CIARÁN A. SHAUGHNESSY, Ph.D.

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Pronouns: he, him // Hometown: Portland, Maine

CURRENT APPOINTMENT AND ADDRESS

Assistant Professor | Department of Biology, Oklahoma State University, 501 Life Sciences West, Stillwater, OK 74078

EDUCATION AND POSTDOCTORAL TRAINING

2021 – 2023	**NSF Postdoctoral Fellowship**, Department of Biological Sciences, University of Denver, Denver, CO
2020 – 2021	**NIH Postdoctoral Fellowship**, Department of Pediatrics, National Jewish Health, Denver, CO
2020	**Ph.D.**, Organismic and Evolutionary Biology, University of Massachusetts, Amherst, MA
2015	**M.S.**, Biological Sciences, DePaul University, Chicago, IL
2012	**B.S.**, Chemistry, Illinois Institute of Technology, Chicago, IL

RELEVENT PROFESSIONAL EMPLOYMENT AND APPOINTMENTS

2024 –	**Assistant Professor**, Department of Biology, Oklahoma State University, Stillwater, OK
2021 – 2023	**Postdoctoral Fellow**, Department of Biological Sciences, University of Denver, Denver, CO
2020 – 2021	**Postdoctoral Fellow**, Department of Pediatrics, National Jewish Health, Denver, CO
2022 – 2023	**Instructor**, Department of Biological Sciences, University of Denver, Denver, CO
2018 – 2019	**Instructor**, College of Natural Sciences, University of Massachusetts, Amherst, MA
2014 – 2020	**Research Affiliate**, S.O. Conte Anadromous Research Laboratory, USGS, Turners Falls, MA
2014 – 2020	**Research Assistant**, Department of Biology, University of Massachusetts, Amherst, MA
2014 – 2018	**Teaching Assistant**, Department of Biology, University of Massachusetts, Amherst, MA
2015	**Biological Contractor** (Atlantic Salmon Research), U.S. Fish & Wildlife Service, Essex Junction, VT
2012 – 2014	**Graduate Assistant**, Department of Biological Sciences, DePaul University, Chicago, IL

RESEARCH OVERVIEW

My research takes a broad approach to studying epithelial ion transport, osmoregulation, and stress physiology, as well as neuroendocrine programs and pharmacological interventions which control or modulate these physiological processes. I integrate investigations at the molecular, cellular, organ, and organismal levels to gain mechanistic insights into physiological function. My research is applied in evolutionary, ecological, and biomedical contexts.

PUBLICATIONS

Publications Submitted, In Review, or In Revision

Submitted **Shaughnessy CA**, Yadav S, Zeitlin PL, Bratcher PE. Contrasting responses to CFTR modulators between different epithelial cell culture models.

Submitted **Shaughnessy CA**, Yadav S, Thornell IM, Zeitlin PL, Bratcher PE. A CFTR-specific voltage-dependent current is absent in the F508del-CFTR mutation.

In Review Barany A, Caderno-Peña A, Simó-Mirabet P, **Shaughnessy CA**, Martos-Sitcha JA, Mancera JM, McCormick SD. Freshwater and low body mass reduce heat tolerance in the euryhaline mummichog (*Fundulus heteroclitus*).

In Review **Shaughnessy CA**, Kuhn EE, Bouyoucos IA, Anderson WG, Dores RM. Promiscuous melanocortin receptors in hagfish indicate that receptor function preceded peptide specialization. *Gen Comp Endocrinol*

In Review Norstog JL, Ferriera-Martins D, Hall DJ, **Shaughnessy CA**, McCormick SD. Functional characterization of sodium:chloride cotransporter (NCC) in the gill of sea lamprey, *Petromyzon marinus*. *Am J Physiol Regul Integr Comp Physiol.*

Peer-Reviewed Publications

underline = undergraduate or graduate student co-author under my direct supervision
* = equal contribution

32 **Shaughnessy CA**, Breves JP. 2025. Salt-secreting ionocytes in marine fishes: new dimensions and evolutionary implications of a fundamental model. ***J Exp Biol.*** 228, jeb251075 (link)

31 **Shaughnessy CA**, Myhre VD, McCormick SD, Dores RM. 2025. Functionally divergent melanocortin receptor subtypes and the HPI axis in sea lamprey. ***J Mol Endocrinol.*** 75, e240126 (link)

30 **Shaughnessy CA**, Hall DJ, Norstog JL, Ferreira-Martins D, Barany A, Regish AM, Breves JP, Komoroske LM, McCormick SD. 2025. A Cftr-independent, Ano1-rich seawater-adaptive ionocyte in sea lamprey gills. ***J Exp Biol.*** 7, jeb250110 (link)

29 Edwards OM, Reichert MS, Ozmen L, **Shaughnessy CA**, Zhai L, Zhang B. 2025. Physiological and morphological traits affect contemporary range expansion and implications for species distribution modeling in an amphibian species. ***J Anim Ecol.*** 94, 195-209 (link)

28 Breves JP, Posada M, Tao Y, **Shaughnessy CA**. 2024. Salinity and prolactin regulate *anoctamin 1* in the model teleost, *Fundulus heteroclitus*. ***Am J Physiol Regul Integr Comp Physiol.*** 327, R479-485 (link)

27 Breves JP, **Shaughnessy CA**. 2024. Endocrine control of gill ionocyte function in euryhaline fishes. ***J Comp Physiol B.*** 94, 663–684 (link)

26 **Shaughnessy CA**, Le K, Myhre VD, Dores RM. 2023. Functional characterization of melanocortin 2 receptor (Mc2r) from a lobe-finned fish (*Protopterus annectens*) and insights into the molecular evolution of melanocortin receptors. ***Gen Comp Endocrinol.*** 343, 114356 (link)

