
BIOGRAPHICAL SKETCH

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NAME: Brazeau, Daniel Alan

eRA COMMONS USER NAME (credential, e.g., agency login): dbrazeau

POSITION TITLE: Associate Professor

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

INSTITUTION AND LOCATION	DEGREE	Completion Date MM/YYYY	FIELD OF STUDY
Dept. Biological Sciences, Univ. of Toledo, Ohio	B.S.	05/1979	Biology
Dept. Biological Sciences, Univ. of Toledo, Ohio	M.S.	05/1982	Evolutionary Biology
SUNY at Buffalo, Buffalo, New York	Ph.D.	05/1989	Evol. Bio & Population Genetics

A. Personal Statement

I am presently an Associate Professor holding joint appointments in the Joan C Edwards School of Medicine and the School of Pharmacy at Marshall University. Prior to my move to Marshall in June 2018 I was a Research Associate Professor in the Colleges of Osteopathic Medicine and Pharmacy and the Director of the University of New England's Genomics Research Core (GRC). I will function as a co-investigator with focus on genetic data analysis of the pharmacogenomic relationships to the chronic exposure of cells to nanoparticles and/or persistent organic pollutants (POPs). Over the last 7 years, as director of UNE's Genomics Research Core I have directed over 21 faculty projects involving 25 researchers representing 11 different academic units among universities in New England (UNE, University of New Hampshire), New York (University at Buffalo, Center for Hearing and Deafness, NYU School of Medicine) and Louisiana. My primary function as Director of GRC was to provide extensive training and research support for a wide array of molecular genetic techniques and to assist researchers and students in addressing a broad range of questions including gene expression, bioinformatics, genotyping and molecular genetics.

B. Positions and Honors

Positions and Employment

1989-1990 Post-Doctoral Fellow, with Ron Burton, University of Houston
1990-1992 NSF Post-Doctoral Biotechnology Fellowship in Marine Biology
1992-1993 Research Assistant Professor, University of Houston
1993-2000 Research Assistant Professor, Dept. Zoology, University of Florida
1998-2000 Scientific Director, BEECS Genetic Analysis Laboratory, Univ. of Florida
2000-2006 Research Assistant Professor, Dept. Pharmaceutical Sciences, Univ. at Buffalo
2000-2011 Director, Pharmaceutical Genetics Laboratory, Univ. at Buffalo
2006-2011 Research Associate Professor, Dept. Pharmaceutical Sciences, Univ. at Buffalo
2011-2018 Research Associate Professor, Dept. Pharmaceutical Sciences, Univ. of New England
2011-2018 Director, Genomics, Analytics and Proteomics core, Univ. of New England
2018-Present Associate Professor, Dept Biomedical Sciences, Marshall University

Honors

- 2018 Creighton University Pharmacy Rho Chi Lecture Award
- 2016 University of New England College of Pharmacy Faculty Award
- 2015 University of New England, College of Pharmacy Mentor of the Year Award
- 2010 University at Buffalo's 2010 Exceptional Scholar Teaching Innovation Award
- 2009 NSF Geneticist-Educator Network Alliances (GENA), invited geneticist educator 2009-2010
- 2008 School of Pharmacy and Pharmaceutical Sciences Outstanding Teaching Award Finalist
- 2007 School of Pharmacy and Pharmaceutical Sciences Outstanding Teaching Award Finalist
- 2006 School of Pharmacy and Pharmaceutical Sciences Outstanding Teaching Award Finalist
- 2005 School of Pharmacy and Pharmaceutical Sciences Outstanding Teaching Award Finalist
- 1988 Outstanding Student Paper Award. Division of Invertebrate Zoology, American Society of Zoologists
- 1987 Outstanding Paper Award. Western Society of Naturalist, Long Beach, CA.

C. Contribution to Science

1. My earliest work concerned the role different modes of reproduction in marine invertebrates have on reproductive success and population genetic structure of populations. At a time when many assumed that given that many marine invertebrates produce millions of gametes, population structure and genetic diversity of populations was largely a function of survivorship and settlement of larvae. My work, along with others was the first to show that the reproductive strategies (broadcast spawning vs internal fertilization) employed by marine invertebrates (corals in my case) plays a large role in reproductive success, population dynamics and genetic structure of populations. I have continued work in this area with a series of grants from the Bureau of Ocean Engineering and Management, Department of the Interior (formerly Ocean Mineral Management Services) in collaboration with Dr. Paul Sammarco at the Louisiana State University

