 2014, Missoula, MT (oral presentation);
<http://www.xcdsystem.com/scbna/abstract/index.cfm?ID=hNXOyLc>
Login: jeffram@gmail.com; Password: RamT19oW
22. Fujimoto, M., Southern, J.A., Rama, S., Banno, F., Gizicki, J., Davidson, A.D., Kashian, D. R., **Ram, J.L.** (2013) Characterization of freshwater oligochaetes in Maumee River and Maumee Bay using morphological and molecular barcoding techniques for ecological studies. Abstracts, 13th International Congress of Invertebrate Reproduction and Development. P. 46. Published by Wayne State University, Detroit, MI
21. Ram, J.L., Banno, F., Gala, R., Gizicki, J.P., Kashian, D. (2013) Estimating sampling effort for early detection on non-indigenous benthic species in the Toledo Harbor region of Lake Erie. Abstracts, 18th International Conference on Aquatic Invasive Species. p. 26. Published on the internet at: http://www.icaais.org/pdf/abstracts_2013.pdf
20. Southern, J.A., Ram, J.L., Moyerbrailean, G.A., and Kashian, D.R. (2013) Monitoring Fish Communities in Western Lake Erie: Collection Efficiencies, Invasives, and Community Dynamics over Time. Abstracts. 56th Annual Conference on Great Lakes Research, International Association for Great Lakes Research. p. 267, published on the internet at: http://iaglr.org/conference/downloads/2013_abstracts.pdf
19. Rama, S., Banno, F., Southern, J.A., Dahlstrom, A.A., Gala, R.R., Gizicki, J.P., Kashian, D.R., and **Ram, J.L.** (2013) Benthic Sampling to Detect Non-Indigenous Species in the Toledo Harbor Region of Lake Erie. Abstracts. 56th Annual Conference on Great Lakes Research, International Association for Great Lakes Research. p. 226-227, published on the internet at: http://iaglr.org/conference/downloads/2013_abstracts.pdf
18. **Ram, J.L.** (2013) Molecular Methods for Live-Dead Analysis of Microorganisms in Ballast and Environmental Waters. Abstracts. 56th Annual Conference on Great Lakes Research, International Association for Great Lakes Research. p. 226, published on the internet at: http://iaglr.org/conference/downloads/2013_abstracts.pdf
17. Akram, A.C., Moniri Javid, R., Singh, S.B., Reed, E.A., Gizicki, J.P., Noman, S., Basu, A.S., and **Ram, J.L.** (2013) Automated Testing Device for Live-Dead Analysis of Ballast Water