25 Bouyoucos IA, **Shaughnessy CA**, Anderson WG, Dores RM. 2023. Molecular and pharmacological analysis of the melanocortin-2 receptor and its accessory proteins Mrap1 and Mrap2 in a Squalomorph shark, the Pacific spiny dogfish. ***Gen Comp Endocrinol.*** 342:114342 (link)

24 **Shaughnessy CA**, Myhre VD, Hall DJ, McCormick SD, Dores RM. 2023. Hypothalamus-pituitary-interrenal (HPI) axis signaling in Atlantic sturgeon (*Acipenser oxyrinchus*) and sterlet (*Acipenser ruthenus*). ***Gen Comp Endocrinol.*** 339:114290 (link)

23 Hoglin BE, Miner MV, Erdenebayar U, **Shaughnessy CA**, Dores RM. 2023. Trends in the evolution of the elasmobranch melanocortin-2 receptor: insights from structure/function studies on the activation of whale shark Mc2r. ***Gen Comp Endocrinol.*** 338, 114278 (link)

22 **Shaughnessy CA**, McCormick SD. 2023. Juvenile sea lamprey (*Petromyzon marinus*) have a wide window of elevated salinity tolerance that is eventually limited during springtime warming. ***Can J Fish Aquat Sci.*** 80, 105–114 (link)

21 Dores RM, McKinley G, Meyers A, Martin M, **Shaughnessy CA**. 2022. Structure/function studies on the activation motif of two non-mammalian Mrap1 orthologs, and observations on the phylogeny of Mrap1, including a novel characterization of an Mrap1 from the chondrostean fish, *Polyodon spathula*. ***Biomolecules.*** 12, 1681. (link)

20 Davis PV, **Shaughnessy CA**, Dores RM. 2022. Human melanocortin-2 receptor: identifying a role for residues in the TM4, EC2, and TM5 domains in activation and trafficking as a result of co-expression with the accessory protein, Mrap1 in Chinese hamster ovary cells. ***Biomolecules.*** 12, 1422 (link)

19 **Shaughnessy CA**, Jensen MF, Dores RM. 2022. A basal actinopterygian melanocortin receptor: molecular and functional characterization of an Mc2r ortholog from the Senegal bichir (*Polypterus senegalus*). ***Gen Comp Endocrinol.*** 328, 114105 (link)

18 Kotas ME, Moore C, Gurrola II JG, Pletcher S, Goldberg AN, Alvarez R, Yamato S, Bratcher PE, **Shaughnessy CA**, Zeitlin PL, Zhang I, Li Y, Montgomery MT, Lee K, Cope E, Locksley RM, Seibold MA, Gordon ED. 2022. IL-13-programmed airway tuft cells produce PGE2, which promotes CFTR-dependent mucociliary function. ***JCI Insight.*** 7, e159832 (link)

17 **Shaughnessy CA**, Balfry SK, Bystriansky JS. 2022. The isosmotic point as critical salinity limit for growth and osmoregulation, but not survival, in the wolf eel *Anarrhichthys ocellatus*. ***Fish Physiol Biochem.*** 48, 471-480 (link)

16 **Shaughnessy CA**, Zeitlin PL, Bratcher PE. 2022. Net benefit of ivacaftor during prolonged tezacaftor/elexacaftor exposure *in vitro*. ***J Cyst Fibros.*** 21, 637-643 (link)

15 **Shaughnessy CA**, Yadav S, Bratcher PE, Zeitlin PL. 2022. Receptor-mediated activation of CFTR via prostaglandin signaling pathways in the airway. ***Am J Physiol Lung Cell Mol Physiol.*** 322, L305–L314 (link)

14 Barany A, **Shaughnessy CA**, Pelis RM, Fuentes J, Mancera JM, McCormick SD. 2021. Tissue and salinity specific Na^+/Cl^- cotransporter (NCC) orthologues involved in the adaptive osmoregulation of sea lamprey (*Petromyzon marinus*). ***Sci Rep.*** 11, 22698 (link)

13 **Shaughnessy CA**, Zeitlin PL, Bratcher PE. 2021. Elexacaftor is a CFTR potentiator and acts synergistically with ivacaftor during acute and chronic treatment. ***Sci Rep.*** 11, 19810 (link)

12 **Shaughnessy CA**, McCormick SD. 2021. 11-Deoxycortisol is a stress responsive and gluconeogenic hormone in a jawless vertebrate, the sea lamprey (*Petromyzon marinus*). ***J Exp Biol.*** 224, jeb241943 (link)

11 Barany A*, **Shaughnessy CA***, McCormick SD. 2021. Corticosteroid control of Na^+/K^+-ATPase in the intestine of the sea lamprey (*Petromyzon marinus*). ***Gen Comp Endocrinol.*** 307, 113756. (link)

10 Yadav S*, **Shaughnessy CA***, Zeitlin PL, Bratcher PE. 2021. Down-regulation of the epithelial sodium channel (ENaC) in human airway epithelia in response to low temperature incubation. ***BMJ Open Respir Res.*** 8, e000861. (link)

9 **Shaughnessy CA**, Breves JP. 2021. Molecular mechanisms of Cl^- transport in fishes: new insights and their evolutionary context. ***J Exp Zool A.*** 335, 207-216 (link)

8 Bratcher PE, Yadav S, **Shaughnessy CA**, Thornell IM, Zeitlin PL. 2020. Effect of apical chloride concentration on the measurement of responses to CFTR modulation in airway epithelia cultured from nasal brushings. ***Physiol Rep.*** 8, e14603. (link)

7 **Shaughnessy CA**, Barany A, McCormick SD. 2020. 11-Deoxycortisol controls hydromineral balance in the most basal osmoregulating vertebrate, sea lamprey (*Petromyzon marinus*). ***Sci Rep.*** 10, 12148. (link)

