

# CURRICULUM VITAE

## Randolph S. Ashton, Ph.D.

Associate Professor  
Department of Biomedical Engineering &  
Wisconsin Institute for Discovery  
University of Wisconsin Madison  
rashon2@wisc.edu

4168 WID  
330 N. Orchard Street  
Madison, WI 53715  
Tel: 608-316-4312  
Fax: 608-316-4606  
<http://discovery.wisc.edu/bionate>

---

### EDUCATION:

**University of California Berkeley, Postdoctoral Fellow** *2007 – 2011*  
Berkeley, California, Advisor: David Schaffer

- Postdoc at the California Institute for Quantitative Biosciences (QB3) and Berkeley Stem Cell Center.

**Rensselaer Polytechnic Institute, PhD (Chemical Engineering)** *2002 - 2007*  
Troy, New York, Advisor: Prof. Ravi S. Kane

- Graduated from Chemical and Biological Engineering program with an emphasis in biotechnology and stem cell research.

**Hampton University, BS (Chemical Engineering)** *1999 - 2002*  
Hampton, Virginia

- Graduated Summa Cum Laude, in three years, with a cumulative GPA of **3.9/4.0**

---

### PROFESSIONAL APPOINTMENTS:

**Associate Professor, University of Wisconsin–Madison** *2019 - Present*  
Department of Biomedical Engineering (BME) & Wisconsin Institute for Discovery (WID)

**Associate Director, UW–Madison Stem Cell and Regenerative Medicine Center** *2018 - Present*  
University of Wisconsin–Madison

**Faculty Trainer, Material Science Program** *2015 - Present*  
University of Wisconsin–Madison

**Faculty Trainer, Neuroscience Training Program** *2015 - Present*  
University of Wisconsin–Madison

**Investigator, Waisman Center** *2015 - Present*  
University of Wisconsin–Madison

**Assistant Professor, University of Wisconsin–Madison** *2011 - 2019*

### HONORS AND AWARDS:

- 2020 Wisconsin Alumni Research Foundation Innovation Award 2020
- UW-Madison College of Engineering Equity & Diversity Award 2018
- National Science Foundation CAREER Award 2017 - 2022
- 2016 Young Investigator Faculty Award, Regenerative Medicine Workshop at Hilton Head, SC. 2016
- 2015 Emerging Investigator, *Chemical Communications* (RSC Journal, IF: 6.718) 2015
- Burroughs Wellcome Fund Innovator in Regulatory Science 2014 - 2019
- Rising Star Award, BMES's Cellular and Molecular Bioengineering SIG 2013
- Alumnus of the Year, Richmond Area Program for Minorities in Engineering 2012
- NIH Postdoctoral Fellow, National Heart Lung and Blood Institute (NHLBI) 2009 - 2011
- California Institute for Regenerative Medicine (CIRM) Postdoctoral Fellow 2008 - 2009
- NIH-NIGMS Biomolecular Science and Engineering Training Fellow 2004 - 2006
- Ford Fellowship Pre-Doctoral Fellowship Honorable Mention 2004
- NSF Graduate Research Fellowship Honorable Mention 2004
- Rensselaer Polytechnic Institute Dean Fellowship Recipient 2002 - 2007
- National Consortium for Graduate Degrees for Minorities in Engineering Fellow 2002 - 2004
- Howard P. Isermann Graduate Fellow 2002 -2003
- Rhodes Scholar State Finalist 2002
- Hampton University Presidential Scholar 1999 - 2002

---

### PUBLICATIONS: (\*Co-authorship)

35. Aghayee A, **Ashton R.** (2021) Methods for Controlled Induction of Singular Rosette Cytoarchitecture Within Human Pluripotent Stem Cell-Derived Neural Multicellular Assemblies. Programmed Morphogenesis. 2021;2258:193-203. doi: 10.1007/978-1-0716-1174-6\_13 [PMID: 33340362]

34. Febdorchak J, Iyer N, **Ashton RS** (2020). Bioengineering tissue morphogenesis and function in human neural organoids. *Semin Cell Dev Biol* 111: 52-59 [PMID: 32540123]

