

Jared M. Cregg, PhD

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Education

- 2018 **PhD, Neuroscience**
Case Western Reserve University
Cleveland, OH
- 2010 **BSE, Biomedical Engineering**
Michigan Technological University
Houghton, MI
-

Employment

- 7/2024 - **Tenure-Track Assistant Professor**
Departments of Neuroscience & Neurology
University of Wisconsin–Madison
Madison, WI
- 2017 - 2024 **Postdoctoral Scholar**
Laboratory of Prof. Ole Kiehn
Department of Neuroscience, University of Copenhagen
Copenhagen, Denmark
- 2010 - 2017 **Graduate Student**
Laboratories of Drs. Jerry Silver & Lynn T. Landmesser
Department of Neuroscience, Case Western Reserve University
Cleveland, OH
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Scholarly Works

Key Publications

1. **Cregg JM[†]**, Sidhu SK, Leiras R, Kiehn O[†]. (2024) Basal ganglia-spinal cord pathway that commands locomotor gait asymmetries in mice. *Nature Neuroscience* 27:716-727. [†]Co-corresponding authors. ([pdf](#))
2. Leiras R*, **Cregg JM***, Kiehn O. (2022) Brainstem circuits for locomotion. *Annual Review of Neuroscience* 45:63-85. *Co-first authors. ([pdf](#))
3. **Cregg JM**, Leiras R, Montalant A, Wanken P, Wickersham IR, Kiehn O. (2020) Brainstem neurons that command mammalian locomotor asymmetries. *Nature Neuroscience* 23:730-740. ([pdf](#)) [Cover Article]
4. **Cregg JM**, Chu KA, Dick TE, Landmesser LT[†], Silver J[†]. (2017) Phasic inhibition as a mechanism for generation of rapid respiratory rhythms. *PNAS* 114:12815-12820. [†]Co-corresponding authors. ([pdf](#))
5. **Cregg JM**, Chu KA, Hager LE, Maggard RS, Stoltz DR, Edmond M, Alilain WJ, Philippidou P, Landmesser LT, Silver J. (2017) A latent propriospinal network can restore diaphragm function after high cervical spinal cord injury. *Cell Reports* 21:654-665. ([pdf](#))
6. Lang BT, **Cregg JM**, DePaul MA, Tran AP, Xu K, Dyck SM, Madalena KM, Brown BP, Weng YL, Li S, Karimi-Abdolrezaee S, Busch SA, Shen Y, Silver J. (2015) Modulation of the proteoglycan receptor PTP σ promotes recovery after spinal cord injury. *Nature* 518:404-408. ([pdf](#))