6 Barany A, **Shaughnessy CA**, Fuentes J, Mancera JM, McCormick SD. 2020. Osmoregulatory role of the intestine in the sea lamprey (*Petromyzon marinus*). ***Am J Physiol Regul Integr Comp Physiol.*** 318, R410–R417. (link)

5 **Shaughnessy CA**, McCormick SD. 2020. Functional characterization and osmoregulatory role of gill $Na^+/K^+/2Cl^-$ cotransporter (NKCC1) in sea lamprey (*Petromyzon marinus*), a basal vertebrate. ***Am J Physiol Regul Integr Comp Physiol.*** 318, R17–R29. (link)

4 Bayse S*, **Shaughnessy CA***, Regish A, McCormick SD. 2020. Upper thermal tolerance and heat shock protein response of juvenile American shad (*Alosa sapidissima*). ***Estuaries Coasts.*** 43, 182–188 (link)

3 **Shaughnessy CA**, McCormick SD. 2018. Reduced thermal tolerance during salinity acclimation in brook trout (*Salvelinus fontinalis*) can be rescued by prior treatment with cortisol. ***J Exp Biol.*** 221, jeb.169557. (link)

2 **Shaughnessy CA**, Anderson EC, Kasparian M, LaMontagne JM, Bystriansky JS. 2017. Survival and osmoregulation of the purple marsh crab (*Sesarma reticulatum*) at varying salinity and pH. ***Can J Zool.*** 95, 985-989 (link)

1 **Shaughnessy CA**, Baker DW, Brauner CJ, Morgan JD, Bystriansky JS. 2015. Interaction of osmoregulatory and acid-base compensation in white sturgeon (*Acipenser transmontanus*) during exposure to aquatic hypercarbia and elevated salinity. ***J Exp Biol.*** 218, 2712–2719. (link)

Book Chapters

Shaughnessy CA, Bystriansky JS. 2024. "Ion Regulation in Anadromous Fishes". In *Encyclopedia of Fish Physiology* (2nd ed.). pp. 872-882. Alderman SL, Gillis TE (Eds.). Academic Press. (link)

Shaughnessy CA, Hall DJ. 2020. "Fishes of the Presumpscot River: To the Sea and Back". In *Voices of the Presumpscot River*. Sanford RM, Plumley W (Eds.). North Country Press: Unity, ME. pp. 188–230. (link)

Theses

Shaughnessy CA. 2019. "Physiology of a Basal Vertebrate, the Sea Lamprey (*Petromyzon marinus*): Osmoregulation and Corticosteroid Action". Doctoral Dissertation. University of Massachusetts Amherst. (link)

Shaughnessy CA. 2015. "Physiological Effects of Aquatic Hypercarbia on Seawater Acclimation in the White Sturgeon (*Acipenser transmontanus*)". MSc Thesis. DePaul University. (link)

EXTRAMURAL RESEARCH GRANTS AND FELLOWSHIPS

2025 **ODWC, Fisheries Division.** "Evaluating the Thermal Tolerances of Endemic Neosho Bass (*Micropterus velox*) Relative to Smallmouth Bass (*Micropterus dolomieu*) and Known Hybrids in the Tributaries of Tenkiller Reservoir". PIs: Shaughnessy CA, Long JM. 10/2025 – 9/2026. Total Award: **$94,122**.

2022 **NSF Postdoctoral Research Fellowship in Biology (PRFB)**. "Resolving the evolution of stress axis signaling in vertebrates". PI: Shaughnessy CA. 11/2021 – 10/2024. Total Award: **$207,000**. (NSF Award Search) [terminated after 2 years to accept Asst Prof position]

2021 **NIH NHLBI Ruth L. Kirschstein National Research Service Award (NRSA) Postdoctoral Fellowship (F32)**. "Prostones as novel receptor-mediated activators of CFTR in the airway". PI: Shaughnessy CA. 06/2021 – 05/2024. **$205,000**. (NIH RePORTER) [terminated after 1 year to accept NSF PRFB]

2021 **Cystic Fibrosis Foundation Postdoctoral Research Fellowship.** "Lubiprostone as a novel, receptor-mediated activator of CFTR". PI: Shaughnessy CA. 06/2021 – 05/2023. **$130,000**. [declined award to accept NIH F32]

SELECTED HONORS, AWARDS, AND FELLOWSHIPS

2024 Academic Summer Research Award, College of Arts and Sciences. Oklahoma State University ($10,112)
2023 **Company of Biologists JEB Travelling Fellowship** (£3,000)
2022 **Presidents' Award Finalist** (Best Postdoctoral Presentation), Canadian Society of Zoologists.
2020 **Eugene F. & Easton M. Crawford Charitable Lead Unitrust Fellowship**, National Jewish Health ($30,000)
2019 Company of Biologists Travel Award (£350)
2018 College of Natural Sciences Teaching Fellowship, University of Massachusetts ($3,000)
2018 International Congress on the Biology of Fishes Student Travel Award ($800)
2017 **Louis Guillette Award** (Best Student Presentation), North American Society for Comparative Endocrinology ($500)
2014 **Sigma Xi Grants-In-Aid of Research Award** ($900)
2014 International Congress on the Biology of Fishes Student Travel Award (£300)
2014 EPCOR Water Ltd. Student Travel Award, Canadian Society of Zoologists ($500)
2014 **William S. Hoar Award Finalist** (Best Student Presentation), Canadian Society of Zoologists ($500)
2014 DePaul University Graduate Research Fund Travel Award ($500)
2013 **Company of Biologists JEB Travelling Fellowship** (£2,500)
2013 Canadian Society of Zoologists Student Travel Award ($175)
2013 DePaul University Graduate Research Fund Travel Award ($500)
2011 Undergraduate Research Grant, Illinois Institute of Technology ($24,000)
2007 **Marvin Camras Scholarship** (merit-based; full tuition), Illinois Institute of Technology (5 Years; $150,000)