33. Salick MR, Napiwocki BN, Kruepke RA, Knight GT, **Ashton RS**, Crone WC (2020). The scanning gradient Fourier transform (SGFT) method for assessing sarcomere organization and alignment. *J Appl Phys* 127(19): 194701

32. Molugu K, Harkness T, Carlson-Stevermer J, Prestil R, Piscopo NJ, Seymour S, Knight GT, **Ashton RS**, Saha K (2020). Tracking and predicting human somatic cell reprogramming using nuclear characteristics. *Biophys J* 118(9): 2086-2102 [PMID: 31699335]

31. Mahony C, **Ashton RS**, Birk B, Boobis AR, Cull T, Daston GP, Ewart L, Knudsen TB, Manou I, Maurer-Stroh S, Margiotta-Casaluci L, Müller BP, Nordlund P, Roberts RA, Steger-Hartmann T, Vandenbossche E, Viant MR, Vinken M, Whelan M, Zvonimir Z, Cronin MTD (2020). New ideas for non-animal approaches to predict repeated-dose systemic toxicity: Report from an EPAA Blue Sky Workshop. *Regul Toxicol Pharm* 114: 104668 [PMID: 32335207]
30. Chasman D, Iyer N, Siahpirani AF, Estevez-Silva M, Lippmann E, McIntosh B, Probasco MD, Jiang P, Stewart RM, Thomson JA, **Ashton RS**, Roy S (2019). Inferring regulatory programs governing region specificity of neuroepithelial stem cells during early hindbrain and spinal cord development. *Cell Systems* 9(2): 167-86.e12 [PMID: 31302154]
29. Jiwwat N, Lynch E, Napiwocki BN, Stempien A, **Ashton RS**, Kamp TJ, Crone WC, Suzuki M. (2019) Micropatterned substrates with physiological stiffness promote cell maturation and Pompe disease phenotype in human induced pluripotent stem cell-derived skeletal myocytes. *Biotechnol Bioeng* 116(9): 2377-92 [PMID: 31131875]
28. McNulty JD\*, Marti-Figueroa C\*, Seipel F, Plantz JZ, Ellingham T, Lukas JD, Goris S, Cox BL, Osswald TA, Turng LS, **Ashton RS** (2019). Micro-injection molded, poly(vinyl alcohol)-calcium salt templates for precise customization of 3D hydrogel internal architecture. *Acta Biomaterialia* 95: 258-68.
27. Bakooshli MA, Lippmann ES, Mulchay B, Iyer N, Nguyen CT, Tung K, Stewart BA, van den Dorpel H, Fuehrmann T, Shoichet M, Bigot A, Pegoraro E, Ahn H, Ginsberg H, Zhen M, **Ashton RS**, Gilbert PM (2019). A 3D culture model of innervated human skeletal muscle enables studies of the adult neuromuscular junction. *eLife* 8: e44530 [PMID: 31084710]
26. Knight GT, Lundin BF, Iyer N, Ashton LMT, Sethares WA, Willett RM, **Ashton RS** (2018). Engineering human CNS morphogenesis: controlled induction of singular neural rosette emergence. *eLife* 7: e37549. [PMID: 30371350]
25. Estevez-Silva MC, Sreeram A, Cuskey S, Fedorchak N, Iyer N, **Ashton RS** (2018). Single-injection ex ovo transplantation method for broad spinal cord engraftment of human pluripotent stem cell-derived motor neurons. *J Neurosci Meth* 298: 16-23. [PMID: 29408391]
24. Hanna MG, Block S, Frankel EB, Hou F, Johnson A, Yuan L, Knight G, Moresco JJ, Yates JR, **Ashton RS**, Schekman R, Tong Y, Aughya A (2017). TFG facilitates outer coat disassembly on COPII transport carriers to promote tethering and fusion with ERGIC membranes. *Proc Natl Acad Sci* 114 (37): E7707-16. [PMID: 28851831]
23. Lemke KA, Aghayee A, and **Ashton RS** (2017). Deriving, regenerating, and engineering CNS tissues using human pluripotent stem cells. *Curr Opin Biotech* 47: 36-42. [PMID: 26097126]
22. Marti-Figueroa CR and **Ashton RS** (2017). The Case for Applying Tissue Engineering Methodologies to Instruct Human Organoid Morphogenesis. *Acta Biomaterialia* 54: 35-44. [PMID: 28315813]