Additional Publications

7. **Cregg JM[†]**, Mirdamadi JL, Fortunato C, Okorokova EV, Kuper C, Nayeem R, Byun AJ, Avraham C, Buonocore A, Winner TS, Mildren RL. (2023) Highlights from the 31st Annual Meeting of the Society for the Neural Control of Movement. *Journal of Neurophysiology* 129:220-234. [†]Corresponding author. ([pdf](#))
8. Vagnozzi AN, Garg K, Dewitz C, Moore MT, **Cregg JM**, Jeannotte L, Zampieri N, Landmesser LT, Philippidou P. (2020) Phrenic-specific transcriptional programs shape respiratory motor output. *eLife* 9:e52859. ([pdf](#))
9. Lager AM, Corradin O, **Cregg JM**, Elitt MS, Shick E, Clayton BL, Allan KC, Olsen HE, Madhavan M, Tesar PJ. (2018) Rapid functional genetics of the oligodendrocyte lineage using pluripotent stem cells. *Nature Communications* 9:3708. ([pdf](#))
10. Niemi JP, DeFrancesco-Lisowitz A, **Cregg JM**, Howarth M, Zigmond RE. (2015) Overexpression of the monocyte chemokine CCL2 in dorsal root ganglion neurons causes a conditioning-like increase in neurite outgrowth and does so via a STAT3 dependent mechanism. *Experimental Neurology* 275:25-37. ([pdf](#))
11. Gardner RT, Wang L, Lang BT, **Cregg JM**, Dunbar CL, Woodward WR, Silver J, Ripplinger CM, Habecker BA. (2015) Targeting protein tyrosine phosphatase sigma after myocardial infarction restores cardiac sympathetic innervation and prevents arrhythmias. *Nature Communications* 6:6235. ([pdf](#))
12. **Cregg JM**, DePaul MA, Filous AR, Lang BT, Tran A, Silver J. (2014) Functional regeneration beyond the glial scar. *Experimental Neurology* 253:197-207. ([pdf](#))
13. Hilton BJ, Lang BT, **Cregg JM**. (2012) Keratan sulfate proteoglycans in plasticity and recovery after spinal cord injury. *Journal of Neuroscience* 32:4331-4333. ([pdf](#))
14. Hurtado A*, **Cregg JM***, Wang HB, Wendell DF, Oudega M, Gilbert RJ, McDonald JW. (2011) Robust CNS regeneration after complete spinal cord transection using aligned poly-L-lactic acid microfibers. *Biomaterials* 32:6068-6079. *Co-first authors. ([pdf](#))
15. Wang HB, Mullins ME, **Cregg JM**, McCarthy CM, Gilbert RJ. (2010) Varying the diameter of aligned electrospun fibers alters neurite outgrowth and Schwann cell migration. *Acta Biomaterialia* 6:2970-2978. ([pdf](#))
16. **Cregg JM**, Wiseman SL, Pietrzak-Goetze NM, Smith MR, Jaroch DB, Clupper DL, Gilbert RJ. (2010) A rapid, quantitative method for assessing axonal extension on biomaterial platforms. *Tissue Engineering Part C: Methods* 16:167-172. ([pdf](#)) [Cover Article]
17. Wang HB, Mullins ME, **Cregg JM**, Hurtado A, Oudega M, Trombley MT, Gilbert RJ. (2009) Creation of highly aligned electrospun poly-L-lactic acid fiber for nerve regeneration applications. *Journal of Neural Engineering* 6:016001. ([pdf](#)) [Cover Article]

Patents

1. Hurtado A, Gilbert RJ, Wang HB, **Cregg JM**, Mullins ME, Oudega M. (2019) Three-dimensional scaffolds, methods for fabricating the same, and methods of treating a peripheral nerve or spinal cord injury. US Patent 10,413,391. ([pdf](#))
2. Silver J, Lang BT, **Cregg JM**, Weng YL, Li H, Wu W. (2019) Compositions and methods of treating root avulsion injury. US Patent 10,258,672. ([pdf](#))
3. Lang BT, **Cregg JM**, Weng YL, Silver J. (2018) Compositions and methods for inhibiting the activity of lar family phosphatases. US Patent 9,937,242. ([pdf](#)) [Licensed to NervGen Pharma]

Bibliometric Summary

Web of Science: >2100 citations, h-index 14 ([link](#))
Google Scholar: >3300 citations, h-index 16 ([link](#))

Funding

Current

2025 - 2028	Parkinson's Foundation - Stanley Fahn Junior Faculty Award, \$300,000 USD
2025 - 2027	Brain Research Foundation - Seed Grant, \$100,000 USD

Previous

2021 - 2024	Lundbeck Foundation - Postdoctoral Fellowship, \$380,000 USD
2018 - 2020	European Molecular Biology Organization (EMBO) - Long-Term Fellowship, \$120,000 USD
2016 - 2017	CTSC Case Western Reserve University, Core Pilot Grant, \$7,100 USD
2010 - 2013	National Science Foundation (NSF), Graduate Research Fellowship, \$123,500 USD

Awards

2026	C.J. Herrick Award in Neuroanatomy, American Association for Anatomy
2025	Stanley Fahn Junior Faculty Award, Parkinson's Foundation
2022	Scholarship Award, Society for the Neural Control of Movement
2021	Trainee Professional Development Award, Society for Neuroscience
2018	Best Poster Award, The Brain Prize Meeting, Middelfart, Denmark
2018	Doctoral Excellence Award in Neurosciences, Case Western Reserve University
2015	Travel Award, International Symposium on Neural Regeneration
2008	Summer Undergraduate Research Fellowship, NASA / Michigan Space Grant Consortium
2008	Summer Undergraduate Research Fellowship, Michigan Technological University
2008	Barry M. Goldwater Scholarship

