

Deanna M. Arble, Ph.D.

Associate Professor of Biological Sciences | Marquette University

Research: circadian biology • environmental light • respiratory control • metabolism

ACADEMIC APPOINTMENTS

- 2025-present** Associate Professor, Department of Biological Sciences, Marquette University
- 2017-2025** Assistant Professor, Department of Biological Sciences, Marquette University
- 2017-2025** Assistant Adjunct Professor, Clinical and Translational Science Institute, Medical College of Wisconsin
- 2016-2017** Assistant Research Scientist, Department of Surgery, University of Michigan
- 2014-2016** Postdoctoral Fellow, Department of Surgery, University of Michigan
- 2011-2014** Postdoctoral Fellow, Metabolic Diseases Institute, University of Cincinnati

EDUCATION

- 2011** Ph.D., Northwestern University
- 2005** B.A., University of Virginia

HONORS & AWARDS

- 2026** Fulbright U.S. Scholar, hosted by University of Coimbra, Portugal
- 2026** Way Klingler Sabbatical Fellowship Award, Marquette University
- 2021** Way Klingler Early Career Award, Marquette University
- 2019** PEW Biomedical Scholar, Institutional Nominee, Marquette University
- 2015** Early Stage Career Stage Investigator Travel and Mentorship Award, Sleep Research Society
- 2014** Travel Merit Award, Society for Research of Biological Rhythms
- 2010** Travel Merit Award, Society for Research of Biological Rhythms
- 2007** Travel Award, Society for Neuroscience

RESEARCH & TEACHING FUNDING

- 2026** **Fulbright U.S. Scholar Award** — *Environmental Light and Obesity Risk: Insights from Southern European Populations*. PI; \$12,676; 4 months.
- 2026** **Way Klingler Sabbatical Fellowship, Marquette University**. PI; 1 year.
- 2025** **NSF CAREER** — *Determining how light modulates respiratory behavior to inform an increasingly light-polluted world*. PI; \$1,250,000 (\$855,610 direct); 5 years.
- 2025** **NIH R01** — *Mechanisms and therapeutic potential of phrenic proprioceptors after spinal cord injury*. Co-Investigator; Kristi Streeter, PI; \$2,913,080 total (\$33,735 direct to Arble); 5 years.
- 2023** **NIH-NHLBI R15** — *Cultivating novel treatments for obesity-related respiratory disease by uncovering neuronal etiology*. PI; \$456,882 (\$298,616 direct); 3 years.
- 2023** **Craig H. Neilsen Foundation** — *Phrenic afferent-induced recovery of respiratory motor output following spinal cord injury*. Co-Investigator; Kristi Streeter, PI; \$400,000; 2 years.
- 2021** **American Heart Association Innovative Project Award** — *Targeting the brain as an effective treatment for sleep apnea*. PI; \$200,000 (\$180,000 direct); 2 years.
- 2020** **Marquette University Research and Faculty Grant** — *Let there be light: uncovering the neuronal link between photoperiod and breathing*. PI; \$11,500; 1 year.
- 2017** **American Heart Association Scientific Development Grant** — *The role of neuronal leptin in the pathogenesis and treatment of sleep apnea and cardiometabolic disease*. PI; \$231,000 (\$210,000 direct); 3 years.
- 2012** **NIH/NIDDK F32 NRSA** — *Circadian disruption and bariatric surgery: impact on metabolism and clock biology*. PI; 2 years.
- 2010** **NIH/NIA F31 NRSA** — *Aging and meal timing interact to exaggerate weight gain*. PI; 1 year.
- 2022** **Marquette University Mellon Grant (Teaching)** — *Creative Problem Solving: a new course designed to promote STEM education and discovery*. Co-PI; \$14,350; 2 years.

PUBLICATIONS

- Rivera, A., Thorstenson, E., Ghasemzadeh, B., and **Arble, D.M. (2026)**. Impact of High-Fat Diet and Feeding Time on Daily Anxious-Like Behaviors in Aged Male Rats. *Behavioral and Brain Functions*.
- Rivera, A., Framnes-DeBoer, S.N., and **Arble, D.M. (2025)** The MC4R agonist, setmelanotide, improves chemosensitivity similar to weight loss in male mice. *Am J Physiol Endocrinol Metab*.
- Jones, A.A. and **Arble, D.M. (2024)** Loss of endogenous circadian clock function in mice alters respiratory cycle timing in a time of day- and sex-specific manner *Respiratory Physiology and Neurobiology*.
- Jones, A.A., Spears, A.R., and **Arble, D.M. (2024)** Environmental light controls the daily organization of breathing by activating Brn3b-expressing intrinsically photosensitive retinal ganglion cells in mice. *Journal of Biological Rhythms*.
- Jones, A.A., Marino G.M., and **Arble, D.M. (2024)** Time-restricted feeding reveals a role for neural respiratory clocks in optimizing daily ventilatory-metabolic coupling in mice. *Am J Physiol Endocrinol Metab*.
- Jones, A.A. and **Arble, D.M. (2023)** In light of breathing: environmental light is an important modulator of breathing with clinical implications. *Front Neurosci*. 17.