RESEARCH SUPERVISION AND COMMITTEE MEMBERSHIP

Graduate Students

2025 – Present **Susanne Hahs, M.S.**, Integrative Biology, Okla St Univ
2025 – Present **Madison Merideth, M.S.**, Integrative Biology, Okla St Univ
2025 – Present **Ava Cannizzaro, M.S.**, Integrative Biology, Okla St Univ
2024 – Present **Kristi Dillon, D.V.M.** (research credit only, VMED 7510), Okla St Univ
2024 – Present **Dillon Flowers, Ph.D.**, Integrative Biology, Okla St Univ
2024 – Present **Allison DeLoache, Ph.D.**, Integrative Biology, Okla St Univ

Undergraduate Researchers

Primary Supervisor

2024 – 2025	**Emily Jackson**, B.S. Microbiology, Okla State Univ	Research Credit
2025 – Present	**Gavin Fields**, B.S. Natural Resource Ecology and Management, Okla State Univ	
2025 – Present	**Cameron Dunne**, B.S. Natural Resource Ecology and Management, Okla State Univ	Research Assistant
2025 – Present	**Chase Allensworth**, B.S. Mechanical Engineering, Okla State Univ	Research Assistant
2025 – Present	**Isabela Fermo**, B.S. Biology, Okla State Univ	AURCA Scholar
2025 – Present	**Connor Brown**, B.S. Pre-Nursing, Okla State Univ	Research Credit
2024 – Present	**Samantha Kennedy**, B.S. Zoology, Okla State Univ	Research Credit, Research Assistant
2024 – Present	**Kristine Branch**, B.S. Biology, Okla State Univ	Research Credit, Honors Thesis
2024 – 2025	**Mady Hurst**, B.S. Microbiology, Okla State Univ	Research Credit
2024 – 2025	**Grace Phelps**, B.S. Biology, Okla State Univ	Research Credit
2024 – 2025	**Savannah Caldwell**, B.S., Biology, Okla State Univ	Research Credit, Wentz Scholar
2024	**Jackson Grimes**, B.S., Biology, Okla State Univ	Research Credit, Research Assistant
2023 – 2024	**Liam Doherty**, B.S. Biological Sciences, Univ of Denver	Honors Thesis
2022 – 2024	**Valorie Myhre**, B.S. Biological Sciences, Univ of Denver	Honors Thesis, Summer Research Fellow

Graduate Student Mentor

2019	**Hadley Kerr**, UMass	Honors Thesis
2018 – 2019	**Fredrick Meyer**, UMass	Coastal & Marine Sciences Certificate, MS, UMass Boston
2017 – 2018	**Alex Daigle**, UMass, Honors Thesis	
2016	**Sarah Martin**, UMass	Coastal & Marine Sciences Certificate
2014 – 2015	**Emily Sgarlat**, UMass	Coastal & Marine Sciences Certificate
2013 – 2014	**Emily Whitmore**, DePaul Univ	Research Credit, DVM, University of Illinois, 2020
2013 – 2014	**Nicole Gianni**, DePaul Univ	Research Credi, DVM, University of Illinois, 2019
2013 – 2014	**Bazla Sukhera**, DePaul Univ	Research Credit, OD, Illinois College of Optometry, 2021
2012 – 2014	**Kim Marie Dam**, DePaul Univ	Research Credit, PhD, CalTech, 2023

Graduate Student Committee Participation

2024 – Present **Loshitha Bokumburegedara, Ph.D.**, Integrative Biology, Okla St Univ
2024 – Present **Genesis Alarcon, M.S.**, Integrative Biology, Okla St Univ
2023 – Present **Yago Santos, Ph.D.**, Integrative Biology, Okla St Univ

TEACHING

Instructor of Record

Oklahoma State University

Continuous BIOL 3700 "Readings and Special Studies in Integrative Biology", Oklahoma State University
Continuous BIOL 4700 "Undergraduate Research Problems", Oklahoma State University
Continuous BIOL 5000 "Research for Master's Thesis", Oklahoma State University
Continuous BIOL 6000 "Research for PhD Dissertation", Oklahoma State University

2025, Fall **BIOL 3204 "Physiology"**, Oklahoma State University
2025, Spring BIOL 3204 "Physiology", Oklahoma State University
2024, Fall BIOL 3204 "Physiology", Oklahoma State University
2024, Spring BIOL 3204 "Physiology", Oklahoma State University

University of Denver

2023, Spring **BIOL 1010 "Physiological Systems"**, University of Denver
2022, Spring BIOL 1010 "Physiological Systems", University of Denver
2022, Winter **BIOL 3650 "Endocrinology"**, University of Denver (Co-Instructor)

University of Massachusetts

2018, Fall **NATSCI 191 "First-Year Seminar in Animal Physiology"**, University of Massachusetts

Teaching Assistant

2017, Spring BIO 153 "General Biology", University of Massachusetts
2017, Autumn BIO 153 "General Biology", University of Massachusetts
2016, Autumn BIO 153 "General Biology", University of Massachusetts
2015, Autumn BIO 494 "Careers in Biology", University of Massachusetts
2014, Autumn BIO 494 "Careers in Biology", University of Massachusetts
2014, Spring BIO 193 "General Biology 3", DePaul University
2014, Winter BIO 310 "Vertebrate Physiology", DePaul University
2013, Autumn BIO 191 "General Biology 1", DePaul University
2013, Spring BIO 193 "General Biology 3", DePaul University
2013, Winter BIO 192 "General Biology 2", DePaul University
2012, Autumn BIO 191 "General Biology 1", DePaul University
2011, Spring CHEM 122 "General Chemistry 2", Illinois Institute of Technology