21. Lippmann ES, Estevez-Silva MC, **Ashton RS** (2015). Chemically defined differentiation of human pluripotent stem cells to hindbrain and spinal cord neural stem cells with defined regional identities. *Protocol Exchange*. [doi:10.1038/protex.2015.076]
20. Harkness T, McNulty JD, Prestil R, Seymour SK, Klann T, Murrell M, **Ashton RS**, Saha K (2015). High-content imaging with micropatterned multiwell plates reveals influence of cell geometry and cytoskeleton on chromatin dynamics. *Biotechnology Journal* 10(10): 1555-1567. [PMID: 26097126]
19. Lippmann ES, Williams CE, Ruhl DA, Estevez-Silva MC, Chapman ER, Coon JJ, **Ashton RS** (2015). Deterministic *HOX* patterning in human pluripotent stem cell-derived neuroectoderm. *Stem Cell Reports* 4(4): 632-44. [PMID: 25843047]
18. Knight GT, Sha J, **Ashton RS** (2015). Micropatterned, clickable culture substrates enable in situ spatiotemporal control of human PSC-derived neural tissue morphology. *Chem. Commun.* 51(25): 5238-41. [PMID: 25688384]
17. Saraswathy M, Knight GT, Pilla S, **Ashton RS**, and Gong S (2015). Multifunctional drug nanocarriers formed by cRGD-conjugated  $\beta$ CD-PAMAM-PEG for targeted cancer therapy. *Colloids Surf. B* 126: 590-97. [PMID: 25591850]
16. Knight GT, Klann T, McNulty JD, **Ashton RS** (2014). Fabricating Complex Culture Substrates Using Robotic Microcontact Printing (R- $\mu$ CP) and Sequential Nucleophilic Substitution. *J. Vis. Exp.* (92), e52186. [doi:10.3791/52186; PMID: 25407245]
15. McNulty JD\*, Klann T\*, Sha J, Salick M, Knight GT, Turng L, **Ashton RS** (2014). High-precision robotic microcontact printing (R- $\mu$ CP) utilizing a vision guided selectively compliant articulated robotic arm. *Lab Chip* 14(11): 1923-30. [PMID: 24759945]
14. Salick M, Napiwocki BN, Sha J, Knight GT, Chindhy SA, Kamp TJ, **Ashton RS**, Crone WC (2014). Micropattern width dependent sarcomere development in human ESC-derived cardiomyocytes. *Biomaterials* 35(3): 4454-64. [PMID: 24582552]
13. Lippmann ES, Estevez-Silva MC, **Ashton RS** (2014). Defined human pluripotent stem cell culture enables highly efficient neuroepithelium derivation independent of small molecule inhibitors. *Stem Cells* 32(4): 1032-42. [PMID: 24357014]
12. Vazin T\*, **Ashton RS\***, Conway A, Rode N, Lee SM, Bravo V, Healy KE, Kane R, Schaffer DV (2014). Multivalent sonic hedgehog enhances differentiation of human embryonic stem cells into dopaminergic and GABAergic neurons. *Biomaterials* 35(3): 941-8. [PMCID: 24172856]
11. Sha J, Lippmann ES, McNulty J, Ma Y, **Ashton RS** (2013). Sequential nucleophilic substitutions permit orthogonal click functionalization of multicomponent PEG brushes. *Biomacromolecules* 14(9): 3294-303. [PMCID: 23937610]