- a. Sammarco PW, **Brazeau DA**, McKoin M, Strychar KB. 2017. *Tubastrea micranthus*, comments on the population genetics of a new invasive coral in the western Atlantic and a possible secondary invasion. *Journal Experimental Marine Biology and Ecology*. 490:56-63
- b. **Brazeau DA**, Sammarco PW, Atchinson AD. (2011). Micro-scale genetic heterogeneity and structure in coral recruitment: fine-scale patchiness. *Aquatic Biology*, 12:55-67.
- c. Gleason DF, **Brazeau DA**, Munfus D. (2001). Can self-fertilizing coral species be used to enhance restoration of Caribbean reefs? *Bull. Mar. Sci*, 69(2):933-43.
- d. **Brazeau D**, Gleason D, Morgan M. (1998). Self-fertilization in brooding hermaphroditic Caribbean corals: Evidence from molecular markers. *J. Experimental Marine Biol*, 231(2):225-238.
- e. Lasker HR, **Brazeau DA**, Calderon J, Coffroth MA, Coma R, Kim K. (1996). *In situ* rates of fertilization among broadcast spawning gorgonian corals. *Biol. Bull*, 190(1):45-55.

2. Following on my early work on the importance of reproductive mode on reproductive success, it became clear to many of us that the genetic structure of marine populations may exhibit extremely fine scale genetic structure - something that was not expected given the widespread assumption of high reproductive success and widely dispersed larvae. Our work showed that genetic structure for many important coral communities could be seen on the order of meters rather than kilometers or greater.

- a. Sammarco PW, **Brazeau DA**, McKoin M, Strychar KB. 2017. *Tubastrea micranthus*, comments on the population genetics of a new invasive coral in the western Atlantic and a possible secondary invasion. *Journal Experimental Marine Biology and Ecology*. 490:56-63
- b. **Brazeau, DA**, Lesser, M, Slattery, M. (2013). Genetic structure in the coral, *Montastraea cavernosa*: Assessing genetic differentiation among and within Mesophotic reefs. *PLoS One*, 8(5): e65845. PMID: PMC3666989.
- c. Sammarco PW, **Brazeau DA**, Atchinson AD, Lirette A, Tung F, Sinclair J. (2012). Genetic Connectivity in Scleractinian Corals across the Northern Gulf of Mexico: Oil/Gas Platforms, and Relationship to the Flower Garden Banks. *PLoS One*, 7(4), e30144. PMID: PMC3340370.
- d. **Brazeau DA**. Sammarco PW and Atchinson AD. (2011). Micro-scale genetic heterogeneity and structure in coral recruitment: fine-scale patchiness. *Aquatic Biology*, 12:55-67.

- e. **Brazeau DA**, Harvell CD. (1994). Genetic structure of local populations and divergence between growth forms in a clonal invertebrate, the Caribbean octocoral *Briareum asbestinum*. *Marine Biology*, 119(1):53-60.

3. From 1988 to 2018 I have served as director of genetics/genomics core research facilities, first at the University of Florida, then the University at Buffalo and most recently, at the University of New England. As Director, one of my principle functions has been to help faculty and students take advantage the recent genetic/genomic technologies available to researchers. In this capacity I provided the genetic insight to a series of collaborative papers that sought to provide bioinformatics tools for the mining of genetic and pharmaceutical data.

- a. Chanda P, Sucheston L, Zhang A, **Brazeau D**, Freudenheim JL, Ambrosone C, Ramanathan M. (2008). AMBIENCE: a novel approach and efficient algorithm for identifying informative genetic and environmental associations with complex phenotypes. *Genetics*, 180(2):1191-210. PMID: PMC2567357.
- b. Chanda P, Zhang A, **Brazeau D**, Sucheston L, Freudenheim JL, Ambrosone C, Ramanathan M. (2007). Information-theoretic metrics for visualizing gene-environment interactions. *Am J Hum Genet*, 81(5):939-63. PMID: PMC2265645.
- c. Bhasi K, Zhang L, **Brazeau DA**, Zhang A, Ramanathan M. (2006). VizStruct for visualization of genome-wide SNP analyses. *Bioinformatics*, 22(13): 1569-76.
- d. Bhasi K, Zhang L, **Brazeau DA**, Zhang A, Ramanathan M. (2006). Information-theoretic identification of predictive SNPs and supervised visualization of genome-wide association studies. *Nucleic Acids Res*, 34(14):e101. PMID: PMC1557808.

4) In the realm of pharmacogenomics, I have collaborated with the multi-disciplinary clinical and translational research studies with Dr. Kathleen Tornatore through the Immunosuppressive Pharmacology Research Program at University at Buffalo. We have investigated the relationship between genomic variants for efflux transporters and cytochrome P4503A isoenzymes with immunosuppressive pharmacokinetics and pharmacodynamics during investigator initiated grants funded by NIH and pharmaceutical industry. In addition, I have been active both in the introduction and advancement of genomics and pharmacogenomics education into Schools of Pharmacy (Nursing and recently medicine as well).