PUBLICATIONS (continued)

7. Jones, A.A., Marino G.M., Spears, A.R., and **Arble, D.M. (2023)** The Molecular Circadian Clock of Phox2b-expressing Cells Drives Daily Variation of the Hypoxic but Not Hypercapnic Ventilatory Response in Mice. *Function*, 4(4):zqad023.
8. Marino, G. and **Arble, D.M. (2023)** Peripheral clock disruption and metabolic disease: moving beyond the anatomy to a functional approach. *Front Endocrinol*, 14:1182506.
9. **Arble, D.M.**, Hutch, C., Hafner, H., Stelmak, D., Leix, K., Sorrell, J., Pressler, J., Gregg, B., and Sandoval D.A. (2023) The role of preproglucagon peptides in regulating β -cell morphology and responses to metabolic stress. *Am J Physiol Endocrinol Metab*, 324(3):E217-E225.
10. Jones, A.A., Framnes-DeBoer, S.N., Shipp, A., and **Arble, D.M. (2022)** Caloric restriction prevents obesity- and intermittent hypoxia-induced cardiac remodeling in leptin-deficient ob/ob mice. *Front. Physiol*, 13:963762.
11. Framnes-DeBoer, S.N., Jones, A., Kang, M., Propsom, K., Nelson, L., and **Arble, D.M. (2021)** The timing of intermittent hypoxia differentially affects macronutrient intake and energy substrate utilization in mice. *Am J Physiol Endocrinol Metab*, 321(4):E543-550.
12. Jones, A.A., Nelson, L., Marino, G., Chappelle, N., Joye, D.A. and **Arble, D.M. (2021)** Photoperiodic manipulation reveals a light-driven component to daily patterns of ventilation in C57Bl/6J mice. *Journal of Biological Rhythms*, 36(4):346-358.
13. Framnes-DeBoer, S.N., Bakke, E., Yalamanchili, S., Peterson, H., Sandoval, D.A., Seeley, R.J., and **Arble, D.M. (2020)** Bromocriptine improves glucose tolerance independent of circadian timing, prolactin, or the melanocortin-4 receptor. *Am J Physiol Endocrinol Metab*, 318(1):E62-E71.
14. **Arble, D. M.**, Schwartz, A., Polotsky, V., Sandoval, D.A., Seeley, R.J. (2019) Vertical sleeve gastrectomy improves ventilatory drive through a leptin-dependent mechanism. *JCI Insights*, 4(1):E124469.
15. Framnes, S.N. and **Arble, D.M. (2018)** The bidirectional relationship between obstructive sleep apnea and metabolic disease. *Frontiers in Endocrinology*, 9:440.
16. **Arble, D.M.** Ever, S.S., Bozadjieva, N., Frikke Schmidt, N., Myronovych, A., Lewis, A., Toure, M.H., Seeley, R.J. (2018) Metabolic comparison of Mini Gastric Bypass, Single-Anastomosis Duodenal-Switch, Roux-en-Y Gastric Bypass, and Vertical Sleeve Gastrectomy in rat. *Surgery for Obesity and Related Diseases*, 14(12):1857-1867.
17. Kim, T., Loyd, C., Holleman, C., **Arble, D.M.**, Ottaway, N., Chabenne, J., Sandoval, D., Drucker, D.J., DiMarchi, R., Perez-Tilve, D., Habegger, K.M. (2018) Hepatic Glucagon-receptor Signaling Enhances Insulin-Stimulated Glucose Disposal in Rodents. *Diabetes*, 67(11):2157-2166.
18. Flak, J.N., **Arble, D.**, Pan, W., Patterson, C., Lanigan, T., Goforth, P.B., Sacksner, J., Joosten, M., Morgan, D., Allison, M.B., Hayes, J., Feldman, E., Seeley, R.J., Olson, D.P., Rahmouni, K., Myers Jr., M.G. (2017) A leptin-regulated neuronal circuit controls glucose mobilization during noxious stimuli. *J Clin Invest*, 127(8):3103-3113.
19. Sisley, R.S., **Arble, D.M.**, Chambers, A.P., Gutierrez-Aguilar, R., He, Y., Xu, Y., Gardner, D., Moore, D.D., Seeley, R.J., Sandoval, D. (2016) Hypothalamic vitamin D improves glucose homeostasis and reduces weight. *Diabetes*, 65(9):2732-41.
20. **Arble, D. M.**, Pressler, J.W., Sorrell, J., Wevrick, R., and Sandoval, D.A. (2016) Sleeve gastrectomy leads to weight loss in Magel2 knockout mouse. *Surgery for Obesity and Related Diseases*, 12(10):1795-1802.
21. **Arble, D. M.**, Sandoval, D.A., Turek, F.W., Woods, S.C. and Seeley, R.J. (2015) Metabolic effects of bariatric surgery in mouse models of circadian disruption. *Int J Obes (Lond)*, 39(8): 1310-8.
22. **Arble, D. M.**, Holland, J., Raver, C., Sorrell, J., Pressler, J.W., Woods, S.C, Seeley, R.J., Sandoval, D.A., and Perez-Tilve, D. (2015) The melanocortin-4 receptor integrates circadian light cues and metabolism. *Endocrinology*, 156(5):1685-91.
23. **Arble, D. M.**, Sandoval, D.A., and Seeley, R.J. (2014) Mechanisms underlying weight loss and metabolic improvements in rodent models of bariatric surgery. *Diabetologia*, 58(2):211-20.
24. **Arble, D. M.** and Sandoval D.A. (2013) CNS control of glucose metabolism: response to environmental challenges. *Front Neurosci*, 7:20.
25. **Arble, D. M.**, Vitaterna, M. H. and Turek, F. W. (2011) Rhythmic leptin is required for feeding time dependent weight gain in the mouse. *PLoS One*, 6(9):e25079.
26. **Arble, D. M.**, Bass, J., Laposky, A. D., Vitaterna, M. H. and Turek, F. W. (2009) Circadian timing of food intake contributes to weight gain. *Obesity (Silver Spring)*, 17(11):2100-2102.
27. Preuss, F., Tang, Y., Laposky, A. D., **Arble, D.**, Keshavarzian, A. and Turek, F. W. (2008) Adverse effects of chronic circadian desynchronization in animals in a "challenging" environment. *Am J Physiol Regul Integr Comp Physiol*, 295(6):R2034-2040.
28. Davidson, A. J., Yamazaki, S., **Arble, D. M.**, Menaker, M. and Block, G. D. (2008) Resetting of central and peripheral circadian oscillators in aged rats. *Neurobiol Aging*, 29(3):471-477.