- Organisms. Abstracts. 56th Annual Conference on Great Lakes Research, International Association for Great Lakes Research. p. 4, published on the internet at: http://iaglr.org/conference/downloads/2013_abstracts.pdf Presentation of the poster that this abstract describes was awarded the **HYDROLAB/IAGLR Student Poster Paper award for the 2013 IAGLR Conference in Purdue, Indiana**
16. Noman, S., Moyerbrailean, G.A., Gizicki, J.P., Ram, M.L., Fujimoto, M., Green, P.A., and **Ram, J.L.** (2013) Effects of an Alkaline Ballast Water Treatment on Ballast Water Bacterial Populations. Abstracts. 56th Annual Conference on Great Lakes Research, International Association for Great Lakes Research. p. 205, published on the internet at: http://iaglr.org/conference/downloads/2013_abstracts.pdf
 15. Southern, J. A., Kashian, D. R., **Ram, J. L.** (2012) ANALYZING THE EFFICIENCY OF ANNUAL FISH SURVEYS AT DETECTING RARE OR INVASIVE SPECIES IN WESTERN LAKE ERIE. Abstracts, Society of Freshwater Science. Published on the internet at: <http://www.sgmeet.com/sfs/sfs2012/viewabstract2.asp?AbstractID=6996>
 14. Acharya, P., Kashian, D., and **Ram, J.L.** (2011) Algal regulation of spawning in the freshwater invasive mussel, *Dreissena bugensis*. Abstracts for the American Society of Liminology and Oceanography. <http://www.aslo.org/meetings/sanjuan2011/files/asm2011-abs-web.pdf> page 2. published by: sg Meeting & Marketing Services, 5400 Bosque Boulevard, Suite 680, Waco, Texas 76710-4446.
 13. **Jeffrey L. Ram.** (2010) Reproductive patterns and populations of invasive Dreissenid mussel species in North America. Abstracts for ICIRD2010. Poster Presentation Abstract #2.
 12. **Jeffrey L. Ram.** (2010) When a trail becomes a trap: behavioral strategies for aquatic pheromones in the polychaete *Nereis succinea*. Abstracts for ICIRD2010. Oral Presentation Abstract #26.
 11. Carlos A. Barrios, Qingwei Xu, Teresa J. Cutright, Bi-min Zhang Newby, Sonal Purohit, **Jeffrey Ram.** (2009). Preventing the attachment of bacteria and mussels using zosteric acid. International Marine & Offshore Coatings Conference. May 18-20, 2009. Wyndham Virginia Beach, Virginia Beach, VA
 10. Purohit, S., **Ram, J.**, Newby, BMZ, Cutright, TJ (2009). Preliminary evaluation of zosteric acid for preventing attachment of quagga mussels, Central Regional Meeting ACS, Cleveland OH, May 20-23, 2009.
 9. **J. L. Ram**, J. M. Nechvatal, S. H. Dzinic, M. D. Basson, A. P. Majumdar, I. Kato. (2009) Smoking and other personal characteristics as potential predictors for fecal bacteria populations in humans. Abstracts, American Society of Microbiology 109th General Meeting).
 8. **Ram JL**, Dzinic SH. "Natural variation and functional roles of the flexible tether region of Tsr, the serine chemotaxis receptor of *E. coli*". Gordon Research Conference on Biomolecular Interactions & Methods, held January 13-18, 2008, Ventura, California (2008).

7. Nechvatal, J.M., **Ram, J.L.**, Basson, M., Namprachan, P., Cherian, C.D., Niec, S., Badsha, K.Z., Matherly, L.H., Kato, I. Fecal collection, ambient preservation, and DNA extraction for PCR amplification of bacterial and human markers from human feces. Abstracts, American Society of Microbiology 107th General Meeting (2007).
6. Dzinic SH, Ram TS, **Ram JL**. Variable Lengths of Poly-Q Coding Regions in the *tsr* Gene of *Escherichia Coli*: A Model for Poly-Q Genetic Diseases? . Abstracts, American Society of Microbiology 107th General Meeting (2007).
5. Dzinic, S. and Ram, **J.L.** Differences in Chemotaxis Genes, Tar and Tsr, in *Escherichia coli* Isolated from Different Hosts. Abstracts, Fall, 2006 Meeting of the American Society for Microbiology--Michigan Branch. Lansing, MI, October 7, 2006. (<http://mi-asm.org/fall06meeting/postersfall06.htm>)
4. Nechvatal, J.M., **Ram, J.L.** Basson, M., Namprachan, P., Cherian, C.D., Niec, S., Badsha, K.Z., Matherly, L.H., Kato, I. Fecal collection, ambient preservation, and DNA extraction for PCR amplification of bacterial and human markers from human feces. Abstracts, Fall, 2006 Meeting of the American Society for Microbiology--Michigan Branch. Lansing, MI, October 7, 2006. (<http://mi-asm.org/fall06meeting/postersfall06.htm>)
3. Hotic, S., Luercio, M., **Ram, J.L.** Differences in Low Agar Density (Swarm Plate) Responses of *Escherichia coli* Isolated From Different Hosts. Abstracts, American Society of Microbiology 106th General Meeting (2006). Toronto, May 23, 2006.
2. **Ram JL** and Jurczynsyn D. Host-related differences in recombination rates in *Escherichia coli*. Abstracts, International Union of Microbiological Sciences, July, 2005. (<http://www.abstractsonline.com/viewer/?mkey=%7B47FB0B66-E58C-4823-BCC2-9B84C7E0CF97%7D>).
1. **Ram, J.L.**, Sapeika, D.A., Fox, K.A., Chen, L., and Whittam, T.S. Diversity, disequilibrium, and di-locus genotyping of malate dehydrogenase and beta-glucuronidase genes of environmental and pathogenic *Escherichia coli*. Abstracts, American Society of Microbiology 104th General Meeting (2004) (<http://www.asm.org/memonly/abstracts/AbstractView.asp?AbstractID=9569>)