PROFESSIONAL SERVICE

Society Leadership

2022 – Officer (Treasurer), **Physiology Section of the American Fisheries Society** (website)
2022 – Member of the International Committee (Governing Body), **International Society for Fish Endocrinology** (website)

Editorial Service

2025 Guest Editor, ***General and Comparative Endocrinology***.

Grant Review Service

2025 Panelist, **NSF BIO Integrative Organismal Systems**

2025 External Reviewer, **NSERC Discovery Grant**

Peer-Review Service

36 Reviews across ***26 Journals*** (listed alphabetically): *Acta Psychol, Am J Physiol Regul Integr Comp Physiol, Aquaculture, Aquac Res, Biochem Biophys Res Commun, Biol Environ, Comp Biochem Physiol, eBioMedicine, Environ Toxicol Chem, Estuar Coast, Fish Fish, Fish Physiol Biochem, Fishes, Front Endocrinol, Front Physiol, Gen Comp Endocrinol, J Cell Physiol, J Comp Physiol, J Endocrinol, J Exp Biol, J Exp Mar Biol Ecol, J Fish Biol, J Great Lakes Res, Mol Ecol, Proc Biol Sci, Sci Rep*

Professional Memberships

Current

American Fisheries Society, International Society for Fish Endocrinology, North American Society for Comparative Endocrinology

Past

American Physiological Society, Canadian Society of Zoologists, Crustacean Society, Cystic Fibrosis Foundation, Endocrine Society, Sigma Xi: The Scientific Research Society, Society of Experimental Biology, Society for Integrative and Comparative Biology

PUBLIC OUTREACH AND COMMUNITY SERVICE

Invited Seminars and Invited Public Lectures

Seminars

2024 Oklahoma Center for Respiratory and Infectious Diseases. **Oklahoma State University**. Stillwater, OK.
2023 Scripps Institution of Oceanography, **University of California, San Diego**. San Diego, CA.
2022 School of Molecular and Biomedical Sciences, **University of Maine**. Orono, ME.
2023 Department of Integrative Biology, **Oklahoma State University**. Stillwater, OK.
2023 Department of Biology and Wildlife, **University of Alaska**. Fairbanks, AK.
2022 School of Marine Sciences, **University of Maine**. Orono, ME.
2022 Department of Biology, **Loyola University Chicago**. Chicago, IL.
2022 Department of Biological Sciences, **University of Denver**. Denver, CO.
2021 Colorado Cystic Fibrosis Research Seminar Series. **Children's Hospital Colorado**. Denver, CO.
2021 National Jewish Health Research Retreat. **National Jewish Health**. Denver, CO.

Public Lectures

2025 Friends of the Presumpscot River. Portland, ME.
2021 Friends of the Presumpscot River. Portland, ME.
2019 Friends of the Presumpscot River. Portland, ME.
2016 Friends of the Presumpscot River. Portland, ME.

Coverage of Published Works

2025 "Early Career Spotlight – Ciaran Shaughnessy". ***Journal of Experimental Biology*** (link)
2025 "Range Shifts as Drivers of Niche Breadth and Dispersal Ability in Wild Populations". ***Journal of Animal Ecology*** (link)
2021 "'Fight or Flight' Dates Back to Ancient Ancestors". ***Inside JEB*** (link)
2021 "'River Voices': In a new volume of essays, the Presumpscot gets its due". ***Portland Press Herald*** (link)
2021 "'River Voices' pays tribute to the Presumpscot". ***American Journal*** (link)
2021 "National Invasive Species Awareness Week". ***Eastern Ecological Science Center*** (link)
2013 "Lab Notes". ***Scientia Magazine*** (link)
2012 "There Must Be Something in The Water". ***IIT Magazine*** (link)

Various Community Service Activities

2023 – 2025 Coach, Men's Ultimate, Oklahoma State University (Stillwater, OK)
2014 – 2025 Board of Advisors, Friends of the Presumpscot River (Portland, ME)
2020 – 2021 Science Fair Judge, Denver Metro Regional Science & Engineering Fair (Denver, CO)
2016 – 2019 Union Steward, Graduate Employees Union, UAW 2322 (Amherst, MA)

2018 – 2019 Coach, Men's Ultimate, University of Massachusetts Amherst (Amherst, MA)
2017 – 2018 Coach, Boy's Ultimate, Amherst Regional High School (Amherst, MA)
2016 – 2017 Mentor, UMass STEM Ambassador Program (Amherst, MA)
2015 – 2017 Founding Editor and Contributing Author, *That's Life [Science] Blog* (Amherst, MA)
2013 – 2014 Conference Judge, Chicago Area Undergraduate Research Symposium (Chicago, IL)
2011 – 2012 Founder and President, *Undergraduate Research Journal of the Illinois Institute of Technology* (Chicago, IL)

CONFERENCE PARTICIPATION

Conference Participation

Meetings Regularly Attended

International Congress on the Biology of Fish (ICBF), International Congress of Comparative Endocrinology (ICCE), North American Society for Comparative Endocrinology (NASCE), International Symposium on Fish Endocrinology (ISFE).

Meetings Periodically Attended

American Fisheries Society (AFS), Canadian Society of Zoologists (CSZ), Conference of European Comparative Endocrinologists (CECE), North American Cystic Fibrosis Conference (NACFC), Society of Experimental Biology (SEB), Society for Integrative and Comparative Biology (SICB).