10. **Ashton RS\***, Conway A\*, Pangakar C, Bergen J, Lim K, Shah P, Bissell M, Schaffer DV (2012). Astrocytes regulate adult hippocampal neurogenesis through ephrin-B signaling. *Nat Neurosci* 15(10): 1399-406. [PMCID: 22983209]
9. Pollock JF, **Ashton RS**, Rode NA, Schaffer DV, Healy KE. Molecular characterization of multivalent bioconjugates by size-exclusion chromatography with multiangle laser light scattering (2012). *Bioconjugate Chem* 23(9): 1794-801. [PMCID: 22794081]
8. **Ashton RS**, Keung AJ, Peltier J, Schaffer DV (2011). Progress and prospects in stem cell engineering. *Annu Rev Chem Biomol Eng* 2: 479-502. [PMCID: 22432628]
7. Banerjee, A., Arha, M., Choudhary, S., **Ashton, R.S.**, Bhatia, S.R., Schaffer, D.V., Kane, R.S. (2009). The influence of hydrogel modulus on the proliferation and differentiation of encapsulated neural stem cells. *Biomaterials* 27: 4695-99. [PMCID: 19539367]
6. Wall ST, Saha KS, **Ashton RS**, Kim K, Schaffer DV, Healy KE (2008). Multivalency of sonic hedgehog conjugated to linear polymer chains modulates protein potency. *Bioconjugate Chem.* 19: 806-12. [PMCID: 18380472]
5. **Ashton RS**, Banerjee A, Punyani S, Schaffer DV, Kane RS (2007). Scaffolds based on degradable alginate hydrogels and poly(lactide-co-glycolide) microspheres for stem cell culture. *Biomaterials*, 28: 5518-25. [PMCID: 17881048]
4. **Ashton RS**, Peltier J, Fasano CA, O'Neill A, Leonard J, Temple S, Schaffer DV, Kane RS (2007). High-throughput screening of gene function in stem cells using clonal microarrays. *Stem Cells* 25: 2928-35. [PMCID: 17673524]
3. Rai PR, Saraph A, **Ashton R**, Poon V, Mogridge J, Kane RS (2007). Raftlike polyvalent inhibitors of anthrax toxin: modulating inhibitory potency by formation of lipid microdomains. *Angew Chem Int Ed Engl.* 46: 2207-09. [PMCID: 17310484]
2. Gujraty KV, **Ashton R**, Bethi SR, Kate S, Faulkner CJ, Jennings GK, Kane RS (2006). Thiol-mediated anchoring of ligands to self-assembled monolayers for studies of biospecific interactions. *Langmuir* 22:10157-62. [PMCID: 17107015]
1. **Ashton R**, Padala C, and Kane RS (2003). Microfluidic separation of DNA. *Curr Opin Biotechnol.* 14: 497-504. [PMCID: 14580579]

---

#### **PATENTS:**

6. **Ashton RS**, Knight GT, Knudsen BJ, Iyer NR, Marti-Figueroa C (2020). Methods for controlled induction of bioengineered neuroepithelial tissues and 3-D neuroepithelial tubes. U.S. Provisional App. No. 63/127,974
5. **Ashton RS** and Marti-Figueroa CR (2019). Methods for controlled induction of 3-D annular neuroepithelial tubes. U.S. Patent App. No. 16/645952.

4. **Ashton RS** and Knight GT (2018). Methods and culture substrates for controlled induction of biomimetic neural tissues comprising singular rosette structures. U.S. Patent App. No. 16/044236.
3. **Ashton RS**, Lippmann ES, and Seghal N (2017). Methods for efficient derivation of human motor neurons from diverse spinal regions. U.S. Patent App. No. 15/475,831.
2. **Ashton RS** and Lippmann ES (2014). Compositions and Methods for Precise Patterning of Posterior Neuroectoderm from Human Pluripotent Stem Cells, U.S. Patent App. No. 14/496796.
1. **Ashton RS** and Lippmann ES (2013). Simplified Compositions and Methods for Generating Neural Stem Cells from Human Pluripotent Stem Cells, U.S. Patent App. No. 13/795485.