Invited/Conference Talks

2026	EPFL, Ecole Polytechnique Fédérale de Lausanne, Institute of Bioengineering, <i>Lausanne, Switzerland</i>
2025	Temple University, Department of Neural Sciences, <i>Philadelphia, PA</i>
2025	Case Western Reserve University, Department of Neuroscience, <i>Cleveland, OH</i>
2025	University of Copenhagen, Faculty of Health and Medical Sciences, <i>Copenhagen, Denmark</i>
2025	Marquette University, Department of Biomedical Engineering, <i>Milwaukee, WI</i>
2024	BIG10 Neuroscience Seminar Series, <i>Virtual Seminar</i>
2024	MDI Biological Laboratory, <i>Bar Harbor, Maine</i>
2024	European Molecular Biology Laboratory, DANEMO Symposium, <i>Copenhagen, Denmark</i>
2024	California Institute of Technology, New Horizons in Neuroscience Symposium, <i>Pasadena, CA</i>
2023	University of Wisconsin-Madison, Department of Neurology, Neurology Grand Rounds, <i>Madison, WI</i>
2023	Benzon Symposium: Bringing Circuit for Movement Together, <i>Copenhagen, Denmark</i>
2023	University of Minnesota, Department of Neuroscience, <i>Minneapolis, MN</i>
2023	Motor Control: Spinal Circuits and Beyond, <i>St Andrews, Scotland</i>
2023	XIV Meeting of the International Basal Ganglia Society, <i>Stockholm, Sweden</i>
2023	Karolinska Institutet, Department of Neuroscience, <i>Stockholm, Sweden</i>
2023	University of St Andrews, School of Psychology and Neuroscience, <i>St Andrews, Scotland</i>
2023	Stony Brook University, Department of Neurobiology and Behavior, <i>Stony Brook, NY</i>
2023	Yale University, Department of Neuroscience, <i>New Haven, CT</i>
2022	Case Western Reserve University, Department of Neuroscience, <i>Cleveland, OH</i>
2022	Annual Meeting of the Society for the Neural Control of Movement, <i>Dublin, Ireland</i>
2022	Basal Ganglia Gordon Research Seminar, <i>Ventura, CA</i>
2021	Danish Society for Neuroscience, Brain States Meeting, <i>Copenhagen, Denmark</i>
2020	Sainsbury Wellcome Center, Emerging Neuroscientists Seminar Series, <i>London, UK</i>
2020	International Online Spinal Cord Injury Research Seminars, <i>Virtual</i>
2019	Okinawa Institute of Science & Technology, Neuronal Circuits in Motor Behavior, <i>Okinawa, Japan</i>
2016	National Neurotrauma Society Annual Meeting, <i>Lexington, KY</i>
2015	Case Western Reserve University, Department of Pulmonary, Critical Care, and Sleep Medicine, <i>Cleveland, OH</i>
2010	Society for Biomaterials Annual Meeting, <i>Seattle, WA</i>
2008	Biomedical Engineering Society Annual Meeting, <i>St. Louis, MO</i>

Mentoring

Scientists

- Xiao-Jie Cao, Researcher III, 2024-present, University of Wisconsin-Madison

PhD Students

Current Thesis Students

- Daniel J. Bader, 2025-present, Neuroscience Training Program, UW-Madison
T32 Predoctoral Fellow
- Anusha Shukla, 2024-present, Biophysics Training Program, UW-Madison
Mogridge Family Graduate Fellow
- Songyuan Tan, 2024-present, Neuroscience Training Program, UW-Madison

PhD Thesis Committees

- Astha Gupta, 2026, Robotics, Control, and Intelligent Systems, Advisor: Auke Ijspeert, EPFL
- Tiancheng Xu, 2025-present, Biophysics Training Program, Advisor: Meyer Jackson, UW-Madison
- I-Hsin Liao, 2025-present, Biophysics Training Program, Advisor: Raunak Sinha, UW-Madison
- Seoyoung Kim, 2025-present, Biophysics Training Program, Advisor: Raunak Sinha, UW-Madison

Rotation Students

- Daniel J. Bader, 2025, Neuroscience Training Program, UW-Madison
- Gauri Velloor, 2025, Biophysics Training Program, UW-Madison
- Nikša Poleksic, 2025, Neuroscience Training Program, UW-Madison
- Kai A. Bartol, 2024, Neuroscience Training Program, UW-Madison
- Tiancheng Xu, 2024, Biophysics Training Program, UW-Madison
- Kathryn M. Williams, 2024, Neuroscience Training Program, UW-Madison
- Anusha K. Shukla, 2024, Biophysics Training Program, UW-Madison
- Songyuan Tan, 2024, Neuroscience Training Program, UW-Madison