Conference Organization and Leadership

2026 **Conference Planning Committee.** 16th ICBF. Vancouver, Canada.
2025 **Session Chair**. Symposium on *Stress Axis I: From Origins to Implications of Actions*. 19th ICCE. Sendai, Japan
2025 **Session Chair**. Symposium on *Stress Axis II: New Insights into Molecular and Cellular Aspects*. 19th ICCE. Sendai, Japan
2024 **Session Chair**. Symposium on *Control of Ion Balance and Osmoregulation*. 10th ISFE. Baltimore, MD.
2024 **Conference Planning Committee.** 15th ICBF. Ann Arbor, MI.
2022 **Session Chair**. Symposium on *Ions and Osmoregulation*. CSZ. Virtual.

Invited Conference Presentations

(*see below for full citation of presentation*)

2025 **Invited 'State-of-the-Art' Speaker**. Symposium on *Stress Axis I: From Origins to Implications of Actions*. 19th ICCE. Sendai, Japan
2024 **Invited Speaker**. Symposium on *Control of Ion Balance and Osmoregulation*. 10th ISFE. Baltimore, MD.
2023 **Invited 'State-of-the-Art' Speaker**. Symposium on *Trends in the Evolution of Hormone Receptors*. NASCE. Queretaro, Mexico.
2022 **Invited 'State-of-the-Art' Speaker**. Symposium on *Stress Axis: Molecular and Cellular Regulation of the HPI/HPA Axis*. Joint Meeting of the 30th CECE and the 9th ISFE. Faro, Portugal.
2022 **Award Finalist and Invited Speaker**. Symposium for the *Presidents' Award* (Best Presentation by a Postdoctoral Researcher). CSZ. Virtual.
2021 **Invited Speaker**. Workshop session on *Difficult to Treat CFTR Mutations and Novel Modulator and RNA Editing Technologies to Fix CFTR*. NACFC 2021. Virtual.
2021 **Invited speaker**. On behalf of the Departments of Pediatrics and Immunology & Genomic Medicine. National Jewish Health Research Retreat. Virtual.
2017 **Award Recipient and Invited Speaker**. Symposium for the *Luis Guillette Award*. 18th ICCE. Lake Louise, Alberta
2014 **Award Finalist and Invited Speaker**. Symposium for *William S. Hoar Award* (Best Presentation by a Student). CSZ. Montreal, Ontario.

Complete List of Attributed Presentations and Posters

underline = *presenter*
dashed underline = *presenter is a student under my direct supervision*
dotted underline = *undergraduate or graduate student under my direct supervision*

2025 Oral **Shaughnessy CA**, Dores RM. Molecular and Functional Evolution of HPI Signaling: New Insights from Ancient Lineages. 19th ICCE. Sendai, Japan.

2025 Oral **Shaughnessy CA**, Barany, A, McCormick SD, Dores RM. Intestinal osmoregulatory functions of arginine vasotocin in killifish and sea lamprey. 19th ICCE. Sendai, Japan.

2025 Oral DeLoache A, **Shaughnessy CA**. Comparing generalized and thermal stress responses in a model teleost, Atlantic killifish (*Fundulus heteroclitus*). NASCE. Quebec City, Canada.

2025 Oral **Shaughnessy CA**, Brown CC, Kuhn EE, Bouyoucos IA, Anderson WG, Dores RM. Regulation of carbohydrate metabolism in hagfish during recovery from acute stress. NASCE. Quebec City, Canada.

2025 Poster Brown CC, DeLoache A, **Shaughnessy CA**. Carbohydrate metabolism in the Pacific hagfish (*Eptatretus stoutii*) during acute stress. Karen L. Smith Undergraduate Research Symposium. Stillwater, OK.

2025 Poster Brown CC, DeLoache A, **Shaughnessy CA**. Carbohydrate metabolism in the Pacific hagfish (*Eptatretus stoutii*) during acute stress. OSU University Research Symposium. Stillwater, OK.

2025 Poster Branch K, **Shaughnessy CA**. Thermal responses of heat shock protein expression in juvenile sea lamprey. Karen L. Smith Undergraduate Research Symposium. Stillwater, OK.

2025 Poster Branch K, **Shaughnessy CA**. Thermal responses of heat shock protein expression in juvenile sea lamprey. OSU University Research Symposium. Stillwater, OK.

2025 Poster Caldwell S, **Shaughnessy CA**. Exploring GPCR Activation of CFTR in Model Human Airway Cell Lines. Wentz and Purdie Research Scholars Symposium. Stillwater, OK.

2025 Poster Caldwell S, **Shaughnessy CA**. Exploring GPCR Activation of CFTR in Model Human Airway Cell Lines. Oklahoma Research Day. Tahlequah, OK.

2025 Poster Merideth M, Dillon K, Caldwell SM, **Shaughnessy CA**. GPCR-mediated pathways of CFTR activation in model airway cell lines. 12th Annual Research Symposium of the Oklahoma Center for Respiratory and Infectious Diseases. Stillwater, OK.

2025 Poster Caldwell SM, Shaughnessy CA. Exploring GPCR Activation of CFTR in Model Human Airway Cell Lines. Oklahoma Research Day. Tahlequah, OK.

2024 Oral DeLoache A, **Shaughnessy CA**. Keeping cool under pressure: assessing thermal stress responses in Sea Lamprey (*Petromyzon marinus*). Midsouth Regional SICB. Tulsa, OK.

2024 Oral Flowers D, Phelps G, **Shaughnessy CA**. Ebb and Flow of Osmoregulation: Dynamics of Intestinal Transport During Seawater Acclimation in Atlantic Sturgeon. Midsouth Regional SICB. Tulsa, OK.

2024 Oral **Shaughnessy CA**, Bouyoucos IA, Anderson WG, Dores RM. A novel 'promelanocortin' and the neuroendocrinology of stress in lamprey and hagfish. 9th ISFE. Baltimore, MD.

