

Michael J. Twiner, MD, PhD

Wayne State University
Department of Emergency Medicine
University Health Center-6G
mtwiner@med.wayne.edu

EDUCATION

DATES

Wayne State University
Medical Doctor
School of Medicine
Detroit, MI

2012 – 2016

Western University
Doctorate of Philosophy (with thesis)
London, Ontario, Canada

1997 – 2002

Western University
Bachelor of Science (Honors), Environmental Toxicology
London, Ontario, Canada

1993 – 1997

POSTGRADUATE TRAINING

Emergency Medicine Residency Program
Detroit Receiving Hospital, Detroit Medical Center
Wayne State University affiliated
Detroit, MI

2016 – 6/30/19

Post-Doctoral Fellowship
National Research Council
Center for Coastal Environmental Health and Biomolecular Research
Charleston, SC

2002 – 2006

FACULTY APPOINTMENTS

Adjunct Teaching Faculty
Department of Natural Sciences
University of Michigan-Dearborn

9/1/14 – 6/30/16

Assistant Research Scientist 9/1/12 – 8/30/14
 Department of Natural Sciences
 University of Michigan-Dearborn

Assistant Professor of Biology (tenure-track) 7/1/09 – 8/30/12
 Department of Natural Sciences
 University of Michigan-Dearborn

Adjunct Faculty 1/1/07 – 8/30/12
 Graduate Program in Marine Biology
 College of Charleston, Charleston, SC

HOSPITAL OR OTHER PROFESSIONAL APPOINTMENTS

Associate Research Scientist 7/1/06 – 6/30/09
 NOAA/National Ocean Service
 Center for Coastal Environmental Health and Biomolecular Research
 Charleston, SC

MAJOR PROFESSIONAL SOCIETIES

Society for Academic Emergency Medicine 2018 – present
 American College of Emergency Physicians 2014 – present
 American College of Medical Toxicology 2014 – present
 American Academy of Emergency Physicians 2014 – present
 American College of Physicians 2012 - present
 American Medical Association 2012 - present
 Society of Toxicology 2010 – 2018
 International Society for the Study of Harmful Algae 1999 – 2016

MEDICAL LICENSURE

Physician License, Michigan, # 4301117319 Effective: 03/28/19
 Expire: 01/30/20

Controlled Substance License, Michigan # 5315204671 Effective: 03/28/19
 Expire: 01/30/20

Drug Enforcement Administration, #FT8241123 Effective: 03/29/19
 Exp. 11/30/2021

NPI# 1245686831 N/A

BOARD CERTIFICATION

American Board of Emergency Medicine (board eligible July 2019)

OTHER CERTIFICATION

Advanced Cardiac Life Support	7/1/17 - 6/2019
Pediatric Life Support	7/1/17 - 5/2017
Advanced Trauma Life Support	7/1/17 - 11/2018

HONORS/AWARDS

Resident Teaching Award Wayne State University, School of Medicine	2016 – 2017
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SERVICE**Professional****Community**

Science fair judge, Charleston Academic Magnet High School	2002 – 2009
Dolphin rescue volunteer (Charleston, SC)	2003 – 2009
Community outreach program “Let’s Talk Science”, Western University	2000 – 2001
Editor of departmental newsletter, <i>Plant Sciences Leaflet</i>	2000 – 2001
Graduate Outreach Program volunteer	2000 – 2001
Executive board member, London Waldorf School for the Gifted	1998 – 2001

Service for Peer-Reviewed Journals

Editorial Board Membership, <i>Marine Drugs</i> Journal	2008 – present
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Other Scholarly Service

Faculty Hiring Committee Member, Uni. of Michigan-Dearborn	2011, 2012
Graduate Admissions Committee Member, College of Charleston	2008 – 2009
Seminar Series Committee Chair, Fort Johnson, Charleston SC	2008 – 2009
Awards Committee Chair, Marine Biotoxins Program	2002 – 2005

TEACHING**Teaching at Wayne State University****Medical Students**

Instructor, Emergency Medicine Ultrasound	2017
Instructor, Advanced Cardiopulmonary Life Support Certification Course	2018

Teaching at Other Institutions**Undergraduate students**

Instructor, Human Physiology, Biology 357, Uni. Michigan-Dearborn	2013, 2015
Supervisor, Biology/Biochem 499: Independent Research Projects in Biology/Biochem., Uni. Michigan-Dearborn	2010 – 2014
Instructor, Biology 130: Introduction to Organismal and Environmental Biology, Uni. Michigan-Dearborn	2009 – 2012
Instructor, Biology 140 lab: Introduction to Molecular and Cellular Biology, Uni. Michigan-Dearborn	2009 – 2012
Instructor, Biology 213: Productivity and Pollution in Aquatic Ecosystems-Limnology, Western University, London, Ontario	2001
Teaching Assistant, Department of Biology, Western University, London, Ontario (Productivity and Pollution in Aquatic Ecosystems (Biol. 213), Advanced Microbiology (Biol. 402), Scientific Methods in Biology (Biol. 290), Population Ecology (Biol. 283)	1997 – 2001

Graduate Students

Instructor, Biology 452/552: Medical and Environmental Toxicology, Uni. Michigan-Dearborn	2010 – 2012
Lecturer, Biology 502: Phytoplankton Physiology and Ecology, Grice Marine Program, College of Charleston	2005

MentorshipUndergraduate Students

Madhkoor, A.K. “Induction of apoptosis by azaspiracid”, The University of Michigan-Dearborn Twiner, M.J., Hanagriff, J.C., Butler, S., Madhkoor, A.K., Doucette, G.J. (2012). Induction of apoptosis pathways in several cell lines following exposure to the marine algal toxin azaspiracid-1. <i>Chemical Research in Toxicology</i> , 25, 1493-1501. Krock, B., Tillmann, U., Potvin, E., Jeong, H.-J., Drebing, W., Kilcoyne, J., Madhkoor, A.K., Twiner, M.J., Göthel, Q., Köck, M.(2015). Structural elucidation and <i>in vitro</i> toxicity of new azaspiracids isolated from the marine dinoflagellate <i>Azadinium poporum</i> . <i>Marine Drugs</i> , 13, 6687-6702.	2011 – 2014
Nguyen, S. “Effects of azaspiracid on various cell lines”, The University of Michigan-Dearborn	2011 – 2012

- Brenner, K. "Structure-activity relationships of the azaspiracids", The University of Michigan-Dearborn 2012 – 2013
- Hall, F. "Effects of azaspiracid on bacteria". The University of Michigan-Dearborn 2011 – 2012
- Roper, M. "Effects of algal toxin mixtures on cell line cytotoxicity". The University of Michigan-Dearborn 2011 – 2012
- Asadullah, A. "Structure-activity relationships of the azaspiracids" The University of Michigan-Dearborn 2011 – 2012
- Butler, S.C. "Actin polymerization and depolymerization by the marine toxin pectenotoxin" The University of Michigan-Dearborn 2010 – 2011
 Twiner, M.J., Hanagriff, J.C., Butler, S., Madhkoor, A.K., Doucette, G.J. (2012). Induction of apoptosis pathways in several cell lines following exposure to the marine algal toxin azaspiracid-1. *Chemical Research in Toxicology*, 25, 1493-1501.
- Butler, S.C., Miles, C.O., Karim, A., and Twiner, M.J. (2012). Inhibitory effects of pectenotoxins from marine algae on the polymerization of various actin isoforms. *Toxicology In Vitro*, 26, 493-499.
- Dabaja, R. "Effects of algal toxin mixtures on cell line cytotoxicity" The University of Michigan-Dearborn 2010 – 2011
- Ahmed, U. "Effects of the marine toxin azaspiracid on chicken egg development" The University of Michigan-Dearborn 2010 – 2011
- Rasky, A. "Is the marine algal toxin azaspiracid an ionophore?" The University of Michigan-Dearborn 2010 – 2011
 Twiner, M.J., Doucette, G.J., Rasky, A., Huang, X.-P., Roth, B.L., and Sanguinetti, M.C. (2012). The marine algal toxin azaspiracid is an open state blocker of hERG potassium channels. *Chemical Research in Toxicology*, 25, 1975-1984.
- Shende, V. "Apoptotic effects of azaspiracid on various human cell lines" The University of Michigan-Dearborn 2010
- Hassan, S., "Effects of magnetic nanoparticles on the viability of human lymphocyte cells with applications to hyperthermia-induced cytotoxicity" The University of Michigan-Dearborn 2010 – 2011
- Satti, R. "Literature review of the harmful alga *Microcystis* and its toxin microcystin" The University of Michigan-Dearborn 2010 – 2011

