

Emma D. Flood

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Skills and Abilities

Laboratory techniques: Microscopy | Myography | Western blotting (Protein Isolation, BCA protein enumeration, electrophoresis) | Statistical Analysis | Image Analysis | Methods Development | Experimental Design | Workflow Development and Optimization | Preparation | Animal Dissection (Mouse and Rat) | Animal Breeding and Care |

Microscopy: Brightfield | Immunofluorescent | 2-Photon | Confocal | Immunohistochemistry | Colocalization | Live Tissue | FRAP |

Communication: Technical Writing | Peer-reviewed Publication | Public Speaking | Technical Training and Onboarding of Laboratory Personnel |

Software: Graphpad Prism | ImageJ | LabChart | ImageStudio | Microsoft Office | Quartzly | Scinote | Biorender | Nikon | Zeiss |

Professional Experience

Research Assistant 2: Department of Pharmacology and Toxicology, Michigan State University, 2023–Present

Bladder, microscopy, microvasculature, PVAT, mechanical stress

- Lab manager Tykocki Lab, Jackson Lab
- Designed and organized experiments; analyzed and interpreted complex datasets.
- Managed and mentored graduate and undergraduate students, facilitating successful project completion.
- Spearheaded lab operations, ensuring efficiency and compliance with safety standards.
- Managed the 2-photon/confocal microscope core, scheduled imaging sessions, and optimized imaging protocols.
- Trained staff and students in microscopy techniques.

Research Assistant 2: Department of Pharmacology and Toxicology, Michigan State University, 2017–2023

Cardiovascular PVAT, antibody optimization, knock out confirmation, hypertension, obesity

- Watts Lab
- Refined data collection protocols to enhance precision and accuracy.
- Prepared presentations and visual data representations for lab meetings and conferences.
- Assisted with the PVAT PPG

Research Assistant 1 | Department of Pharmacology and Toxicology, Michigan State University, 2013–2017

Cardiovascular PVAT, reproductive organs, hypertension, obesity

- Watts Lab
- Planned and executed various research techniques, while mentoring undergraduate students.

Undergraduate Student Research Assistant | Watts Lab, Michigan State University, 2009–2013

- Led independent research projects, presented findings at conferences and lab meetings.

Education

Michigan State University, 2013

Bachelor of Science – Biochemistry and Molecular Biology

Papers

1. William F. Jackson^{1*}, **Emma D. Flood**¹, D. Adam Lauver¹, Gregory D. Fink¹, Stephanie W. Watts¹ and Brian D. Gulbransen² (TBA) Sympathetic nerves are sparsely distributed in rat mesenteric perivascular adipose tissue – in review
2. 1Stephanie W Watts, **1Emma Flood**, 2Brian D. Gulbransen, 1William F. Jackson (TBA) Rat perivascular adipose tissue (PVAT) microvasculature revealed by tissue clearing – in review
3. Roanne Fernandes¹, Marlene Masino², **Emma Flood**¹, Theresa A. Lansdell¹, Nikitha Srikrishna³, Ryan Mui⁴, Anne M. Dorrance¹, James J Galligan^{1,2}, Hui Xu^{1,2}, (TBA) Studying the role of myenteric amyloidosis in gastrointestinal dysmotility and enteric neural dysfunction using APP/PS1 mice- is it an adequate animal model? – in review
4. Wabel, E., Orr, A., **Flood, E. D.**, Thompson, J. M., Xie, H., Demireva, E. Y., Abolibdeh, B., Honke Hulbert, D., Mullick, A. E., Garver, H., Fink, G. D., Kung, T. A., & Watts, S. W. (2023). Chemerin is resident to vascular tunicas and contributes to vascular tone. *American journal of physiology. Heart and circulatory physiology*, 325(1), H172–H186.
<https://doi.org/10.1152/ajpheart.00239.2023>
5. Contreras, G. A., Rendon, C. J., **Flood, E.**, Thompson, J. M., Chirivi, M., & Watts, S. W. (2022). PIEZO1 mechanoreceptor activation reduces adipogenesis in perivascular adipose tissue preadipocytes. *Frontiers in Endocrinology*, 13, 995499. doi: 10.3389/fendo.2022.995499. PMID: 36120469.
6. Watts, S. W., **Darios, E.**, & Thompson, J. (2022). Is the 5-HT7 receptor constitutively active in the vasculature? A study in veins. *Journal of Cardiovascular Pharmacology*, 80, 314-322.
7. Tuttle, T., **Darios, E. M.**, Watts, S. W., & Roccabianca, S. (2022). Arterial stiffness is lower when perivascular adipose tissue (PVAT) is included. *American Journal of Physiology Heart and Circulatory Physiology*, 319(6), H1313-H1324. doi: 10.1152/ajpheart.00332.2020. PMID: 33006918.
8. Miron, T. R., Flood, E. D., Tykocki, N. R., Thompson, J. M., & Watts, S. W. (2021). Identification of Piezo1 channels in perivascular adipose tissue (PVAT) and potential role in vascular function. *Pharmacological Research*, 175, 105995. doi: 10.1016/j.phrs.2021.105995. PMID: 34818570.
9. Watts, S. W., **Darios, E. S.**, Contreras, G. A., Garver, H., & Fink, G. D. (2021). Male and female high fat-fed Dahl SS rats are largely protected from vascular dysfunctions: PVAT contributions reveal sex differences. *American Journal of Physiology Heart and Circulatory Physiology*, 321, H15-H28. PMID: 33929898.
10. Contreras, G. A., Yang, Y., **Flood, E.**, Garver, H., Bhattacharya, S., Fink, G. D., & Watts, S. W. (2020). Blood pressure changes PVAT function and transcriptome: use of the mid-thoracic coarcted rat. *American Journal of Physiology Heart and Circulatory Physiology*, 319(6), H1313-H1324. doi: 10.1152/ajpheart.00332.2020. PMID: 33006918.
11. **Flood, E. D.**, & Watts, S. W. (2020). Endogenous chemerin from PVAT amplifies electrical field-stimulated arterial contraction: use of the chemerin knockout rat. *International Journal of Molecular Sciences*, 21(17), 6392. PMID: 32887510.