2024 Oral **Shaughnessy CA**, Hall DJ, Regish AM, McCormick SD, Dores RM. Regulation of cortisol and glucose in Atlantic sturgeon (*Acipenser oxyrinchus*) during salinity acclimation. 9th ISFE. Baltimore, MD.

2024 Poster Dores RM, **Shaughnessy CA**. Melanocortin-2 receptor and Mrap1 co-evolution of the lungfish, *Protopterus annectens*, and the bicher, *Polypertus senegalus*. 15th ICBF. Ann Arbor, MI.

2024 Oral Breves JP, Posada MA Tao YT, **Shaughnessy CA**. Anoctamin 1 supports seawater acclimation in *Fundulus heteroclitus*. 15th ICBF Ann Arbor, MI.

2024 Oral **Shaughnessy CA**, Hall DJ, Norstog JL, Ferreira-Martins D, Barany A, Regish AM, Breves JP, Komoroske LM, McCormick SD. A Cftr-independent, seawater-adaptive ionocyte in sea lamprey gills. 15th ICBF. Ann Arbor, MI.

2023 Poster Doherty L, **Shaughnessy CA**, Dores RM. Investigating the regulation of the hypothalamic-pituitary-interrenal axis in Atlantic sturgeon (*Acipenser oxyrinchus*) following an acute stressor. Honors Thesis Presentation, University of Denver. Denver, CO.

2023 Poster Myhre VD, **Shaughnessy CA**, Dores RM. The hypothalamus-pituitary-interrenal axis in two basal vertebrates, Atlantic sturgeon (*Acipenser oxyrinchus*) and sea lamprey (*Petromyzon marinus*). Honors Thesis Presentation, University of Denver. Denver, CO.

2023 Poster Le K, **Shaughnessy CA**, Dores RM. Insights on the evolution of the melanocortin-2 receptor: pharmacological studies on the melanocortin-2 receptor of the African lungfish, *Protopterus annectens*. Honors Thesis Presentation, University of Denver. Denver, CO.

2023 Poster Myhre VD, **Shaughnessy CA**, Dores RM. The hypothalamus-pituitary-interrenal axis in two basal vertebrates, Atlantic sturgeon (*Acipenser oxyrinchus*) and sea lamprey (*Petromyzon marinus*). Undergraduate Research Symposium, University of Denver. Denver, CO.

2023 Oral Barany A, **Shaughnessy CA**, Mancera JM, Regish A, McCormick SD, Dores RM. Characterizing the peptidergic [Arg^8]vasotocin system in the sea lamprey (*Petromyzon marinus*). XIV Congress of the Iberian Association of Comparative Endocrinology. Bilbao, Spain.

2023 Oral **Shaughnessy CA**, Dores RM. Applying ancestral sequence reconstruction to resolve the functional evolution of melanocortin 2 receptor (Mc2r). NASCE. Queretaro, Mexico.

2023 Oral Shaughnessy CA, Bouyoucos IA, Dores RM. Re-evaluation the evolution of the POMC gene: a study on melanocortin peptides and melanocortin receptors of the hagfish, *Eptatretus stoutii*. NASCE. Queretaro, Mexico.

2023 Oral **Shaughnessy CA**, Myhre VD, Doherty LD, Regish A, Hall DJ, McCormick SD, Dores RM. Regulation of the hypothalamus-pituitary-interrenal (HPI) axis in Atlantic sturgeon (*Acipenser oxyrinchus*) during salinity acclimation and acute stress. NASCE. Queretaro, Mexico.

2023 Oral Barany A, **Shaughnessy CA**, Regish A, Mancera JM, McCormick SD, Dores RM. *In vitro* and *in vivo* studies on the function and osmoregulatory action of neurohypophysial hormones and receptors in the sea lamprey (*Petromyzon marinus*). NASCE. Queretaro, Mexico.

2023 Poster Bouyoucos IA, **Shaughnessy CA**, Dores RM. Trends in the evolution of elasmobranch melanocortin-2 receptors (Mc2rs): insights from an analysis of the Pacific spiny dogfish Mc2r. NASCE. Queretaro, Mexico.

2022 Oral **Shaughnessy CA**, Myhre VD, Dores RM. Evolution of ligand selectivity for the melanocortin-2 receptor: implication for the HPA/HPI axis of vertebrates. 30th CECE and the 9th ISFE. Faro, Portugal.

2022 Oral Dores RM, Erdenebayar U, Hoglin B, McKinley G, Meyers A, **Shaughnessy CA**. Trends in the evolution of the melanocortin-2 accessory protein, MRAP1. 30th CECE and the 9th ISFE. Faro, Portugal.

2022 Poster **Shaughnessy CA**, Nick HJ, Zeitlin PL, Bratcher PE. Potentiation of constitutively active CFTR in primary human airway epithelial cultures – Implications for in vitro CFTR modulator testing and in vivo therapies. NACFC. Virtual.

2022 Oral **Shaughnessy CA**, Hall DJ, Ferreira-Martins D, Norstog J, McCormick SD. The chloride-secreting ionocyte in the gills of seawater-acclimated sea lamprey (*Petromyzon marinus*) expresses Ano1, not Cftr, as the apical chloride channel. Canadian Society of Zoology. Virtual.

2021 Oral **Shaughnessy CA**, Zeitlin PL, Bratcher PE. 2021. Elexacaftor as a CFTR potentiator: synergism with ivacaftor and implications for new combination drug therapies for cystic fibrosis. NACFC. Virtual.

2021 Poster **Shaughnessy CA**, Yadav S, Bratcher PE, Zeitlin PL. 2021. Therapeutic potential of pharmacological activation of CFTR in the airway: *in vitro* experiments using forskolin, lubiprostone, prostaglandin E2, and C_{act}-A1. NACFC. Virtual.