PRESENTATIONS:

Invited/refereed presentations at international/national meetings

Neuronal peptides in invertebrate model systems, Seventh Annual Meeting of the American Society of Neurochemistry, Vancouver, B.C., 1976.

Modulators, mediators, and specifiers in brain function: Neuropeptides, cyclic nucleotides and phosphoproteins. Satellite Symposium of the Eighth Annual Meeting of the American Society for Neuroscience, St. Louis, 1978.

International Symposium on Molluscan Endocrinology. Amsterdam, The Netherlands. August 16-20, 1982.

Symposium on Neuronal Effects of Peptides. American Association for the Advancement of Science Annual Meeting, Detroit, May, 1983.

Workshop on Role of Adenylate Cyclase in Embryogenesis and Synaptogenesis. Annual Meeting of American Society for Neurochemistry, March 11-16, 1984.

Gastropod egg-laying hormones. Symposium on Control of Reproduction in Marine Invertebrates. Fifth International Congress of Invertebrate Reproduction. Nagoya, Japan. July 23-29, 1989.

Fifty-sixth Annual Meeting, American Malacological Union. Symposium on Integrative Neurobiology and Behavior of Molluscs. Also chaired Round Table Discussion on Evolutionary Aspects of Molluscan Behavior and Neurobiology. Woods Hole, MA. June 3-5, 1990.

Approaches to zebra mussel control through intervention in reproduction. International Zebra Mussel Research Conference. Columbus, Ohio. December 5-7, 1990.

A new pest in North America, the zebra mussel (*Dreissena polymorpha*): Physiological/ecological approaches to its control. Sixth International Congress of Invertebrate Reproduction. Dublin, Ireland. June 28 - July 3, 1992.

Symposium on Zebra Mussels - Biology, Controls, and Environmental Consequences. Fourteenth Annual Meeting, Society of Environmental Toxicology and Chemistry, November 13-18, 1993.

Basic and Applied Aspects of Aquatic Biotechnology. Symposium at the International Association of Great Lakes Research, June 9, 1994, Windsor, Ont.

The Biology, Ecology, and Physiology of Zebra Mussels. Symposium at the Annual Meeting of the American Society of Zoologists. Jan. 5-9, 1995. St. Louis, MO.

Symposium on Mechanisms of Oocyte Maturation and Fertilization. Seventh International Congress of Invertebrate Reproduction. Santa Cruz, CA, August 5-11, 1995.

Fourth International Congress of Medical and Applied Malacology. Santiago, Chile, October 7-11, 1996.

Molluscan Reproduction. International Congress of Invertebrate Reproduction, Amsterdam, The Netherlands, August 10-15, 1998.

Ninth National Nonpoint Source Monitoring Workshop, Indianapolis, IN, August 27-30, 2001. Invited speaker at regional meeting: Michigan Environmental Health Association Recreational Swimming Waters Conference, April 17-18, 2002.

“Zebra mussels at the freshwater/sea interface: Ionic and osmotic challenges to oocyte structural integrity,” Society for Integrative and Comparative Biology, January 7, 2003.

“Microbial Source Tracking for Michigan Environmental Health Managers,” 11th National Non-Point Source Monitoring Workshop: Monitoring and Modeling: Urban Environment presented, September 8, 2003.