- El-Ladki, R. "Effect of cholesterol supplementation on azaspiracid-induced cytotoxicity of Jurkat lymphocyte T cells" The University of Michigan-Dearborn 2010 – 2011
 Twiner, M.J., El-Ladki, R., Kilcoyne, J., Doucette, G.J. (2012). Comparative effects of the marine algal toxins azaspiracid-1, -2, and -3 on Jurkat T lymphocyte cells. *Chemical Research in Toxicology*, 25: 747-754.
- Karim, A. "Effects of the marine algal toxin pectenotoxin on actin polymerization and cellular viability" The University of Michigan-Dearborn 2010
 Butler, S.C., Miles, C.O., Karim, A., and Twiner, M.J. (2012). Inhibitory effects of pectenotoxins from marine algae on the polymerization of various actin isoforms. *Toxicology In Vitro*, 26, 493-499.
- Hanagriff, J. "Effects of the marine toxin azaspiracid on programmed cell death in three human cell lines" College of Charleston, SC 2004
 Twiner, M.J., Hanagriff, J.C., Butler, S., Madhkoor, A.K., Doucette, G.J. (2012). Induction of apoptosis pathways in several cell lines following exposure to the marine algal toxin azaspiracid-1. *Chemical Research in Toxicology*, 25, 1493-1501.
- Rogel, K. "Development of an assay for detecting azaspiracids" College of Charleston, SC 2003
- Samons, M. "Cytotoxic effects of azaspiracid on human lymphocytes" College of Charleston, SC 2001
 Twiner, M.J., Hess, P., Bottein Dechraoui, M.-Y., McMahon, T., Ramsdell, J.S., Samons, M.S., Satake, M., Yasumoto, T., and Doucette, G.J. (2005). Cytotoxic and cytoskeletal effects of azaspiracid-1 on multiple mammalian cell lines. *Toxicol* 45, 891-900.
- Elsabowi, R. "Iron acquisition and requirements of a non-toxic bloom-forming dinoflagellate, *Prorocentrum minimum*" Western University 2000
- Michalenko, J. "Antialgal and antibacterial compound production by *Prorocentrum* spp. under various nutrient stresses" Western University 2000
- Wiklund, J. "The effect of burial on the growth of *Artemisia campestris*" Western University 2000

Graduate Students

- Emily Rogers, Ph.D., "Chronic toxicity and bioaccumulation of microcystins in freshwater fishes using toxicogenomics and histopathology" defended 2006 – 2010
 November 2010, The University of Tennessee (Advisory Committee Member)
 Rogers, E.D., Henry, T.B., Twiner, M.J., Gouffon, J.S., McPherson,

J.T., Boyer, G.L., Sayler, G.S., and Wilhelm, S.W. (2011). Global gene expression profiling in larval zebrafish exposed to microcystin-LR and *Microcystis* reveals endocrine disrupting effects of cyanobacteria. *Environmental Science and Technology*, 45, 1962-1969.

Patricia Roth, MSc., “Characterization of the bacterial communities associated with the toxic dinoflagellate *Karenia brevis*” defended September 2008, College of Charleston (Advisory Committee Member) 2006 – 2008

Roth, P.B., Twiner, M.J., Wang, Z., Bottein Dechraoui, M.-Y., and Doucette, G.J. (2007). Fate and distribution of brevetoxin (PbTx) following lysis of *Karenia brevis* by algicidal bacteria, including analysis of open A-ring derivatives. *Toxicon* 50, 1175-1191.

Roth, P.B., Twiner, M.J., Mikulski, C.M., Barnhorst, A.B., and Doucette, G.J. (2008). Comparative analysis of the effects of two algicidal bacteria on the toxic dinoflagellate *Karenia brevis*. *Harmful Algae* 7, 682-691.

GRANTS, CONTRACTS, AND OTHER FUNDING

Active National/International Grants and Contracts

Role: Co-Investigator (PI V. Trainer, National Fisheries Service), Percent Effort 5%
 Title: Clear and Present Danger: monitoring and management of lipophilic shellfish toxins in Washington State. The major goal of this study was to characterize temporal and spatial distribution of harmful algal toxins in coastal Washington state waters and develop detection tools for state managers.

Source: MERHAB NOAA-NOS-NCCOS-2012-2002987

Total Period of Support: 1/2015 – 12/2019 (no cost extension)

Total Direct Costs: \$15,000

Previously Funded Grants and Contracts

Role: Primary Investigator, Percent Effort 10%

Title: Characterization of microcystin inhibition of phosphatase enzymes. The major goal of this study was to characterize the molecular interactions of microcystin toxins towards protein phosphatases.

Source: University of Michigan-Dearborn CASL Summer Research Grant

Total Period of Support: 2011

Total Direct Costs: \$7000

Role: Co-Primary Investigator (PI K. Bandyopadhyay, University of Michigan), Percent Effort 0%

Title: Acquisition of a Zeta potential and submicron particle size analyzer to enhance research and teaching at the University of Michigan-Dearborn. This was an equipment grant.

Source: NSF Major Research Instrumentation Program

Total Period of Support: 2010

Total Direct Costs: \$83,103

Role: Co-Primary Investigator (PI P. Hess, Irish Marine Institute), Percent Effort 25%

Title: Azaspiracids: Toxicological evaluation, test methods and identification of the source organism. The goal of this study was to characterize temporal and spatial distribution of harmful algal toxins in coastal Irish waters and determine toxicological mechanism of action.

Source: Irish National Development Program

Total Period of Support: 6/2008 – 5/2011

Total Direct Costs: \$150,000

Role: Primary Investigator, Percent Effort 20%

Title: Characterization of various analogues of the marine phycotoxin pectenotoxin on mammalian cytotoxicity and actin polymerization. The goal of this study was to characterize the effects of pectenotoxin on actin polymerization and depolymerization.

Source: University of Michigan Rackham Graduate School

Total Period of Support: 9/2010 – 8/2011

Total Direct Costs: \$15,000

Role: Co-Primary Investigator (PI T. Henry, University of Tennessee), Percent Effort 3%

Title: ECOHAB: Investigating chronic toxicity and bioaccumulation of microcystins in freshwater fishes using toxicogenomics and histopathology. The major goal of this study was to use genomic approaches to characterize transcriptome responses in fish to microcystin toxins.

Source: EPA-G2006-STAR-B1

Total Period of Support: 1/2006 – 12/2009

Total Direct Costs: \$5000

Role: Primary Investigator, Percent Effort 10%

Title: Interactive cytotoxic effects of marine algal toxins *in vitro*

Source: University of Michigan-Dearborn Faculty Seed Grant

Total Period of Support: 9/2010 – 8/2011

Total Direct Costs: \$5976

Role: Co-Primary Investigator (PI P. Hess, Irish Marine Institute), Percent Effort 10%

Title: ASTOX-Azaspiracid Standards and Toxicology

Source: Irish Marine Research Measure Program

Total Period of Support: 6/2003 – 5/2006

Total Direct Costs: \$30,000

Role: Primary Investigator, Percent Effort 50%

Title: Algicidal bacteria targeting *Karenia brevis*: Identification and characterization of algicidal agents. The goal of this study was to characterize algicidal agents produced by marine bacteria.