---

#### **RESEARCH PRESENTATIONS – REGIONAL, NATIONAL, & INTERNATIONAL:**

1. Randolph Ashton. “Bioengineering Early CNS Morphogenesis for a Scalable Neural Tube Defect Risk Assay and Developmental Neurotoxicity Assay”, **Institute for Stem Cell and Regenerative Medicine, University of Washington**, Seattle, WA 27 April 2021 (*Invited*)
2. Randolph Ashton. “Bioengineering Early CNS Morphogenesis for a Scalable Neural Tube Defect Risk Assay and Developmental Neurotoxicity Assay”, **Stem Cell Center, University of California Irvine**, Irvine, CA 02 April 2021 (*Invited*)
3. Randolph Ashton. “Bioengineering Early CNS Morphogenesis for a Scalable Neural Tube Defect Risk Assay”, **Department of Biomedical Engineering, Purdue University**, West Lafayette, IN 20 January 2021 (*Invited*)
4. Randolph Ashton. “Bioengineering Early CNS Morphogenesis for a Scalable Neural Tube Defect Risk Assay”, **Department of Chemical and Biological Engineering, Iowa State University**, Ames, IA 12 November 2020 (*Invited*)
5. Randolph Ashton. “Bioengineering Early CNS Morphogenesis for a Scalable Neural Tube Defect Risk Assay”, **Center for Biomolecular and Tissue Engineering, Duke University**, Durham, NC 17 September 2020 (*Invited*)
6. Randolph Ashton. “Bioengineering Human CNS Morphogenesis in 2/3D for Disease Modeling”, **Department of Biological Engineering, Massachusetts Institute of Technology**, Cambridge, MA 05 December 2019 (*Invited*)
7. Randolph Ashton. “Bioengineering Human CNS Morphogenesis in 2/3D for Disease Modeling”, **Neuroscience and Behavior (NSB) Program, University of Massachusetts Amherst**, Amherst, MA 06 November 2019 (*Invited*)
8. Randolph Ashton. “Bioengineering Human CNS Morphogenesis in 2/3D for Disease Modeling”, **Frontiers in Stem Cells & Regeneration, Marine Biological Laboratory @ Woods Hole Oceanographic Institution**, Falmouth, MA 04 October 2019 (*Invited*)

9. Randolph Ashton. “Organoid Models: 21<sup>st</sup> Century Toxicology Platforms”, **New Ideas for Systemic Toxicity Workshop, European Partnership for Alternative Approaches to Animal Testing (EPAA)**, Brussels, Belgium, 01 October 2019 (*Invited*)
10. Randolph Ashton. “Bioengineering Human CNS Morphogenesis for Disease Modeling”, **Neuroscience Graduate Program, University of Virginia**, Charlottesville, VA, 17 September 2019 (*Invited*)
11. Randolph Ashton. “Bioengineering CNS Morphogenesis for Disease Modeling”. **University of Virginia Neuroscience Training Program**. Charlottesville, VA 17 Sept 2019 (*Invited*)
12. Randolph Ashton. “Engineering Human CNS Morphogenesis in 2/3D: Controlled Induction of Neural Rosette Formation”. **Society for Biological Engineering’s International Conference on Stem Cell Engineering**. Los Angeles, CA 06 Dec 2018 (*Invited*)
13. Randolph Ashton. “Bioengineered Human Neural Rosette Arrays for *in vitro* Neurodevelopmental Toxicology/Teratology”. **Society of Toxicology: Contemporary Concepts in Toxicology**. Arlington, VA 15 Nov 2018 (*Invited*)
14. Randolph Ashton. “Engineering CNS Morphogenesis In Vitro”. **University of Minnesota Stem Cell Institute**, Minneapolis, MN 10 October 2018. (*Invited*)
15. Randolph Ashton. “Engineering CNS Morphogenesis”. **Fischell Department of Biomedical Engineering, University of Maryland**, College Park, MD 06 April 2018 (*Invited*)
16. Randolph Ashton. “Engineering Human CNS Morphogenesis in 2.5D: Controlled Induction of Neural Rosette Formation”. **Company of Biologist Workshop, ‘Thinking beyond the dish: taking in vitro neural differentiation to the next level’**. West Sussex, UK. 05 February 2018. (*Invited*)
17. Gavin T. Knight, Brady F. Lundin, Lydia MT Ashton, William A. Sethares, Rebecca L. Willett, Randolph S. Ashton. “Engineering Human CNS Morphogenesis in 2/3D: Controlled Induction of Neural Rosette Formation”, **EDEV2017: Engineering multicellular self-organization at École Polytechnique Fédérale De Lausanne**, Lausanne, Switzerland. 14 November 2017. (*Invited*)
18. Randolph Ashton. “Engineering CNS Morphogenesis Ex Vivo”. **Rutgers University**, Piscataway, NJ, 20 March 2017. (*Invited*)
19. Randolph Ashton. “Engineering CNS Morphogenesis Ex Vivo”. **2017 Society of Toxicology**, Baltimore, MD, 15 March 2017. (*Invited*)
20. Randolph Ashton. “Derivation of a Spectrum of Regional Motor Neuron Phenotypes for Hindbrain and Spinal Cord Regenerative Medicine”, **LifeNet Health Regenerative Medicine Institute**, Virginia Beach, VA, 09 November 2016. (*Invited*)  
 \* Founded in 1982, LifeNet is a non-profit organ procurement organization providing donation systems for heart, liver, kidney, pancreas, lung, and other organs for transplant. It is the world's largest provider of allograft bio-implants and organs for transplantation.