BOOK CHAPTERS & INVITED PAPERS

1. **Arble, D. M.** Chapter 10: Disrupted Circadian Rhythms and Metabolic Function. *Biological Implications of Circadian Disruption, A Modern Health Challenge* (Nelson, R., and Fonken, L.K.)
2. **Arble, D.M.**, Bass, J., Diniz Behn, C., Butler, M.P., Challet, E., Czeisler, C., Depner, C.M., Elmquist, J., Franken, P., Grandner, M.G., Keene, A.C., Joyner, M.J., Karatsoreos, I., Kern, P.A., Klein, S., Morris, C.J., Pack, A.I., Satchidananda, P., Ptacek, L., Punjabi, N.M., Sassone-Corsi, P., Scheer, F.A., Seaquest, E.R., Saxena, R., Thimman, M.S., Van Cauter, E., and Wright, K.P. (2015) Impact of sleep and circadian disruption on energy balance and diabetes workshop. *Sleep*, 38(12):1849-60.

BOOK CHAPTERS & INVITED PAPERS (continued)

3. **Arble, D. M.**, Copinschi, G., Vitaterna, M.H., Van Cauter, E., and Turek, F. W. (2012). Chapter 12: Circadian Rhythms in Neuroendocrine Systems. Handbook of Neuroendocrinology. (Fink, G., Levine, J., and Pfaff, D.W.).
4. **Arble, D. M.**, Ramsey, K. M., Bass, J. and Turek, F. W. (2010) Circadian disruption and metabolic disease: Findings from animal models. Best Pract Res Clin Endocrinol Metab, 24(5), 785-800.

RESEARCH PRESENTATIONS, MENTORING, TEACHING & PUBLIC ENGAGEMENT

ABSTRACTS

55 presentations, Selected recent abstracts:

- Marino, G.M., Halick, S.R., Wiecek, J., and **Arble D.M.** Circadian Timing Modulates the Ventilatory Response to Light at Night in Mice. Society for Research on Biological Rhythms. Amelia Island, FL, May 9 - 13, 2026.
- Serdar, A., Marino, G.M., Larson, L., and **Arble D.M.** Light at Night Differentially Modulates Breathing in Male and Female Mice. Society for Research on Biological Rhythms. Amelia Island, FL, May 9 - 13, 2026.
- Halick, S.R., Marino, G.M., **Arble, D.M.** Respiratory Modulation by Phototransduction Demonstrates Time-Dependence in Male Mice. ASBMB Annual Meeting. Washington, DC, March 7-10, 2026.
- Wiecek, J., Marino, G.M., **Arble, D.M.** Spectral and Intensity Effects on Breathing. ARVO Annual Meeting. Denver, CO, May 3-7, 2026.
- Marino, G.M., Twining, R.R., **Arble, D.M.** The duration of light exposure differentially affects tidal volume and respiratory frequency in male mice. Society for Neuroscience Annual Meeting. San Diego, CA, Nov 15-19, 2025.
- Rivera A. and **Arble D.M.** Melanocortin-4 receptor-expressing neurons in the paraventricular nucleus contribute to hypercapnic chemosensitivity. American Physiology Summit. Baltimore, MD, April 24–27, 2025.
- Marino G.M., Twining, R.R., and **Arble D.M.** Intrinsically photosensitive retinal ganglion cells that project to the superior colliculus are not necessary for light-induced changes in breathing in mice. American Physiology Summit. Baltimore, MD, April 24-27, 2025.
- Serdar, A., Marino G.M., and **Arble D.M.** The hypercapnic ventilatory response displays time-of-day variability that is unaffected by acute light exposure in the early dark phase. American Physiology Summit. Baltimore, MD, April 24-27, 2025.
- Thorstenson, E., Rivera A., and **Arble D.M.** Identification of the MC4R-expressing neuronal populations with projections to the periaqueductal gray. American Physiology Summit. Baltimore, MD, April 24-27, 2025.
- Jones A.A., Spears A.R., and **Arble D.M.** The Molecular Circadian Clock of Phox2b-expressing Cells Drives Daily Variation of the Hypoxic but Not Hypercapnic Ventilatory Response in Mice. Breathing for Life: 16th Oxford Conference on Breathing, Emotion, and Beyond. Williamsburg, VA, Sept 30 - Oct 4, 2024.
- Marino G.M. and **Arble D.M.** The timing and duration of light exposure differentially affects breathing in male mice. Society for Research on Biological Rhythms. San Juan, PR, May 18 - 22, 2024.
- Rivera A., Thorstenson, E., Kenny, R., Kurth M., and **Arble D.M.** Rats on a High-Fat Diet Exhibit Daytime Anxiety under Time-Restricted Feeding. Society for Research on Biological Rhythms. San Juan, PR, May 18 - 22, 2024.

MENTORED FELLOWSHIPS & AWARDS

- 2025** NSF REU Undergraduate Fellowship (J. Wiecek); Dean's Research Enhancement Award (G. Marino); Richard W. Jobling Research Assistantship (G. Marino); Martin Frank Diversity Travel Award, American Physiology Summit (A. Rivera).
- 2024** Scientific Advancement Award, Milwaukee Graduate Women in Science (G. Marino); GAANN Fellowship (G. Marino); Dean's Research Enhancement Award (G. Marino); Oliver Smith Achievement Award (G. Marino); SRBR Emmett Chappelle Fellowship (A. Rivera).
- 2023** Advances in Sleep/Circadian Award (A. Rivera); GAANN Fellowship (G. Marino).
- 2022** Richard W. Jobling Distinguished Research Assistantship (A. Jones); Denis J. O'Brien Summer Fellowship (A. Jones); Marquette University Fellowship, declined (A. Jones).
- 2021** Dean's Research Enhancement Award (A. Jones); Marquette University Fellowship (A. Jones); Marquette University Summer Fellowship (A. Jones); Dr. Catherine Grotelueschen Summer Scholarship (S. Framnes-DeBoer).
- 2020** Arthur J. Schmitt Leadership Fellowship (S. Framnes-DeBoer).
- 2019** GAANN Fellowship (S. Framnes-DeBoer); Catherine Welsh Smith Research Award (E. Bakke); NSF REU Fellowship (M. Kang); NSF REU Fellowship (N. Chappelle); Klingler College Undergraduate Summer Research Fellowship (K. Propsom).

TEACHING PORTFOLIO

Marquette University, 2017-2025. Courses: Human Physiology; Experimental Physiology; Neuroscience for Non-Majors; Creative Problem Solving; Advanced Physiology & Systems; Neuroscience Foundations 2; Seminar/Topics in Physiology; laboratory rotations, independent research, graduate research, and doctoral dissertation mentoring. Enrollment ranged from small graduate seminars to 122-student lectures.

SELECTED PUBLIC ENGAGEMENT

- Co-created the Parallel Play exhibition, Haggerty Museum of Art (2025), with related CBS 58 coverage.
- Media and expert commentary: CBS 58 (2023, 2025), NPR Milwaukee Lake Effect (2019), Milwaukee Magazine (2022), Chest Physician (2022), Marquette Today and institutional press/podcasts.
- International research coverage: BBC News, The Telegraph, Le Figaro, Público, ABC Radio Australia, CBC Radio, Chicago Sun-Times, Daily Spiegel, and USA TODAY education.
- Additional engagement: Institute for Women's Leadership research spotlight