Source: The National Academies: National Research Council

Total Period of Support: 9/2002 – 8/2006

Total Direct Costs: \$174,000

Previously funded Grants and Contracts

Role: Primary Investigator, Percent Effort 10% (in-kind)

Title: Utility of a Street Medicine Student Run Clinic in Reducing Emergency Department Visits Among Homeless patients

A retrospective database analysis of the impact a student run, provisional clinic has on the utilization of emergency department services.

Source: Blue Cross / Blue Shield Foundation of Michigan

Total Period of Support: 1/2017 – 12/2017

Total Direct Costs: \$10,000

Role: Principal Investigator, Percent Effort: 5%

Title: Screening for Chronic Hepatitis C in the Emergency Department: Risk Assessment, Referral, and Clinical Follow Up: Sinai Grace Hospital

The major goal of this grant project is to identify patients who are HCV positive and connect them to care and treatment services.

Source: Gilead Sciences, Inc., FOCUS Program

Period of Support: 5/18/2016-9/30/17

Total Direct Costs: \$237,178.56

Role: Co-Investigator (Levy, Wayne State University, PI), Percent Effort: 10% Effective 2013
Title: Adjunct Therapy with Vitamin D as a Means to Reduce Disparities in Subclinical Target-Organ Cardiac Damage Among Vulnerable Hypertensive Patients

The primary objective of this randomized controlled trial is to assess the incremental value of Vitamin as an adjunct to strict blood pressure control in reversing echocardiographic sign of subclinical hypertensive heart disease.

Source: NIH/NIMHD (5 R01 MD005849)

Total Period of Support: May 14, 2011-November 30, 2015

Total Direct Costs: \$1,200,000

Role: Co-Investigator (Levy, Gleason-Comstock, Wayne State University - Co-PIs), Percent Effort: 5%

Title: Achieving Blood Pressure Control Through Enhanced Discharge

The major goal of this study is to evaluate the impact of consumer information technology on blood pressure control in a cohort of hypertensive patients recruited in the emergency department.

Source: Blue Cross/Blue Shield of Michigan Foundation

Total Period of Support: July 1, 2013-June 30, 2014 Submitted 8/5/13

Total Direct Costs: \$74,986

Previously submitted, not funded Grants and Contracts (Include scores where applicable)

Role: Co-Primary Investigator (PI C. Forsyth, Ohio State University), Percent Effort: 20%

Title: Synthesis, detection and molecular pharmacology of algal toxins. The major goal of this study was to characterize the molecular pharmacology of synthetic fragments of algal toxins.

Source: NIH R01 ES010615-08

Total Period of Support: 2011 - 2015

Total Direct Costs: \$688,256

PUBLICATIONS**Peer-Reviewed Publications** (*students denoted with an asterisk**)**Reports of Original Work**

1. **Twiner, M.J.**, Marinica, A.L., Kuper, K., Goodman, A., Mahn, J.J., Burla, M.J., Brody, A.M., Carroll, J.A., Josiah Willock, R., Flack, J.M., Nasser, S.A., and Levy, P.D. (2017) Screening and treatment for subclinical hypertensive heart disease in emergency department patients with uncontrolled blood pressure: A cost effectiveness analysis. *Academic Emergency Medicine*, 24 (2), 168-176.
2. Brody, A.B., **Twiner, M.J.**, Kumar, V.A., Goldberg, E., McNaughton, C., Souffront, K., Millis, S., and Levy, P.D. (2016). Survey of emergency physician approaches to management of asymptomatic hypertension. *Journal of Clinical Hypertension*, Sep 28. *I contributed to key parts of manuscript preparation and edited the final version.*
3. Kilcoyne, J., McCarron, P., **Twiner, M.J.**, Rise, F., Hess, P., Wilkins, A.L., and Miles, C.O. (2018). Identification of 21,22-dehydroazaspiracids in mussels (*Mytilus edulis*) and *in vitro* toxicity of azaspiracid-26. *Journal of Natural Products*, 81, 885-893. *I designed and performed experiments and contributed to key parts of data analysis, manuscript preparation and edited the final version.*
4. **Twiner, M.J.**, Doucette, G.J., Pang, Y., Fang, C., Forsyth, C.J., and Miles, C.O. (2016). Structure-activity relationship studies using natural and synthetic okadaic acid /dinophysistoxin toxins. *Marine Drugs*, 14, 207.
5. Krock, B., Tillmann, U., Potvin, E., Jeong, H.-J., Drebing, W., Kilcoyne, J., Al-Jorani, A.*, **Twiner, M.J.**, Göthel, Q., Köck, M. (2015). Structural elucidation and *in vitro* toxicity of new azaspiracids isolated from the marine dinoflagellate *Azadinium poporum*. *Marine Drugs*, 13, 6687-6702 *I designed and performed experiments and contributed to key parts of data analysis, manuscript preparation and edited the final version.*
6. Guannel, M. L., Haring, D., **Twiner, M.J.**, Wang, Z., Noble, A., Saito, M.A., and Rocap, G. (2015). Toxigenicity and biogeography of the diatom *Pseudo-nitzschia* across distinct environmental regimes in the South Atlantic Ocean. *Marine Ecology Progress Series*, 526, 67-87. *I contributed to key parts of data analysis, manuscript preparation and edited the final version.*
7. Kilcoyne J, **Twiner** M.J., McCarron P., Crain S., Giddings S.D., Foley B., Rise F., Hess P., Wilkins A.L., Miles, C.O. (2015). Structure elucidation, relative LC-MS response and *in vitro* toxicity of azaspiracids 7-10 isolated from mussels (*Mytilus edulis*). *Journal of Agricultural and Food Chemistry*, 63, 5083-5091. *I designed and performed experiments and contributed to key parts of data analysis, manuscript preparation and edited the final version.*