21. Randolph Ashton. “Engineering CNS Tissue Morphogenesis Ex Vivo”, **Society of Biological Engineering’s 5<sup>th</sup> International Conference on Stem Cell Engineering**, Toronto, Canada, 23 October 2016. (*Platform Presentation*)
22. Randolph Ashton. “At the Stem Cell-Biomaterial Interface: Engineering CNS Tissue Morphogenesis Ex Vivo”, **University of Tubingen Women’s Hospital/Fraunhofer IGB’s Medical Technology Course**, Tubingen, Germany, 18 October 2016. (*Invited*)
23. Gavin Knight, Carlos Marti-Figueroa, Jason McNulty, Jake Tokar, Ethan Lippmann, David Beede, Lih-Sheng Turng, and Randolph Ashton. “Engineering CNS Tissue Morphogenesis *In Vitro*”, **2016 Biomedical Engineering Society Meeting**, Minneapolis, MN, 08 October 2016. (*Invited ‘Integration of Developmental Biology and Morphogenesis in Tissue Engineering’ Session Keynote* )
24. Randolph Ashton, “Engineering CNS Tissue Morphogenesis Ex Vivo”, **Department of Biomedical Engineering, Yale University**, New Haven, CT, 20 September 2016. (*Invited*)
25. Randolph Ashton, “Engineering CNS Tissue Morphogenesis Ex Vivo”, **Department of Biomedical Engineering, Carnegie Mellon University**, Pittsburg, PA, 13 September 2016. (*Invited*)
26. Randolph Ashton, “Recapitulating CNS Tissue Development In Vitro Using Engineered Biomaterials”, **Gordon Research Conference on Signal Transduction by Engineering Extracellular Matrices**, Biddeford, ME, 27 June 2016. (*Invited*)
27. E. S. Lippmann, N. Sehgal, M.C. Estevez-Silva, C.E. Williams, D.A. Ruhl, M.A. Bakooshli, G.T. Knight, K. Lemke, J. Plantz, E.R. Chapman, P.M. Gilbert, J.J. Coon, and R.S. Ashton, “Harnessing Wnt/b-catenin Signaling to Enable Highly Efficient Derivation of Human Motor Neurons from any Spinal Cord Region”, **International Society for Stem Cell Research Annual Meeting**, San Francisco, CA, 24 June 2016. (*Oral*)
28. Randolph Ashton, “Engineering Region-specific Cells and Tissue Models for Hindbrain and Spinal Cord Regenerative Medicine”, **University of California Berkeley Stem Cell Center Retreat at Asilomar Conference Center**, Pacific Grove, CA, 24 April 2016. (*Invited*)
29. Randolph Ashton, “Highly Efficient Derivation of Regional Motor Neuron Phenotypes for Hindbrain and Spinal Cord Regenerative Medicine”, **Regenerative Medicine Workshop**, Hilton Head, SC, 19 March 2016. (*Invited, Young Faculty Award Keynote Lecture*)
30. Randolph Ashton, “Engineering Region-specific Cells and Tissue Models for Hindbrain and Spinal Cord Regenerative Medicine”, **J. Crayton Pruitt Family Department of Biomedical Engineering, University of Florida**, Gainesville, FL, 25 February 2016. (*Invited*)
31. Randolph Ashton, “Region-specific Cells and Tissue Models for Hindbrain & Spinal Cord Regenerative Medicine”, **Waisman Center and Allen Institute Neuroscience Symposium and Training, UW-Madison**, Madison, WI, 16 October 2015. (*Invited*)