2021 Oral **Shaughnessy CA**, McCormick SD. The roles of corticosteroids during the sea lamprey metamorphosis: osmoregulatory and gluconeogenic actions. NASCE. Virtual.

2020 Poster **Shaughnessy CA**, Yadav S, Zeitlin PL, Bratcher PE. Lubiprostone as a novel, receptor-mediated activator of CFTR in the airway: *in vitro* evidence for treatment of F508del and other CFTR mutations. In *Pediatric Pulmonology*. 55: S205-S206. NASCE 2020. Virtual.

2019 Oral **Shaughnessy CA**, McCormick SD. Development and corticosteroid control of ionoregulation in sea lamprey (*Petromyzon marinus*). SEB. Seville, Spain.

2018 Poster Ferreira-Martins D, **Shaughnessy CA**, Nortstog J, Barany-Ruiz A, McCormick SD. Recent advances in understanding osmoregulation of sea lamprey. Meeting of the Great Lakes Fisheries Commission. Detroit, MI.

2018 Oral **Shaughnessy CA**, Barany-Ruiz A, Ferreira-Martins D, McCormick SD. Ionoregulatory mechanisms in the gill of a basal vertebrate, the sea lamprey (*Petromyzon marinus*). 13th ICBF. Calgary, Canada.

2018 Poster Barany-Ruiz A, **Shaughnessy CA**, Fuentes J, Mancera JM, McCormick SD. Osmoregulatory mechanisms in the gut of sea lamprey (*Petromyzon marinus*) during metamorphosis and seawater exposure. 13th ICBF. Calgary, Canada.

2017 Oral **Shaughnessy CA**, Barany-Ruiz A, McCormick SD. 11-Deoxycortisol promotes seawater tolerance in metamorphosing sea lamprey (*Petromyzon marinus*). 18th ICCE. Lake Louise, Canada.

2017 Poster Barany A, **Shaughnessy CA**, Fuentes J, Mancera JM, McCormick SD. Osmoregulatory effects of 11-deoxycortisol in the intestinal tract of sea lamprey (*Petromyzon marinus*). XI Congress of Iberian Association for Comparative Endocrinology. Vigo, Spain.

2017 Oral **Shaughnessy CA**, McCormick SD. Reduced thermal tolerance during salinity acclimation in brook trout (*Salvelinus fontinalis*) can be rescued by prior treatment with cortisol. Life Sciences Graduate Research Symposium. Amherst, MA.

2016 Oral **Shaughnessy CA**, McCormick SD. Cortisol influences thermal tolerance in Brook Trout (*Salvelinus fontinalis*) during seawater acclimation. 12th ICBF. San Marcos, TX.

2016 Poster Martin S, **Shaughnessy CA**, McCormick SD. Salinity tolerance and osmoregulation in larval sea lamprey (*Petromyzon marinus*). Five College Coastal and Marine Sciences Program Symposium. Amherst, MA.

2015 Poster **Shaughnessy CA**, McCormick SD. Cortisol influences thermal tolerance in Brook Trout (*Salvelinus fontinalis*) during seawater acclimation. 15th Symposium of the Center for Neuroendocrine Studies. Amherst, MA.

2015 Poster Bystriansky JS, **Shaughnessy CA**. Kinetics and pH optima of gill Na^+/K^+-ATPase from white sturgeon (*Acipenser transmontanus*) following exposure to elevated salinity and aquatic hypercarbia. 9th International Congress of Comparative Physiology and Biochemistry. Kraków, Poland.

2015 Poster **Shaughnessy CA**, McCormick SD. Cortisol influences thermal tolerance in Brook Trout (*Salvelinus fontinalis*) during seawater acclimation. North American Society for Comparative Endocrinology. Ottawa, Canada.

2015 Poster Sgarlat ER, **Shaughnessy CA**, McCormick SD. Osmoregulation and thermal tolerance during salinity acclimation in Brook Trout (*Salvelinus fontinalis*). Five College Coastal and Marine Sciences Program Symposium. Amherst, MA.

2014 Oral **Shaughnessy CA**, Baker DW, Brauner CJ, Morgan JD, Bystriansky JS. Osmoregulation and acid-base balance in white sturgeon (*Acipenser transmontanus*) during exposure to elevated salinity and aquatic hypercarbia. 11th ICBF, United Kingdom.

2014 Oral **Shaughnessy CA**, Baker DW, Brauner CJ, Morgan JD, Bystriansky JS. Osmoregulation and acid-base balance in white sturgeon (Acipenser *transmontanus*) during exposure to elevated salinity and aquatic hypercarbia. CSZ. Montreal, Canada.

2013 Poster **Shaughnessy CA**, Anderson EC, Kasparian M, LaMontagne JM, Bystriansky JS. Survival and osmoregulation of an estuarine crab after acute exposure to varying combined pH and salinity stress. CSZ. Guelph, Canada.

2013 Oral **Shaughnessy CA**, Anderson EC, Kasparian M, LaMontagne JM, Bystriansky JS. Identification and physiology of crabs from the ACE Basin acclimated to different pH and salinity levels. Midwest Ecology and Evolution Conference. South Bend, IN.

2013 Poster **Shaughnessy CA**, Radloff J, Bystriansky JS, Balfry SK. Osmoregulation in wolf eel (*Anarrhichthys ocellatus*) during acclimation to dilute seawater. SICB. San Francisco, CA.

2012 Poster **Shaughnessy CA**, Kuitse M, Schmid M, Terschak JA. Chemically-mediated giant Pacific octopus avoidance by Eastern Pacific green crabs. Chicago Area Undergraduate Research Symposium. Chicago, IL.