8. Kilcoyne, K., Nulty, C., Jauffrais, T., McCarron, P., Herve, F., Foley, B., Rise, F., Crain, S., Wilkins, A.L., **Twiner, M.J.**, Hess, P., and Miles, C.O. (2014). Isolation, structure elucidation, relative LC-MS response, and *in vitro* toxicity of azaspiracids from the dinoflagellate *Azadinium spinosum*. *Journal of Natural Products*, 77, 2465-2474. *I designed and performed experiments and contributed to key parts of data analysis, manuscript preparation and edited the final version.*
9. Kilcoyne, J., McCarron, P., **Twiner, M.J.**, Nulty, C., Crain, S., Quilliam, M.A., Rise, F., Wilkins, A.L., and Miles, C.O. (2014). Epimers of azaspiracids: Isolation, structural elucidation, relative LC-MS response, and *in vitro* toxicity of 37-epi-azaspiracid-1. *Chemical Research in Toxicology*, 27, 587-600. *I designed and performed experiments and contributed to key parts of data analysis, manuscript preparation and edited the final version.*
10. Kilcoyne, J.; Nulty, C.; Jauffrais, T.; McCarron, P.; Herve, F.; Wilkins, A. L.; Rise, F.; Quilliam, M. A.; **Twiner, M. J.**; Hess, P.; Miles, C. O. (2014). Isolation, structure elucidation, relative LC-MS response, and *in vitro* toxicity of azaspiracids from the dinoflagellate *Azadinium spinosum*. *Journal of Natural Products*, 77, 2465-2474. *I designed and performed experiments and contributed to key parts of data analysis, manuscript preparation and edited the final version.*
11. **Twiner, M.J.**, Doucette, G.J., Rasky, A., Huang, X.-P., Roth, B.L., and Sanguinetti, M.C. (2012). The marine algal toxin azaspiracid is an open state blocker of hERG potassium channels. *Chemical Research in Toxicology*, 25, 1975-1984.
12. **Twiner, M.J.**, Hanagriff, J.C., Butler, S., Madhkoor, A.K., Doucette, G.J. (2012). Induction of apoptosis pathways in several cell lines following exposure to the marine algal toxin azaspiracid-1. *Chemical Research in Toxicology*, 25, 1493-1501.
13. **Twiner, M.J.**, Flewelling, L.J., Fire, S.E., Bowen-Stevens, S.R., Gaydos, J.K., Johnson, C.K., Landsberg, J.H., Leighfield, T.A., Mase –Guthrie, B., Schwacke, L., Van Dolah, F.M., Wang, Z., Rowles, T.K. (2012). Comparative analysis of three brevetoxin-associated bottlenose dolphin (*Tursiops truncatus*) mortality events in the Florida Panhandle region (USA). *PLoS One*, 7, e42974.
14. **Twiner, M.J.**, El-Ladki, R.*, Kilcoyne, J., Doucette, G.J. (2012). Comparative effects of the marine algal toxins azaspiracid-1, -2, and -3 on Jurkat T lymphocyte cells. *Chemical Research in Toxicology*, 25: 747-754.
15. Butler, S.C.*, Miles, C.O., Karim, A.*, and **Twiner, M.J.** (2012). Inhibitory effects of pectenotoxins from marine algae on the polymerization of various actin isoforms. *Toxicology In Vitro*, 26, 493-499.
16. Pang, Y., Fang, C., **Twiner, M.J.**, Miles, C.O., Forsyth, C.J. (2011). Total synthesis and PPase inhibition of dinophysistoxin-2 and 2-epi-dinophysistoxin-2. *Angew. Chem. Int. Ed.*, 50, 7631-7635. *I designed and performed experiments and contributed to key parts of data analysis, manuscript preparation and edited the final version.*
17. Rogers, E.D., Henry, T.B., **Twiner, M.J.**, Gouffon, J.S., McPherson, J.T., Boyer, G.L., Sayler, G.S., and Wilhelm, S.W. (2011). Global gene expression profiling in larval zebrafish exposed to microcystin-LR and *Microcystis* reveals endocrine disrupting effects of cyanobacteria. *Environmental Science and Technology*, 45, 1962-1969. *I contributed to key parts of experimental design, data analysis, manuscript preparation and edited the final version.*
18. **Twiner, M.J.**, Fire, S., Schwacke, L.H., Davidson, L., Wang, Z., Morton, S., Roth, S., Balmer, B.C., Rowles, T.K., Wells, R.S. (2011). Concurrent exposure of bottlenose dolphins (*Tursiops truncatus*) to multiple algal toxins in Sarasota Bay, Florida, USA. *PLoS One* 6(3): e17394. doi:10.1371/journal.pone.0017394.

19. Schwacke, L.H., **Twiner, M.J.**, De Guise, S., Balmer, B.C., Wells, R.S., Townsend, F.I., Rotstein, D.C., Varela, R.A., Hansen, L.J., Zolman, E.S., Spradlin, T.R., Levin, M., Leibrecht, H., Wang, Z., Rowles, T.K. (2010). Eosinophilia and biotoxin exposure in bottlenose dolphins (*Tursiops truncatus*) from a coastal area impacted by repeated mortality events. *Environmental Research*, 110, 548-555. *I contibuted to key parts of experimental design, data analysis, manuscript preparation and edited the final version.*
20. **Twiner, M.J.**, Ryan, J.C., Morey, J.S., Smith, K.J., Hammad, S.M., Van Dolah, F.M., Hess, P., McMahon, T., Satake, M., Yasumoto, T., and Doucette, G.J. (2008). Transcriptional profiling and inhibition of cholesterol biosynthesis in human lymphocyte T cells by the marine toxin azaspiracid. *Genomics* 91, 289-300.
21. Fire, S.E., Flewelling, L.J., Naar, J., **Twiner, M.J.**, Henry, M.S., Pierce, R.H., Gannon, D.P., Wang, Z., Davidson, L., and Wells, R.S. (2008). Prevalence of brevetoxins in prey fish of bottlenose dolphins in Sarasota Bay, Florida. *Marine Ecology Progress Series* 368, 283-294. *I contibuted to key parts of experimental design, data analysis, manuscript preparation and edited the final version.*
22. Roth, P.B., **Twiner, M.J.**, Mikulski, C.M., Barnhorst, A.B., and Doucette, G.J. (2008). Comparative analysis of the effects of two algicidal bacteria on the toxic dinoflagellate *Karenia brevis*. *Harmful Algae* 7, 682-691. *I designed and performed experiments and contibuted to key parts of data analysis, manuscript preparation and edited the final version.*
23. Wiley, F.E., **Twiner, M.J.**, Leighfield, T.A., Wilde, S.B., Van Dolah, F.M., Fischer, J.R., Bowerman, W.W. (2008). An extract of *Hydrilla verticillata* and associated epiphytes induces avian vacuolar myelinopathy in laboratory mallards. *Environmental Toxicology* 24, 362-368. *I contibuted to key parts of experimental design, data analysis, manuscript preparation and edited the final version.*
24. Roth, P.B., **Twiner, M.J.**, Wang, Z., Bottein Dechraoui, M.-Y., and Doucette, G.J. (2007). Fate and distribution of brevetoxin (PbTx) following lysis of *Karenia brevis* by algicidal bacteria, including analysis of open A-ring derivatives. *Toxicon* 50, 1175-1191. *I designed and performed experiments and contibuted to key parts of data analysis, manuscript preparation and edited the final version.*
25. **Twiner, M.J.**, Bottein-Dechraoui, M.-Y., Wang, Z., Mikulski, C.M., Henry, M.S., Pierce, R.H., Doucette, G.J. (2007). Extraction and analysis of lipophilic brevetoxins (PbTx) from the red tide dinoflagellate *Karenia brevis*. *Analytical Biochemistry* 369, 128-135.
26. Kulagina, N.V., **Twiner, M.J.**, Doucette, G.J., Ramsdell, J.S., Hess, P., McMahon, T., O'Shaughnessy, T.J., Ma, W. (2006). Effect of azaspiracid-1 on action potential generation and voltage-gated currents in cultured spinal cord neuronal networks. *Toxicon* 47, 766-773. *I designed and performed experiments and contibuted to key parts of data analysis, manuscript preparation and edited the final version.*
27. **Twiner, M.J.**, Hess, P., Bottein Dechraoui, M.-Y., McMahon, T., Ramsdell, J.S., Samons, M.S., Satake, M., Yasumoto, T., and Doucette, G.J. (2005). Cytotoxic and cytoskeletal effects of azaspiracid-1 on multiple mammalian cell lines. *Toxicon* 45, 891-900.
28. Colman, J.R., **Twiner, M.J.**, Hess, P., McMahon, T., Doucette, G.J. and Ramsdell, J.S. (2005). Teratogenic effects of azaspiracid-1 identified by microinjection of Japanese medaka *Oryzias latipes* embryos. *Toxicon*, 45, 881-890. *I designed and performed experiments and contibuted to key parts of data analysis, manuscript preparation and edited the final version.*
29. **Twiner, M.J.**, Chidiac, P., Dixon, S.J., and Trick, C.G. (2005). Extracellular organic compounds from the ichthyotoxic alga *Heterosigma akashiwo* elevate cytosolic calcium and induce apoptosis in Sf9 cells. *Harmful Algae* 4, 789-800.