32. Randolph Ashton, “Brain Models for Analysis of Pathways (BRAIN MAPS)”, **Environmental Protection Agency’s National Center for Computational Toxicology**, Virtual Tissue Models Meeting Webinar, 14 October 2015. (*Invited*)
33. Randolph Ashton, “Engineering Hindbrain and Spinal Cord Tissues for Toxicology and Regenerative Medicine”, **2<sup>nd</sup> Annual Chemical Engineering Alumni Research Symposium, Hampton University**, Hampton, VA, October 2015. (*Invited*)
34. E.S. Lippmann, G.T. Knight, M.C. Estevez-Silva, C.E. Williams, M.A. Bakooshli, D.A. Ruhl, E.R. Chapman, P.M. Gilbert, J.J. Coon, R.S. Ashton. “Region-Specific Cells and Tissue Models for Hindbrain and Spinal Cord Regenerative Medicine”, **4<sup>th</sup> Tissue Engineering and Regenerative Medicine International Society (TERMIS) World Congress, Boston, MA**, September 2015 (*Oral*)
35. Randolph Ashton, “From Niche to Tissue: Engineering Neural Stem Cell Derivation, Differentiation, and Tissue Morphogenesis”, **Gordon Research Conference on Biomaterials & Tissue Engineering, Girona, Spain**, July 2015 (*Invited*)
36. Randolph Ashton, “Engineering Region-Specific Cells and Organotypic Tissues of the Central Nervous System”, **International Society for Stem Cell Research 2015 Annual Meeting: Stem Cell Engineering Focus Session**, Stockholm, Sweden, June 2015 (*Invited*)
37. Randolph Ashton, “Engineering Region-specific Cells and Organotypic Tissues of the Central Nervous System”, **Rensselaer Polytechnic Institute’s Bioengineering and Stem Cell Research Symposium**, Troy, NY, June 2015 (*Invited*)
38. Randolph Ashton, “At the Stem Cell-Biomaterial Interface: Engineering Organotypic Tissue Models”, **Biotechnology Training Program’s ‘Advances in Biotechnology’ Seminar Series, Northwestern University**, Evanston, IL, May 2015. (*Invited*)
39. ES Lippmann, CE Williams, MC Estevez-Silva, JJ Coon, RS Ashton. “Regional Specification of Hindbrain and Spinal Cord Neural Stem Cells derived from Human Pluripotent Stem Cells”, **Tissue Engineering and Regenerative Medicine International Society, Washington DC**, December 2014. (*Oral*)
40. Randolph Ashton, “Engineering Next Generation CNS Tissue Models”, **American Chemical Society Rock River Section Regional Meeting, Rockford University, Rockford, IL**, October 2014. (*Invited*)
41. Randolph Ashton, "Engineering Next Generation CNS Tissue Models", **UW Madison’s Stem Cell & Regenerative Medicine Center Fall Conference, Madison, WI**, September 2014. (*Invited*)
42. Randolph Ashton, "Engineering Next Generation CNS Tissue Models", **Cellular Dynamics International, Madison, WI**, July 2014. (*Invited*)