MS Students

- Simrandeep K. Sidhu, MS Thesis in Neuroscience, 2020-2023, University of Copenhagen
Current PhD student in Neuroscience Academy Denmark
- Paulina Wanken, 2018-2020, MS Thesis in Human Biology, University of Copenhagen
Current PhD student at Max Planck Institute

BS Students

- Karina L. Fischer, 2026-present, UW-Madison, Neurobiology/Biochemistry
- Utkarsha Marasini, 2025-present, UW-Madison, Mechanical Engineering
- Areeb T. Bajwa, 2024-2025, UW-Madison, Biochemistry
- Amelia E. Lehmann, BS, 2024-2025, UW-Madison, Neurobiology/Biochemistry
- Aleksandar Zafirovski, 2024-present, UW-Madison, Neurobiology
- Kevin A. Chu, BS Thesis in Biology, 2015-2017, Case Western Reserve University
Medical Graduate of NYIT College of Osteopathic Medicine

Teaching

2026	NEURO747: Sensory and Motor Systems Course Co-Director University of Wisconsin–Madison
2025	PT500: Functional Neuroanatomy Course Co-Director University of Wisconsin–Madison
2024 - 2025	Med SC-M 775: Neurology Block - 2 nd Year Medical Students Lecture: 'Neurotransmitter Systems' University of Wisconsin–Madison
2024 - 2025	Zoology 500: Undergraduate Neurobiology Seminar Lecture: 'Brainstem Circuits for Motor Control' University of Wisconsin–Madison
2024	PhD Course: Open Neurophysiology – Analysis Tools & Datasets Course Co-organizer, Lecturer

	Faculty of Health and Medical Sciences, University of Copenhagen
2024	PhD Course: Translational Neuroscience Lecture: 'Animal Models of Locomotor Control in Health and Disease' Neuroscience Academy Denmark
2023	PhD Course: Open Neurophysiology – Analysis Tools & Datasets Lecture: 'Tracking Locomotion using DeepLabCut' Faculty of Health and Medical Sciences, University of Copenhagen
2022	PhD Course: Animal Models of Disease and Behavior Lecture: 'In Vivo Calcium Recording' Department of Neuroscience, University of Copenhagen
2021	Workshop on Animal Models Lecture: 'Measuring Mouse Behavior: Dissection of Circuits for Motor Control' Graduate Program in In Vivo Pharmacology, University of Copenhagen
2018 - 2022	MS Course: Neuronal Signaling/Neuroscience Lecture: 'In Vivo Optogenetics & Chemogenetics' Department of Neuroscience, University of Copenhagen
2017	PHOL519: Cardiorespiratory Physiology Section: Cardiovascular Control in Disease: Cardiac Arrhythmia Department of Physiology & Biophysics, Case Western Reserve University
2017	PHOL466: Cell Signaling Section: Neurotransmitter-Gated Ion Channels Department of Physiology & Biophysics, Case Western Reserve University

Service

Leadership and Committees

Selection Committee – Molecular Biophysics T32 Training Program (2025)
 Seminar Committee – Neuroscience Seminar Series, UW-Madison (2025 - present)
 Admissions Committee – Biophysics Training Program, UW-Madison (2024 - present)
 Admissions Committee – Neuroscience Training Program, UW-Madison (2024 - present)
 Nominations Committee – Student Invited Speaker, Department of Neuroscience, Case Western Reserve University (2015)
 President – Michigan Technological University Chapter of the Biomedical Engineering Society (2008 - 2009)
 President – Research Scholars Program, Michigan Technological University (2008 - 2009)

Peer Review

Journals

Ad hoc reviewer for *Nature*, *Science*, *Experimental Neurology*, *Scientific Reports*

Grants

Review Committee – Parkinson's Foundation Postdoctoral Fellowships Program (2025-2026)
 Reviewer for UW–Madison Brain Research Foundation Seed Grant Program internal competition (Office of the Vice Chancellor for Research and Graduate Education, 2025)
 Ad hoc reviewer
Swiss National Science Foundation
Institute for Clinical and Translational Research (UW-Madison)

Society Membership

Society for Neuroscience (2015 - present)
 American Association for the Advancement of Science (2010 - present)