30. **Twiner, M.J.**, Dixon, S.J. and Trick, C.G. (2004). Extracellular organics from specific cultures of *Heterosigma akashiwo* (Raphidophyceae) irreversibly alter respiratory activity in mammalian cells. *Harmful Algae* 3, 173-182.
31. **Twiner, M.J.**, Dixon, S.J. and Trick, C.G. (2001). Toxic effects of *Heterosigma akashiwo* do not appear to be mediated by hydrogen peroxide. *Limnology and Oceanography* 46, 1400-1405.
32. **Twiner, M.J.**, and Trick, C.G. (2000). Possible physiological mechanisms for production of hydrogen peroxide by the ichthyotoxic flagellate *Heterosigma akashiwo*. *Journal of Plankton Research* 22, 1961-1975.
33. **Twiner, M.J.**, Hirst, M., Valenciano, A., Zacharewski, T.E., and Dixon, S.J. (1998). N,N-Dimethylformamide modulates acid extrusion from murine hepatoma cells. *Toxicology and Applied Pharmacology* 153, 143-151.

Review Articles

34. **Twiner, M.J.**, Rehmann, N., Hess, P., Doucette, G.J. (2008). Azaspiracid Shellfish Poisoning: A review on the ecology, chemistry, toxicology and human health impacts. *Marine Drugs* (Special issue on Marine Toxins) 6, 39-72.

Book Authorships, Editorships, and Chapters

35. Hess, P., **Twiner, M.J.**, Kilcoyne, J., & Sosa, S. (2015). Azaspiracid toxins: Toxicological profile. In P. Gopalakrishnakone (Ed.), *Handbook of Toxinology*. Singapore: Springer.
36. **Twiner, M. J.**, Hess, P., and Doucette, G. J. (2014) Chapter 28: Azaspiracids: Toxicology, Pharmacology, and Risk Assessment, In *Seafood and Freshwater Toxins*, 3rd Edition (Botana, L. M., Ed.), CRC Press, Boca Raton, USA, pg. 823-855.

PRESENTATIONS

Podium Presentations (refereed)

1. Hess P., Kilcoyne J., Jauffrais T., Tillmann U., Clarke D., Silke J., Krock B., Aasen J., Geraghty J., Duffy C., Sosa S., Tubaro A., **Twiner M.J.**, Doucette G. (2013) ASTOX2 - an example of research in support of legislation. Oral presentation given at the XVIth Workshop of EU-RL/NRLs for Marine Biotoxins. 24-25 October 2013, Split, Croatia. (oral presentation by P. Hess).
2. Kilcoyne, J., **Twiner, M.J.**, McCarron, P., Crain, S., Wilkins, A.L., Nulty, C., Quilliam, M.A., Hess, P., Miles, C.O. AZA analogues – *In vitro* toxicology and relevance to human health. AOAC International Meeting, Baiona, Spain, May 5-9, 2013. (oral presentation by J. Kilcoyne).
3. Guannel, M., **Twiner, M.J.**, Lee, P.A., Haring, D., DiTullio, G.R., Wang, Z., Morton, S., and Rocap, G. Toxicogenicity and community composition of the diatom *Pseudo-nitzschia* in the South Atlantic Ocean. American Society of Limnology and Oceanography, New Orleans, LA USA, February 18-22nd, 2013 (oral presentation by M. Guannel).
4. Kilcoyne, J., Nulty, C., McCarron, P., Jauffrais, T., **Twiner, M.J.**, Quilliam, M.A., Hess, P., Miles, C.O. Isolation of some novel azaspiracids – structure elucidation, toxicology and preparation of reference materials. XIIIth IUPAC International Symposium on Mycotoxins and Phycotoxins, Rotterdam, Netherlands, November 5-9, 2012 (oral presentation by J. Kilcoyne).

5. Fire, S.E., **Twiner, M.J.**, Wang, Z., Leighfield, T., Wells, R.S., Byrd, M., Morton, S., Schwacke, L., Whitehead, H.R., Sampson, K. Concurrent exposure of multiple classes of HAB toxins in marine mammals from U.S. coastal waters. Biennial Conference on the Biology of Marine Mammals, Tampa FL USA. Nov 26-Dec 2, 2011. (oral presentation by S. Fire)
6. **Twiner, M.J.**, Hess, P., El-Ladki, R.*, Butler, S.C.*, and Doucette, G.J. Toxicological Mechanisms of Azaspiracid: An emerging algal toxin in US waters. International Society for the Study of Harmful Algae, Crete, Greece, Nov 1-5, 2010. (oral presentation)
7. Rogers, E.D.*, Henry, T.B., **Twiner, M.J.**, Gouffon, J.S., Sayler, G.S., and Wilhelm, S.W. From Zebras to Cats: Development of Transcriptional Biomarkers in Larval Zebrafish for Application to Channel Catfish Exposed to *Microcystis* and the Cyanotoxin Microcystin. Annual Conference on Great Lakes Research, Toronto, Canada, May 17-21, 2010. (oral presentation)
8. **Twiner, M.J.**, Hess, P., El-Ladki, R.*, Butler, S.*, Karim, A.*, Doucette, G.J. Toxicological mechanisms of two emerging algal toxins in US waters. Gordon Conference on Mycotoxins and Phycotoxins, University of New England, Biddeford, Maine, USA, June 13-18th, 2010. (oral and poster presentation)
9. Guannel, M., **Twiner, M.J.**, Lee, P.A., Haring, D., DiTullio, G.R., Wang, Z., Morton, S., and Rocap, G. Toxicogenic *Pseudo-nitzschia* blooms in the northern Benguela Upwelling Zone. Gordon Conference on Mycotoxins and Phycotoxins, University of New England, Biddeford, Maine, USA, June 13-18th, 2010 (poster presentation by M. Guannel)
10. Rogers, E.D.*, Henry, T.B., **Twiner, M.J.**, Gouffon, J.S., Sayler, G.S., and Wilhelm, S.W. From Zebras to Cats: Development of Transcriptional Biomarkers in Larval Zebrafish for Application to Channel Catfish Exposed to *Microcystis* and the Cyanotoxin Microcystin. Annual Conference on Great Lakes Research, Toronto, Canada, May 17-21, 2010. (presentation by M. Twiner)
11. Gaydos, J.K., Barrios, N., Bossart, G.D., Bowen, S., Evans, K., Ewing, R., Fleetwood, M.L., Flewelling, L., Hardy, R., Heil, C., Johnson, C., Jones, W., Kucklick, J., Landsberg, J., Litz, J., Leighfield, T.A., Lockyer, C., Mase, B., Noke, W., Rosel, P., Rotstein, D.S., Rowles, T., Schwacke, L., Spradlin, T., Stolen, M., **Twiner, M.J.**, and Van Dolah, F.M. Epizootiology of three distinct brevetoxin-associated bottlenose dolphin mortality events in the Florida Panhandle. International Association for Aquatic Animal Medicine, Vancouver, Canada, May 8-12, 2010. (presentation by J. Gaydos).
12. **Twiner, M.J.**, Flewelling, L.J., VanDolah, F., Schwacke, L., Wang, Z., Leighfield, T., Heil, C.A., Bowen, S. Mase, B., Rowles, T. Florida panhandle bottlenose dolphin mortality events between 1999 and 2006: One common toxin --- Three distinct events. Fifth Symposium on Harmful Marine Algae in the U.S., Ocean Shores, WA, USA, Nov 15-19, 2009. (oral presentation by M. Twiner)
13. Rogers, E.D. *, Henry, T.B., **Twiner, M.J.**, Gouffon, J.S., Sayler, G.S., and Wilhelm, S.W. Transcriptional responses and biochemical pathways affected in larval zebrafish exposed to microcystin-LR and *Microcystis aeruginosa*. American Society of Microbiology, Knoxville, TN. October 2009. (presentation by E. Rogers)
14. Rogers, E.D. *, Henry, T.B., **Twiner, M.J.**, Gouffon, J.S., McPherson, J.T., Sayler, G.S., and Wilhelm, S.W. Interpretation of global gene expression and biochemical pathways affected by exposure to microcystin-LR and *Microcystis aeruginosa* in larval zebrafish. Society of Environmental Toxicology and Chemistry Meeting, New Orleans, LA, November 19-23, 2009 (presentation by E. Rogers)
15. **Twiner, M. J.**, Schwacke, L., Davidson, L., Wang, Z., Fire, S., Morton, S., Balmer, B., Rowles, T., and Wells, R. Concurrent exposure of bottlenose dolphins (*Tursiops truncatus*)