11th National Nonpoint Source Monitoring Workshop, Indianapolis, IN, Sept 8, 2003. Invited (all expenses paid) participant at WERF-sponsored workshop on Contaminant Source Tracking in San Antonio, TX, Feb. 15 – 18, 2005.

Symposium on Mechanisms of Sexual Selection in Invertebrates. Eleventh International Congress of Invertebrate Reproduction. Panama City, Panama, August 5-9, 2007

“Dataflow-oriented atomicity and provenance system for pipelined scientific workflows,” . International Conference on Computational Science 2007, Beijing, China.

“Honest signaling and efficient searching in the sex-life of *Nereis succinea*.” Invited speaker at international symposium of the International Congress for Invertebrate Reproduction and Development,” Panama City, Panama. August, 2007.

“When a trail becomes a trap: behavioral strategies for aquatic pheromones in the polychaete *Nereis succinea*” Invited speaker at international symposium of the International Congress for Invertebrate Reproduction and Development,” Prague, Czech Republic. August, 2010.

“Emerging Methods for Live/Dead Analysis of Ballast Water Organisms” invited speaker at conference on Testing of Ballast Water Treatment Systems Performance regarding Organisms below 10 micron in Minimum Dimension. Duluth, MN, September 18 – 21, 2012.

“Estimating sampling effort for early detection on non-indigenous benthic species in the Toledo Harbor region of Lake Erie” invited presentation at the 18th International Conference on Aquatic Invasive Species, presented April 22, 2013. Published on the internet at:

http://www.icaais.org/pdf/2013abstracts/1Monday/Session%20A-2/230_Ram.pdf

“Molecular Methods for Live-Dead Analysis of Microorganisms in Ballast and Environmental Waters” invited presentation at the 56th Annual Conference on Great Lakes Research International Association for Great Lakes Research, presented June 4, 2013. Abstract published on the internet at: http://iaglr.org/conference/downloads/2013_abstracts.pdf

“Student-Produced Videos to Learn and to Educate their Communities” at the 2019 STELAR PI & Evaluator Summit project expo session, on June 13, 2019 in Alexandria, VA and showed a presentation on “Benefits and Unique Challenges of Running an ITEST Project in an Informal Setting” at the “informal education institutions” round table on June 14, 2019.

“Insights on the Efficacy of Indicative Testing, for Shipowners and Port State Control,” invited presentation together with Allegra Cangelosi, September 24, 2019, at the BWM Enforcement Forum of BWMTech North America, September 24-26, 2019, Fort Lauderdale, FL

Invited/Refereed presentations at local/regional meetings

“Microbial Source Tracking for Michigan Environmental Health Managers,” Invited presentation at the Michigan Environmental Health Association Recreational Swimming Waters Conference, April 17, 2003.

Invited speaker at regional meeting: Michigan Environmental Health Association Recreational Swimming Waters Conference, April 17, 2003.

“Early Warnings: Invaders from the Deep and Afar” Invited presentation at the Western Lake Erie Waterkeeper Association meeting, November 17, 2010.

“Science to Serve and Preserve the Value and Beauty of the Great Lakes” invited talk at an International Joint Commission colloquium on “Asian Carp and Beyond: Assessment, Prevention, and rapid Response to Aquatic Invasive Species, co-sponsored by the Urban Watershed Environmental Research Group, Wayne State University, December 1, 2010.

“Verification of Ballast Water Treatment Technologies” Invited presentation at the Great Lakes Panel on Aquatic Nuisance Species” December 8, 2010.