10. Watts, S. W., **Flood, E. D.**, Garver, H., Fink, G. D., & Roccabianca, S. (2020). A new function for perivascular adipose tissue (PVAT): Assistance of arterial stress relaxation in press. *Scientific Reports*, 2020.
11. Ahmad, M., Ayala-Lopez, N., **Darios, E.**, Ismail, A., Ferland, D., Burnett, R., Anantharam, A., & Watts, S. W. (2019). Perivascular adipocytes store norepinephrine by vesicular transport. *Arteriosclerosis, Thrombosis, and Vascular Biology*, 39, 188-199. PMID: 30567483.
12. Ferland, D. J., **Flood, E. D.**, Garver, H., Yeh, S. T., Riney, S., Mullick, A. E., Fink, G. D., & Watts, S. W. (2019). Different blood pressure responses in hypertensive rats following chemerin mRNA inhibition in dietary high fat compared to dietary high salt conditions. *Physiological Genomics*, 51, 553-561.
13. Demireva, E. Y., Xie, H., **Flood, E. D.**, Thompson, J. M., Seitz, B. M., & Watts, S. W. (2019). Creation of the 5-hydroxytryptamine receptor knockout (5-HT7 KO) rat as a tool for cardiovascular research. *Physiological Genomics*, 51, 290-301.
14. Kumar, R. K., **Darios, E. S.**, Burnett, R., & Watts, S. W. (2019). Fenfluramine-induced PVAT-dependent contraction of rat aorta depends on norepinephrine and not serotonin. *Pharmacol Res*, 140, 43-49.
15. Watts, S. W., **Darios, E.**, Mullick, A. E., Garver, H., Saunders, T. L., Hughes, E. D., Filipiak, W. E., Zeidler, M. G., McMullen, N. S., Sinal, C. J., Kumar, R. K., & Fink, G. D. (2018). The chemerin knockout rat reveals chemerin dependence in female but not male experimental hypertension. *FASEB J*, doi:10/1096/fj.201800479.
16. Ferland, S., Seitz, B. M., **Darios, E. S.**, Thompson, J., Yeh, S., Mullick, A., & Watts, S. W. (2018). Whole body but not hepatic knockdown of chemerin by antisense oligonucleotide decreases blood pressure in rats. *J. Pharmacol Exp Ther*, doi:10.1124/jpet.117.245456.
17. Grobbel, M. R., Shavik, S. M., **Darios, E. S.**, Watts, S. W., Chuan, L. L., & Roccabianca, S. (2018). Contribution of left ventricular residual stress by myocytes and collagen: Existence of inter-constituent mechanical interaction. *Biomech Model Mechanobiol*, doi:10.1007/s10237-018-1007-x.
18. Seitz, B. M., Orer, H., Krieger-Burke, T., **Darios, E. S.**, Thompson, J. M., Fink, G. D., & Watts, S. W. (2017). 5-HT causes splanchnic venodilation. *Am J Physiol Heart Circ Physiol*, 2017 Jun 16, ajpheart.00165.2017.
19. Ferland, D., **Darios, E. S.**, Neubig, R. R., Sjogren, B., Truong, N., Torres, R., Dexheimer, T. S., Thompson, J. M., & Watts, S. W. (2017). Chemerin-induced arterial contraction is Gi and calcium-dependent. *Vasc Pharmacology*, 88, 30-41.
20. **Darios, E. S.**, Winner, B. M., Charvat, T., Karsinski, A., Punna, S., & Watts, S. W. (2016). The adipokine chemerin amplifies electrical field stimulated contraction in the isolated superior mesenteric artery. *Am J Physiol Heart Circ Physiol*, 311, H498-H507.
21. Young, L. W., **Darios, E. S.**, & Watts, S. W. (2015). An immunohistochemical analysis of SERT in the blood-brain barrier of the male rat brain. *Histochem. Cell Biol*, 44, 321-329.
22. **Darios, E. S.**, Barman, S. M., Orer, H. S., Morrison, S. F., Davis, R. P., Seitz, B. M., Burnett, R., & Watts, S. W. (2015). 5-hydroxytryptamine does not reduce sympathetic nerve activity of neuroeffector function in the splanchnic circulation. *Eur. J Pharmacol*, 754, 140-147.
23. Watts, S. W., **Darios, E. S.**, Seitz, B. M., Burnett, R., & Thompson, J. M. (2015). 5-HT is a potent relaxant in rat superior mesenteric arteries. *Pharmacology Research and Perspectives*, e00103.
24. Ferland, D., **Darios, E. S.**, & Watts, S. W. (2014). The persistence of active smooth muscle in the female rat cervix through pregnancy. *Am J Obstet Gynecol*, 212, 244e1-8.