- to multiple algal toxins in Sarasota Bay, Florida USA. Southeast and Mid-Atlantic Marine Mammal Symposium, Wilmington, NC, April 3-5, 2009. (oral presentation by M. Twiner)
16. **Twiner, M.J.**, Hess, P., and Doucette, G.J. From fish to (gene) chips: exploring the toxicology of azaspiracid. The 13th International Conference on Harmful Algae, Hong Kong, China, November 3-7, 2008. (oral presentation by M. Twiner)
 17. **Twiner, M.J.**, Roth, P.B. *, Lidie, K., Morey, J.S., Ryan, J.C., Van Dolah, F.M., and Doucette, G.J. Gene expression profiles of *Karenia brevis* during lysis by algicidal bacteria. Forth Symposium on Harmful Marine Algae in the U.S., Woods Hole, Massachusetts, USA, Oct 28- Nov 2, 2007. (oral presentation by M. Twiner)
 18. Rogers, E.D. *, Henry, T.B., **Twiner, M.J.**, Strange, R.J., Boyer, G.L., Saylor, G.S., and Wilhelm, S.W. Global gene expression in larval zebrafish exposed to *Microcystis aeruginosa*: More than just microcystin. International Association for Great Lake Research (IAGLR) meeting, Trent University, ON, Canada. May 2008. (oral presentation by E. Rogers)
 19. Hess, P., Rehmann, N., McCarron, P., Kilcoyne, J., Quilliam, M.A., **Twiner, M.J.**, Doucette, G.J., Ryan, G., Ryan, M.P., Satake, M., Ito, E., and Yasumoto, T. Results of the ASTOX-project (Azaspiracids Standards and Toxicology): An example of systematic, multidisciplinary research in support of sustainable shellfish production. 6th International conference on molluscan shellfish safety, Blenheim, New Zealand, March 18-23, 2007. (oral presentation by P. Hess)
 20. Roth, P.B. *, Twiner, M.J., and Doucette, G.J. Comparative brevetoxin (PbTx) dynamics during lysis of *Karenia brevis* by two algicidal bacteria. Third Symposium on Harmful Algae in the U.S., Asilomar Conference Center, California, USA, October 2-7, 2005 (oral presentation by M. Twiner).
 21. **Twiner, M.J.**, Hess, P., Bottein Dechraoui, M.-Y., McMahon, T., Ramsdell, J.S., Samons, M.S., and Doucette, G.J. Cytotoxic and cytoskeletal effects of azaspiracid-1 on multiple mammalian cell lines. International conference on Harmful Algae, Cape Town, South Africa. November 15-19, 2004. (oral presentation by M. Twiner)
 22. **Twiner, M.J.**, Hess, P., Bottein Dechraoui, M.-Y., McMahon, T., Ramsdell, J.S., Samons, M.S., and Doucette, G.J. Cytotoxic and cytoskeletal effects of azaspiracid-1 on seven mammalian cell lines. 5th International conference on molluscan shellfish safety, Galway, Ireland. June 14-18, 2004. (oral presentation by M. Twiner)
 23. **Twiner, M.J.**, Moeller, P., Mikulski, C.M., Blair, P.A., Jones, K.L., and Doucette, G.J. An algicidal bacterium active against *Karenia brevis*: Involvement of a dissolved compound. Second Symposium on Harmful Marine Algae in the U.S., Woods Hole, Massachusetts, USA, December 9-13, 2003. (oral presentation by M. Twiner)
 24. Kulagina, N.V., Smith, L. Mikulski, C.M, **Twiner, M.J.**, Doucette, G.J., J.S. Ramsdell, and Pancrazio, J.J. Application of cultured neuronal networks for identification of toxic algae. Second Symposium on Harmful Marine Algae in the U.S., Woods Hole, Massachusetts, USA, December 9-13, 2003. (oral presentation by N. Kulagina)
- Howard, R.S., Cochlan, W., Connell, L., Pickell, L.D., **Twiner, M.J.**, and Trick, C. The detection of nitric oxide (NO) production by *Heterosigma akashiwo* using the florescent dye DAF-AM diacetate and flow cytometry. American Society of Limnology and Oceanography conference, Victoria, Canada, June 10-14, 2001. (oral presentation by R.S. Howard)
26. **Twiner, M.J.** and Trick, C.G. Hydrogen peroxide induced effects toward cultured cell lines: Does *Heterosigma* produce toxic concentrations? 9th conference on Harmful Algal Blooms, Hobart, Australia, February 2000. (oral presentation by M. Twiner)

27. **Twiner, M.J.** and Trick, C.G. (1999). Nutritional control of growth and toxicity of the coastal raphidophyte, *Heterosigma* sp. American Society of Limnology and Oceanography conference, Santa Fe, USA, February 1999. (oral presentation by M. Twiner)

Poster Presentations (refereed)