- a. Campagne, O., DE Mager, **DA Brazeau**, RC Venuto, KM Tirnatore. In Press. Impact of tacrolimus pharmacokinetics on the extrarenal adverse effects in adult renal transplant recipients and clinical applications. *British J Clin Pharmacol*.
- b. Campagne, O., DE Mager, **DA Brazeau**, RC Venuto, KM Tirnatore. In Press. Impact of tacrolimus pharmacokinetics on the extrarenal adverse effects in adult renal transplant recipients and clinical applications. *British J Clin Pharmacol*.
- c. Venuto RC, Meaney CJ, Chang S, Leca N, Consiglio JD, Wilding GE, **Brazeau D**, Gundroo A, Nainani N, Morse SE, Cooper LM, Tornatore KM. (2015). Association of Extrarenal Adverse Effects of Post-Transplant Immunosuppression with Sex and ABCB1 Haplotypes. *Medicine (Baltimore)*, 94(37):e1315. PMID: PMC4635790.
- d. Tornatore KM, **Brazeau D**, Dole K, Danison R, Wilding G, Leca N, Gundroo A, Gillis K, Zack J, DiFrancesco R, Venuto RC. (2013). Sex Differences in Cyclosporine Pharmacokinetics and *ABCB1* Gene Expression in Mononuclear Blood Cells in African American and Caucasian Renal Transplant Recipients. *J Clin Pharmacol*, 53(10) 1039-47.
- e. Tornatore KM, **Brazeau D**, Wilding GE, Cooper LM, Venuto RC. (2016). CYP 3A5 Genotype and Race Association to Tacrolimus Pharmacokinetics. American Society of Nephrology Annual Meeting 2016. *JASN*: Vol 28(Suppl): #2845 Abstract.

List of Published Work in MyBibliography - not included here are peer-reviewed publications prior to 2000 and publications in Ecology and Marine Sciences. (Total peer-reviewed 64 papers, 2 books, 8 book chapters)
<http://www.ncbi.nlm.nih.gov/sites/myncbi/1xeRwca5mx7Q7/bibliographahy/47895518/public/?sort=date&direction=ascending>

D. Research Support.

Ongoing Research Support

1. NIH R01-AG056392-01A1 Tornatore (PI, University at Buffalo) Jul 2018 – Jun 2023
Age and Race Influences on Immunosuppression after Renal Transplant.
Role: Co-PI.
2. Puritan Medical Products. Guilford ME Brazeau (PI) 6/1/17 – 6/1/2019
Performance Evaluation of Puritan's Fecal Opti-Swab collection and transport system in detection of three species of pathogenic bacteria using Species Specific Q-PCR

Completed Research Support (last 3 yrs, total of 29 funded projects since 1988)

1. *PROG-15H03* Tornatore (PI) 12/2015-12/2017
Astellas- Investigator Initiative
CYP3A5 Genotypes and Relation to Tacrolimus Pharmacokinetics and Adverse Effects: Influence of Race and Sex
The goal of this grant is to examine the influence of race, gender and CYP3A5 and 3A4 haplotypes on tacrolimus (*Prograf*) pharmacokinetics and adverse drug effects in stable renal transplant recipients. This grant provided matching funds to the *R21 grant: Genomic and Cellular Markers and Chronic Renal Allograft Function* which investigated the immunodynamics of tacrolimus and mycophenolic acid in African American and Caucasian patients studied through this study.
Role: Contractor
2. Puritan Medical Products, Guilford ME Brazeau (PI) 1/1/16 – 6/30/2016
Evaluating bacterial DNA recovery from liquid amies based transport media products.
3. N/A Brazeau & Sammarco (Co-PIs) 9/2012 – 12/2015
BOEM Department of the Interior
Genetic affinities of the invasive Indo-Pacific coral *Tubastraea microanthus* on northern Gulf of Mexico platforms: Multiple Invasions?
The goal was to examine the population genetic structure of populations of a new invasive species. The information gathered here will provide information to BOEM and other government agencies regarding whether this species should be controlled or eradicated.
4. *PROG-14B01* Tornatore (PI) 7/1/2014- 12/31/15
Astellas- Investigator Initiative
Influence of Race, Sex and ABCB1 Haplotypes on Tacrolimus (Prograf) Pharmacokinetics and Adverse effects in Stable Renal Transplant Recipients (#PROG-14B01)
The goal of this grant is to examine the influence of race, gender and ABCB1 haplotypes on tacrolimus (*Prograf*) pharmacokinetics and adverse drug effects in stable renal transplant recipients. This grant provided matching funds to the *R21 grant: Genomic and Cellular Markers and Chronic Renal Allograft Function (conducted 2009-2011)* which investigated the immunodynamics of tacrolimus and mycophenolic acid in African American and Caucasian patients studied through this study.
Role: Contractor