25. Ayala-Lopez, N., Martini, M., Jackson, W. F., **Darios, E.**, Burnett, R., Mahon, B., Fink, G. D., & Watts, S. W. (2014). Perivascular adipose tissue contains functional catecholamines. *Pharmacology Research and Perspectives*, 2(3), June 2014.
26. **Darios, E.**, Seitz, B., & Watts, S. W. (2012). Smooth muscle pharmacology in the isolated virgin and pregnant rat uterus and cervix. *J. Pharmacol. Exp. Ther.*, 341, 587-596.

Abstracts and Poster Presentations

1. Marlene E. Masino, **Emma Flood**, Bhanuteja Madhu, Osvaldo J. Vega Rodriguez, Nathan R. Tykocki : Transient receptor potential vanilloid type 1 channel mRNA is expressed throughout the mouse urinary bladder, poster presentation at Collaborating for the Advancement of Interdisciplinary Research in Benign Urology meeting 2024 (Milwaukee WI)
2. **Emma Flood**, Brothely Jones, William Jackson, and Nathan Tykocki : Compound 48/80 causes overactive bladder without altering urothelial permeability in mice, poster presentation at American Physiology Summit, *J. Physiology* 2024 39:S1 (Long Beach CA).
3. Rendon CJ, Ragsdale C, **Flood ED**, Watts SW and Contreras GA : Adipocyte progenitor distribution in perivascular adipose tissues: effect of sex, site, age and spatial location, poster presentation at Keystone Adipose meeting J3 2023 (Keystone CO).
4. Wabel E, Orr A, **Flood ED**, Mullick AE and Watts SW: Vascular intimas synthesize chemerin with possible contractile consequence, poster presentation at Keystone Adipose meeting J3 2023 (Keystone CO).
5. McClintock D, **Darios E**, Watts SW, Jackson W, Roccabianca: Assessing tissue composition of the thoracic aorta wall and the perivascular adipose tissue (PVAT) surround it, poster presentation at Keystone Adipose meeting J3 2023 (Keystone CO).
6. Rendon CJ, **Flood ED**, Watts SW, Contreras GA: Adipocyte progenitor cells in perivascular adipose tissues: the effect of sex and anatomical location. accepted for Presentation at Council on Hypertension 2022 (San Diego CA)
7. Wilson CS, **Flood ED**, Watts SW: DDR and beta-1 integrin are partners with collagen in mediating stress-relaxation in aPVAT, accepted for Presentation at Council on Hypertension 2022 (San Diego CA)
8. Tragge W, **Flood E**, Lisabeth E, Schulz S, Watts SW Development of a Specific 5-HT₇ Receptor Antibody: Is This Even Possible? *FASEB J.* 2022 May;36 Suppl 1. doi: 10.1096/fasebj.2022.36.S1.L7721. PMID: 35555134
9. Rendon CJ, **Flood ED**, Thompson J, Chirivi M, Watts SW and Contreras GA: Chemical and mechanical activation of the mechanosensor Piezo1 alters adipogenesis in PVAT preadipocytes. Council on Hypertension 2021 - poster session.
10. Roccabianca S, Tuttle T, **Flood E** and Watts SW: The impact of perivascular adipose tissue (PVAT) on arterial stiffness. Council on Hypertension 2021 –poster session.
11. Rendon CJ, **Flood ED**, Watts SW, Contreras GA, Thompson, J. PIEZO1 activation inhibits adipogenesis and lipogenesis in PVAT preadipocytes. Council on Hypertension 2020 – VIRTUAL
12. Council on Hypertension 2019 New Orleans
13. Miron T, **Flood ED**, Negron M, Thompson J and Watts SW: Identification of Piezo1 channels in perivascular adipose tissue (PVAT) and their potential role in vascular function. Council on Hypertension 2020 – VIRTUAL
14. Roccabianca S, **Flood E**, Garver H, Fink GD and Watts SW: Perivascular adipose tissue assists arterial stress relaxation: loss of assistance in obesity-associated hypertension.