1. Levy, P.D., Brody, A., Li, T., Daewood, R., Mango, L.M., Gowland, L., Twiner, M.J., Gandits, G., Svendsen, K., Courage, C., Flack, J. (2017) Randomized controlled trial of vitamin D adjunct therapy for African American patients with left ventricular hypertrophy. Poster presentation given at American Heart Association annual meeting. November 11-15, 2017, Anaheim, CA USA (poster presentation by P. Levy).
2. Madhkoor, A.K.*, Doucette, G.J., **Twiner, M.J.** Induction of apoptosis pathways in lymphocyte T cells following exposure to the marine algal toxin azaspiracid-1. American Chemical Society Meeting, New Orleans, LA USA, April 7-11, 2013 (poster presentation by A. Madhkoor).
3. Madhkoor, A.K., Doucette, G.J., **Twiner, M.J.** Induction of apoptosis pathways in lymphocyte T cells following exposure to the marine algal toxin azaspiracid-1. The Michigan Society of Toxicology Regional Meeting, Ann Arbor, MI USA, November 2, 2012 (poster presentation by A. Madhkoor).
4. **Twiner, M.J.**, Pang, Y., Fang, C., Butler, S.C*, Rasky, A. *, Miles, C.O., and Forsyth, C.J. Synthetic analogs of okadaic acid and other DSP toxins elucidate phosphatase structure-activity relationships. 243rd American Chemical Society National Meeting, San Diego, CA USA, March 25-29, 2012 (poster presentation by C. Forsyth)
5. Rasky, A. *, Meujo, D., Hamman, M.T., **Twiner, M.J.** Comparative ionophoric studies of the marine algal toxin azaspiracid. American Chemical Society National Meeting, San Diego, CA, USA, March 25-29, 2012 (poster presentation by A. Rasky)
6. **Twiner, M.J.**, Pang, Y., Fang, C., Miles, C.O., and Forsyth, C.J. Synthetic analogs of okadaic acid and other DSP toxins elucidate phosphatase structure-activity relationships. 5th US HAB symposium, Austin, TX, USA, November 13-18, 2011 (poster presentation by M. Twiner)
7. Park, J.W., Rogers, E.D., Twiner, M.J., Henry, T.B., Wilhelm, S.W. Chronic toxicity of *Microcystis aeruginosa* in fish: unexpected effects and potential implications. Society of Environmental Toxicology and Analytical Chemistry Meeting, Boston, MA, USA. Nov 13-17, 2011. (poster presentation by J. Park)
8. Dabaja, F.*, and **Twiner M.J.** Morphological and cytotoxic effects of the marine toxin azaspiracid on human neuroblastoma cells. American Society for Microbiology, University of Michigan-Dearborn, Dearborn, MI, USA, Oct 7-8, 2011. (poster presentation by F. Dabaja)
9. Butler, S.C.*, Miles, C.O., Karim, A.*, and **Twiner, M.J.** Effects of the marine algal toxin pectenotoxin on the activity of various actin isoforms. Society of Toxicology's 50th Annual Meeting, Washington, D.C., March 6–10, 2011. (poster presentation by S. Butler)
- El-Ladki, R.*, Doucette, G.J., **Twiner, M.J.** Comparative cytotoxicity of various analogs of the marine algal toxin azaspiracid. Society of Toxicology's 50th Annual Meeting, Washington, D.C., March 6–10, 2011. (poster presentation by R. El-Ladki)
11. **Twiner, M.J.**, Hess, P., El-Ladki, R.*, Butler, S.C.*, and Doucette, G.J. Toxicological Mechanisms of Azaspiracid: An emerging algal toxin in US waters. Society of Toxicology's 50th Annual Meeting, Washington, D.C., March 6–10, 2011. (poster presentation)
12. **Twiner, M.J.**, Schwacke, L., Davidson, L., Wang, Z., Fire, S., Morton, S., Balmer, B., Rowles, T., and Wells, R. Concurrent exposure of bottlenose dolphins (*Tursiops truncatus*) to multiple

- algal toxins in Sarasota Bay, Florida USA. Fifth Symposium on Harmful Marine Algae in the U.S., Ocean Shores, WA, USA, Nov 15-19, 2009. (poster presentation)
13. Guannel, M., **Twiner, M.J.**, Lee, P.A., Haring, D., DiTullio, G.R., Wang, Z., Morton, S., and Rocap, G. Toxicogenic *Pseudo-nitzschia* blooms in the northern Benguela Upwelling Zone. Gordon Conference on Mycotoxins and Phycotoxins, University of New England, Biddeford, Maine, USA, June 13-18th, 2010 (poster)
 14. **Twiner, M.J.**, Schwacke, L., Davidson, L., Wang, Z., Fire, S., Morton, S., Balmer, B., Rowles, T., and Wells, R. Concurrent exposure of bottlenose dolphins (*Tursiops truncatus*) to multiple algal toxins in Sarasota Bay, Florida USA. Fifth Symposium on Harmful Marine Algae in the U.S., Ocean Shores, WA, USA, Nov 15-19, 2009. (poster presentation by M. Twiner)
 15. Haring, D. *, Guannel, M., **Twiner, M.J.**, Lee, P.A., DiTullio, G.R., Wang, Z., and Rocap, G. Patterns of *Pseudo-nitzschia* and domoic acid related to phytoplankton community structure in the Benguela current. Fifth Symposium on Harmful Marine Algae in the U.S., Ocean Shores, WA, USA, Nov 15-19, 2009. (poster presentation by D. Haring)
 16. Kulagina, N.V., **Twiner, M.J.**, O'Shaughnessy, T.J., Hess, P., McMahon, T., Ramsdell, J.S., Doucette, G.J., and Ma, W. Pharmacological effect of azaspiracid-1 on spinal cord neuronal networks. Gordon Conference on Mycotoxins and Phycotoxins, Colby College, Waterville, Maine, USA, June 19-24, 2005 (poster presentation by N. Kulagina).
 17. F.E. Wiley*, **Twiner, M.J.**, Leighfield, T., Wilde, S.B., Bowerman, W.W. Development of extraction methodology and cell bioassays for the study of avian vacuolar myelinopathy: A project update. Carolina's Society of Environmental Toxicology and Chemistry (SETAC), North Carolina State University, Raleigh, NC, USA. March 31-April 2, 2005. (poster presentation by F. Wiley)
 18. **Twiner, M.J.**, Wright, J. and Doucette, G.J. An algicidal bacterium active against various harmful algae: Involvement of a dissolved compound. International conference on Harmful Algae, Cape Town, South Africa. November 15-19, 2004. (poster presentation by M. Twiner)
 19. Blair, P.A. *, **Twiner, M.J.**, Mikulski, C.M., Jones, K.L., and Doucette, G.J. Algicidal bacteria targeting the toxic dinoflagellate *Karenia brevis*: the importance of interactions within the microbial community. International conference on Harmful Algae, Cape Town, South Africa. November 15-19, 2004. (poster presentation by P. Blair)
 20. Colman, J.R. *, **Twiner, M.J.**, Hess, P., McMahon, T., Doucette, G.J. and Ramsdell, J.S. Teratogenic effects of azaspiracid-1 identified by microinjection of Japanese Medaka *Oryzias latipes* embryos. 5th International conference on molluscan shellfish safety, Galway, Ireland. June 14-18, 2004. (poster presentation by J. Colman)
 21. Kulagina, N.V., **Twiner, M.J.**, Doucette, G.J., Ramsdell, J.S., Hess, P., McMahon, T., O'Shaughnessy, T.J., Ma, W. Effect of azaspiracid-1 on action potential generation and voltage-gated currents in cultured spinal cord neuronal networks. 5th International conference on molluscan shellfish safety, Galway, Ireland. June 14-18, 2004. (poster presentation by M. Twiner)
 22. Blair, P.A., **Twiner, M.J.**, Mikulski, C.M., Jones, K.L., and Doucette, G.J. Microbial interactions associated with the toxic dinoflagellate *Karenia brevis*. Second Symposium on Harmful Marine Algae in the U.S., Woods Hole, Massachusetts, USA, December 9-13, 2003. (poster presentation by P. Blair)
 23. **Twiner, M.J.**, Dixon, S.J., Chidiac, P., and Trick, C.G. Extracellular compounds that disrupt intracellular calcium and induce apoptosis as putative toxins from *Heterosigma akashiwo*. Xth International Conference on Harmful Algae, St. Pete Beach, Florida, USA, October 21-25, 2002. (poster presentation by M. Twiner)

24. **Twiner, M.J.**, Dixon, S.J., Chidiac, P., and Trick, C.G.. Extracellular compounds that inhibit Ca^{2+} -ATPase transporters as possible toxins from the ichthyotoxic alga *Heterosigma akashiwo*. 7th Canadian Workshop on Harmful Marine Algae, Nanaimo, Canada, May 2000. (poster presentation by C.G. Trick)
25. **Twiner, M.J.**, Dixon, S.J., Chidiac, P., and Trick, C.G. Extracellular compounds that unbalance calcium mediated-metabolism as possible toxins from *Heterosigma akashiwo*. Symposium on Harmful Marine Algae in the U.S., Woods Hole, USA, December 2000. (poster presentation by M. Twiner)
26. Hirst, M., **Twiner, M.J.**, Valenciano, A., Zacharewski, T.E., and Dixon, J. N, N-dimethylformamide causes depressed release of hydrogen ions in Hepa 1C1C7 hepatocytes. Molecular Devices Symposium, Paris, France, 1999. (poster presentation by M. Hirst)

Other

Podium Presentations (non-refereed)