“What’s on YOUR line? Invasive Species and the Port of Toledo” Invited presentation at the Lake Erie Annual Conference, April 8, 2011, LaSalle, MI

“GLRI/GLPF Progress Report: 2010 GLRI: Verification of Ballast Water Treatment Technologies; 2011 GLRI: Invasives Early Warning Systems Validation in Toledo Harbor; and 2012 GLPF: Automated Ballast Water Verification” Invited presentation at the Meeting of the Great Lakes Panel on Aquatic Nuisance Species, December 4-5, 2012, Ann Arbor, MI

“Estimating sampling effort for early detection on non-indigenous benthic species in the Toledo Harbor region of Lake Erie” invited presentation at the 18th International Conference on Aquatic Invasive Species. Presented April 22, 2013.

“Molecular Methods for Live-Dead Analysis of Microorganisms in Ballast and Environmental Waters” invited oral presentation at the 56th Annual Conference on Great Lakes Research, International Association for Great Lakes Research. Presented June 4, 2013.

“Belle Isle Park~A Place for Education & Research” Invited 20-min presentation at the Belle Isle Natural Resource Listening Session, January 23, 2014 at the Belle Isle Nature Zoo, Detroit, MI

“Education about Invasive Species at the Belle Isle Aquarium & Wayne State University,” invited presentation, March 20, 2014, Lake Erie Waterkeeper Annual Conference, Lourdes University, Sylvania, OH (<http://www.lakeeriewaterkeeper.org/wp-content/uploads/2012/04/lew-conf-ram-2014.pdf>).

“Hands-on and creative teacher-developed invasive species lessons to achieve Michigan science standards” Peer-reviewed proposed presentation, presented March 2, 2019 by Maria Siciliano, Sara Forbing, Jeffrey Ram, Jessica Wagenmaker, Michigan Science Teachers Association.

Organizer and speaker at two Ballast Monitoring Practicums workshops, May 30 & 31, 2019, Superior, WI and June 3 & 4, 2019, Erie, PA. My presentations in the Practicums included “Technologies of Indicative Monitoring Methods,” and many other components of these Workshops.

Invited Seminars:

“Environmental microbiology at the beach: What’s bugging you? We’ll find out.” Andrews University, February 6, 2003.

“Environmental microbiology at the beach: Source tracking and evolutionary implications of genetic diversity of *Escherichia coli*” Department of Immunology and Microbiology, Wayne State University, April 15, 2003.

“Host specificity and genetic diversity of *Escherichia coli*,” Department of Physiology, Wayne State University, February 5, 2004.

“Microbiology at the Beach: *E. coli* host specificity and microbial source tracking” Department of Physiology, Technion, School of Medicine, April 19, 2004.

“Microbiology at the Beach: *E. coli* host specificity and microbial source tracking” Center for Environmental Science, Technology & Policy, and the Department of Biological, Geological, & Environmental Sciences. Cleveland State University. October 19, 2004.

“Genetic diversity in *E. coli*: Sequence analysis for near-time bacterial source tracking,” Department of Pharmacology, Israel Institute of Biological Research, Nes Tsiona, Israel, June 23, 2005.

“Microbiology at the Beach: *E. coli* host specificity and microbial source tracking” Department of Biological Sciences. Bowling Green University, Bowling Green, OH. February 11, 2005.

“Origins and applications of genetic diversity of natural strains of *E. coli* from different hosts” Department of Physiology, Wayne State University, December 1, 2005.

“Origins and applications of genetic diversity of natural strains of *E. coli* from different hosts” Department of Food Sciences and Biotechnology, Technion, Haifa, Israel, June 22, 2005.

“A gut reaction: Chemotaxis and host specificity of “wild” *E. coli*” Power Point presentation; Quake research laboratory, Stanford University, August 29, 2006.

"Genetic diversity of natural populations of *E. coli* and its application to microbial source tracking," Invited seminar at the Lake Erie Center, University of Toledo, April 17, 2007.

“Natural variation and functional roles of the flexible tether region of Tsr, the serine chemotaxis receptor of *E. coli*”. Poster presentation at the Gordon Research Conference on Biomolecular Interactions & Methods, held January 13-18, 2008, Ventura, California.

"Genetic and physiological diversity of ‘wild’ *E. coli* from the environment and diverse hosts" January 28, 2008, Bug Club Seminar Series, Stanford University.