15. Weber P, **Flood E.**, Thompson J and Watts SW. Is the elastin receptor complex a bridge between perivascular adipose tissue and the artery? Council on Hypertension 2019 New Orleans.
16. Grobbel, M. R., Hollander, A., Dubay, A., Watts, S. W., **Darios, E.**, Lee, L. C. and Roccabianca, C. Hypertension-induced changes in the mechanical behavior of the left ventricular wall, Summer biomedicas , Bioengineering and Biotransporter conference (SB3) 2019.
17. Ferland, D. J., **Darios, E.**, Garver, H., Yeh, S., Mullick, A., Fink, G. D. and Watts, S. W.: Chemerin antisense oligonucleotide lowers blood pressure in a rat model of adiposity-associated hypertension, accepted as oral presentation and award winner, Council on Hypertension, Chicago, IL 2018.
18. Kumar RK, **Darios ES**, Burnett R, Watts SW. Is PVAT-dependent fenfluramine-induced contraction also 5-HT dependent? Accepted for presentation at Frontiers on Serotonin Keystone meeting, Park City UT, 2017.
19. Wabel E, Orr A, **Flood ED**, Mullick AE and Watts SW: Vascular intimas synthesize chemerin with possible contractile consequence, poster presentation at Keystone Adipose meeting J3 2023 (Keystone CO).
20. Ferland D. J., Seitz, B., **Darios, E. M.**, Thompson, J. M. Yeh, S. T., Mullick, A. E., Watts, S W.: Liver acquitted, fat indicted: hepatic chemerin knockdown does not reduce blood pressure while whole body knock down does. accepted for Council on Hypertension + ASH, 2017, San Francisco, 2017
21. Seitz, B. M., Orer, H. S., Krieger-Burke, T., **Darios, E. M.**, Thompson, J. M. and Watts, S. W.: 5-HT causes venodilation to reduce blood pressure in rat, in press, J Vasc Res. , Mechanisms of Vasodilation, Mayo, November 2016 (oral and poster)
22. Ferland, D. J., **Darios, E. S.**, Neubig, R. R., Sjogren, B., Truong, N., Torres, R., Dexheimer, T. S., Thompson, J. M., and Watts, S. W.: The novel perivascular adipose tissue adipokine, chemerin, signals through Gi and calcium-dependent mechanism, accepted for Council on Hypertension fall sessions, Sept 2016.
23. **Darios, E** and Watts, S. W.: Endogenous chemerin amplifies nerve-dependent arterial contraction. . *Accepted to Council on Hypertension, 2015*
24. **Darios EM**, Thompson, J, Wren, N., Torres R, Kelly, A., and Watts, S. W.: Chemerin activates procontractile pathways in isolated arteries. *Accepted to Council on Hypertension, 2015.*
25. Young, LY, **Darios EM** and Watts S.W.: An in depth analysis: SERT in Rat Brain, *presented at Experimental Biology, Boston, MA FASEB J 29:834.1, 2015.*
26. Watts, S. W, **Darios, E**, Seitz BM, Burnett R, Thompson JM: Serotonin relaxes the superior mesenteric vein: implications for blood pressure control. *Council for High Blood pressure research, San Francisco, CA Hypertension 64:A515, 2014.*
27. **Darios ES** and Watts SW: Contractile mechanisms in the cervix and uterus, *Reproduc Sci 20((3 supplement): pg 172A, T-200. 2013.*