1. Butler, S.C.* , Miles, C.O., Karim, A.* , and **Twiner, M.J.** Effects of the marine algal toxin pectenotoxin on the activity of various actin isoforms. Meeting of Minds Undergraduate Research Conference, Oakland University, Rochester, MI, USA, May 13, 2011. (oral presentation by S. Butler)
2. El-Laki, R.* and **Twiner, M.J.** Azaspiracid analogue potencies and the effect of cholesterol supplementation on azaspiracid-1-induced cytotoxicity of Jurkat lymphocyte T cells. Meeting of Minds Undergraduate Research Conference, University of Michigan-Flint, Flint, MI, USA, May 14, 2010 (oral and poster presentations by R. El-Laki).
3. Hassan, S.* , Bandyopadhyay, D., Bandyopadhyay, K. Regmi, R.K.* , Lawes, G., Gumber, V., Sudakar, C. and **Twiner, M.J.** Effects of magnetic nanoparticles on the viability of human lymphocyte cells with applications to hyperthermia-induced cytotoxicity. Meeting of Minds Undergraduate Research Conference, University of Michigan-Flint, Flint, MI, USA, May 14, 2010 (oral and poster presentations by S. Hassan).

Poster Presentations (non-refereed)

1. Madhkoor, A.K.* , Doucette, G.J., **Twiner, M.J.** Induction of apoptosis pathways in lymphocyte T cells following exposure to the marine algal toxin azaspiracid-1. Meeting of the Minds, University of Michigan-Flint, Flint, MI USA, May 12, 2013 (poster presentation by A. Madhkoor).
2. Madhkoor, A.K.* , Doucette, G.J., **Twiner, M.J.** Induction of apoptosis pathways in lymphocyte T cells following exposure to the marine algal toxin azaspiracid-1. Twenty-first Annual Natural Sciences Poster Session, University of Michigan-Dearborn, Dearborn, MI, USA, April 15, 2013.
3. Dabaja, F.* , **Twiner M.J.** Morphological and cytotoxic effects of the marine toxin azaspiracid on human neuroblastoma cells. Meeting of Minds Undergraduate Research Conference, Oakland University, Rochester, MI, USA, May 13, 2011. (poster presentation by F. Dabaja)
4. Rasky, A.* , Meujo, D., Hamman, M.T., **Twiner, M.J.** Comparative ionophoric studies of the marine algal toxin azaspiracid. Meeting of Minds Undergraduate Research Conference, Oakland University, Rochester, MI, USA, May 13, 2011. (poster presentation by A. Rasky)
5. El-Ladki, R.* , Doucette, G.J., **Twiner, M.J.** Comparative cytotoxicity of various analogs of the marine algal toxin azaspiracid. Nineteenth Annual Natural Sciences Poster Session, University of Michigan-Dearborn, Dearborn, MI, USA, April 15, 2011. (poster presentation by R. El-Ladki)

6. Dabaja, F.*, **Twiner M.J.** Morphological and cytotoxic effects of the marine toxin azaspiracid on human neuroblastoma cells. Nineteenth Annual Natural Sciences Poster Session, University of Michigan-Dearborn, Dearborn, MI, USA, April 15, 2011. (poster presentation by F. Dabaja)
7. Rasky, A.*, Meujo, D., Hamman, M.T., **Twiner, M.J.** Comparative ionophoric studies of the marine algal toxin azaspiracid. Nineteenth Annual Natural Sciences Poster Session, University of Michigan-Dearborn, Dearborn, MI, USA, April 15, 2011. (poster presentation by A. Rasky)
8. Butler, S.C.*, Miles, C.O., Karim, A.*, and **Twiner, M.J.** Effects of the marine algal toxin pectenotoxin on the activity of various actin isoforms. CASL Research Day, University of Michigan-Dearborn, March 25, 2011. (poster presentation by S. Butler)
9. El-Ladki, R.*, Doucette, G.J., **Twiner, M.J.** Comparative cytotoxicity of various analogs of the marine algal toxin azaspiracid. CASL Research Day, University of Michigan-Dearborn, March 25, 2011. (poster presentation by R. El-Ladki)
10. Dabaja, F.*, **Twiner M.J.** Morphological and cytotoxic effects of the marine toxin azaspiracid on human neuroblastoma cells. CASL Research Day, University of Michigan-Dearborn, March 25, 2011. (poster presentation by F. Dabaja)
11. Rasky, A.*, Meujo, D., Hamman, M.T., **Twiner, M.J.** Comparative ionophoric studies of the marine algal toxin azaspiracid. CASL Research Day, University of Michigan-Dearborn, March 25, 2011. (poster presentation by A. Rasky)
12. Karim, A.* and **Twiner, M.J.** Effects of the marine algal toxin pectenotoxin on actin polymerization and cytotoxicity. Meeting of Minds Undergraduate Research Conference, University of Michigan-Flint, Flint, MI, USA, May 14, 2010 (poster presentation by A. Karim).

Invited Lectures/Presentations

International/National

1. *In vitro* toxicity of azaspiracids. ASTOX2: The biological source, chemical and toxicological studies on azaspiracids dissemination workshop, Irish Marine Institute, Oranmore, Ireland, September 10, 2013.
2. Azaspiracid toxicology: A mechanism of action finally revealed! Gordon Conference on Mycotoxins and Phycotoxins, Stonehill College in Easton, MA, June 16-21, 2013.
3. A review of azaspiracid *in vitro* toxicology. Irish Marine Institute, Oranmore, Ireland, Oct 26, 2011.
4. From cells, to transcripts, to proteins, to substrates: the tell-all azaspiracid story. Gordon Conference on Mycotoxins and Phycotoxins, Colby-Sawyer College, New London, New Hampshire, USA, June 14-18, 2009.
5. The relationship between bacteria and harmful algae: functional...or dysfunctional. Gordon Conference on Mycotoxins and Phycotoxins, Colby College, Waterville, Maine, USA, June 19-24, 2005.
6. An overview of algicidal bacteria and HABs. International conference on Harmful Algae, Cape Town, South Africa. November 15-19, 2004.
7. Azaspiracid-1 induced cytotoxicity of mammalian cell lines. Gordon Conference on Mycotoxins and Phycotoxins, Colby College, Waterville, Maine, USA, June 15-20, 2003.

Invited Seminars and Grand Rounds

1. Toxicological characterization of emerging algal toxins in US waters. Department of Biology, Eastern Michigan University, Ypsilanti, MI, USA, November 17, 2010.

2. Harmful algal bloom toxicology: Details of the azaspiracid story. Adelphi University, NY, USA, February 6, 2009.
3. From fish to (gene) chips: Exploring the toxicology of an emerging algal toxin. University of Michigan-Dearborn, Dearborn, MI, USA, January 21, 2009.
4. Exploring the pharmacology & toxicology of the marine toxin azaspiracid: from fish to (gene) chips. Halifax Seminar Series, Institute for Marine Biosciences, NRC-Canada, July 28, 2008.
5. Toxicology of azaspiracid, an emerging algal toxin that accumulates in shellfish. Fort Johnson Seminar Series, Charleston, SC, USA, January 19, 2007.
6. Use of molecular techniques for assessing the toxicology of the harmful algal bloom toxin azaspiracid. Monster Jam Seminar Series, Northwest Fisheries Science Center, Seattle WA, USA, November 9, 2006.
7. Molecular toxicology of the harmful algal bloom toxin azaspiracid. Department of Microbiology, University of Tennessee, October 31, 2005.
8. Cytotoxic and developmental effects of azaspiracid-1, a newly identified phycotoxin that causes shellfish poisonings in Europe. Department of Biology, Woods Hole Oceanographic Institute, December 3, 2003.
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