"Modeling the pheromone mediated mating behavior of *Nereis*", January 30, 2008, Stanford University, Biological Modeling Seminar Series

“Quality eggs and attractive mates: Glutathionergic signaling in the reproductive biology of a marine invertebrate, *Nereis succinea*”, October 30, 2008, Department of Physiology, Wayne State University.

“Reinventing your research program”, Invited Presentation in the Professional and Academic Development Seminar on “Expanding your Research: Learning and Implementing New Ideas and Techniques”, January 9, 2009, Spencer M. Partrich Auditorium, Wayne State University Law School.

“Overview of US invasion by zebra and quagga mussels: Predicted and actual impacts”, Invited presentation at the Water Quality Technology Conference, Seattle, WA, November 16, 2009.

“What’s on YOUR line? Invasive Species and the Port of Toledo” invited presentation, April 8, 2011, Lake Erie Waterkeeper Annual Conference, North Cape Yacht Club, LaSalle, MI (http://www.westernlakeerie.org/wayne_ram_erie_conf_04_2011.pdf) .

“What’s on YOUR line? Invasive Species in the Great Lakes” seminar, Department of Biology, Heidelberg University, Tiffin, OH, September 20, 2011; sponsored by Western Lake Erie Waterkeeper Association.

“What is Life? (and other questions that we ask about foreign pests and pathogens in the Great Lakes)” seminar, Department of Physiology, Wayne State University, March 22, 2012.

“Education about Invasive Species at the Belle Isle Aquarium & Wayne State University,” invited presentation, March 20, 2014, Lake Erie Waterkeeper Annual Conference, Lourdes University, Sylvania, OH (<http://www.lakeeriewaterkeeper.org/wp-content/uploads/2012/04/lew-conf-ram-2014.pdf>).

Jeffrey L. Ram, Masanori Fujimoto, Andrew Failla, and Adrian Vasquez. Jeffrey L. Ram, presenter. “The Search for New Invasive Species in the Toledo Harbor Area of Maumee Bay and Maumee River” Invited participant and presenter at the EPA October 23-24, 2014 Workshop on Advanced Aquatic Invasive Species Monitoring in the Great Lakes, Duluth, MN.

“Predatory Behavior of Water Mites,” invited seminar by Jeffrey L. Ram, Tubingen University. The Evolutionary Biology of Invertebrates Group, February 8, 2018

“North American water mites,” invited seminar by Jeffrey L. Ram, Stazione Zoologica Anton Dohrn, Naples, Italy February 15, 2018

“Molecular Studies of the Diets of Water Mites,” invited seminar by Jeffrey L. Ram, at the Faculty of Science & Engineering, Waikato University, Hamilton, NZ, April 4, 2018

“High Throughput Sequencing for the Study of Microbial Contamination of Beaches in the Huron to Erie Corridor,” invited presentation, January 14, 2019, to the Areas of Concern (AOC) Public Advisory Committee, Taylor, MI

“Welcome to the New Era of Ship Ballast Technology,” invited presentation to the Detroit International Shipmasters Association, January 15, 2019, Great Lakes Yacht Club, St Clair Shores, MI

“Competition for fish? Water mite diet and diversity in Blue Heron Lagoon, Belle Isle,” invited seminar by Jeffrey L. Ram, Water@Wayne seminar series, Wayne State University, March 21, 2019

Organizer and speaker at two Ballast Monitoring Practicums, May 30 & 31, 2019, Superior, WI and June 3 & 4, 2019, Erie, PA. My presentations in the Practicums included “Technologies of Indicative Monitoring Methods,” and many other components of these Workshops.

“Insights on the Efficacy of Indicative Testing, for Shipowners and Port State Control,” invited presentation together with Allegra Cangelosi, September 24, 2019, at the BWM Enforcement Forum of BWMTech North America, September 24-26, 2019, Fort Lauderdale, FL