43. Randolph Ashton, “Clinically Translatable Protocols for Generating Region-Specific Hindbrain and Spinal Cord Tissues”, **International Collaboration on Repair Discoveries (ICORD), Vancouver, Canada**, June 2014. (*Invited*)
44. E.S. Lippmann, M. Estevez-Silva, R.S. Ashton. “Translatable Protocols for Derivation of Hindbrain and Spinal Cord Cellular Therapeutics”, **Regenerative Medicine Workshop, Hilton Head, SC**, March 2014. (*Invited*)
45. Randolph Ashton, “Designing and Monitoring 3-D Cellular Microenvironments”, **Rehabilitative and Regenerative Medicine for Minority Health and Health Disparities: a Frontiers Advanced Training Course, Howard University**, December 2013. (*Invited*)
46. Randolph Ashton, “Designing 1-D and 2-D molecular interfaces for tissue engineering”, **International Summer School: “From 2D biology to 3D Medical Solutions”, Vipava, Slovenia**, August 2013. (*Invited*)
47. E.S. Lippmann, M. Estevez-Silva, R.S. Ashton. “Novel and Scalable Derivation of Neuroepithelium and Ventral Progenitors of Defined Spinal Cord Position”, **Annual Biomedical Engineering Society Meeting, Seattle, WA**, September 2013. (*Oral*)
48. Randolph S. Ashton, “Towards Engineering Biomimetic Central Nervous System Tissue”, **Department of Biomedical Engineering, Northwestern, Evanston, IL**, January 2013. (*Invited*)
49. Randolph S. Ashton, “Towards Engineering Biomimetic Central Nervous System Tissue”, **UW Madison Cell & Regenerative Biology Departmental Seminar, Madison, WI**, November 2012. (*Oral*)
50. Randolph S. Ashton, “Astrocytes Regulate Adult Hippocampal Neurogenesis Through Ephrin-B Signaling”, **UW Madison Biomedical Engineering Departmental Seminar, Madison, WI**, October 2011. (*Oral*)
51. Randolph S. Ashton, “Modeling the Body’s Blueprint for Instructing Stem Cell Fate”, **MathBio3: Modeling Conference, UW Madison, Madison, WI**, September 2011. (*Invited*)
52. Randolph S. Ashton, “Towards Engineering Instructive Cellular Microenvironments: Case Studies in Neurogenesis”, **University of Wisconsin’s Stem Cell and Regenerative Medicine Center Stem Cell Lab Meetings, Madison, WI**, September 2011. (*Oral*)
53. Randolph S. Ashton, “Engineering the Neurogenic Cellular Microenvironment”, **International Consortium of Stem Cell Networks/CIRM Postdoctoral Symposium, San Francisco, CA** 2010. (*Invited*)
54. Randolph S. Ashton, Samuel Wall, Krishanu Saha, Kevin Healy, Ravi S. Kane, David Schaffer. “Multivalency Enhances the In Vitro Potency of Recombinant Sonic Hedgehog in Dopaminergic Differentiation of Human Embryonic Stem Cells”, **ISSCR 8<sup>th</sup> Annual Meeting, San Francisco, CA** 2010. (*Poster*)
55. Randolph S. Ashton, Samuel Wall, Krishanu Saha, Kevin Healy, Ravi S. Kane, David Schaffer. “Multivalency Enhances the In Vitro Potency of Recombinant Sonic Hedgehog in Dopaminergic Differentiation of Human Embryonic Stem Cells”, **Society for Biological Engineers 2<sup>nd</sup> International Conference on Stem Cell Engineering, Boston, MA** 2010. (*Poster*)

56. Randolph S. Ashton, “Designing Biomaterials to Investigate Factors that Control Stem Cell Fate”, **Rensselaer NIH Biomolecular Science and Engineering Training Retreat, Troy, NY 2008.** (*Invited*)
57. Randolph S. Ashton, Peltier Joe, Fasano Christopher, O’Neill Analeah, Temple Sally, Schaffer David V., Kane Ravindra S. “Stem Cell Microarrays: Investigation of Factors that Influence Neural Stem Cell Fate”, **232<sup>ND</sup> ACS National Meeting, San Francisco, CA 2006.** (*Oral*)

## PROFESSIONAL ACTIVITIES:

### Editorial Board

- Current Research in Toxicology, an Elsevier journal *Aug 2019 – Present*  
Editor-in-Chief, Thomas B. Knudsen

### Grant Review Panels

- *Chartered Member*, NIH Bioengineering of Neuroscience, Vision, and Low Vision Technologies (BNVT) Panel *Jul 2018 – Jun 2022*
- *Ad Hoc Member*, NIH Bioengineering of Neuroscience, Vision, and Low Vision Technologies (BNVT) Panel *Feb & Oct 2017*
- NSF Biomedical Engineering Program *Feb 2017*
- NSF Graduate Research Fellowship Program *Jan 2017*
- NSF Neural Systems Program CAREER *Oct 2016*
- NIH Special Emphasis Panel: Enabling Bioanalytical and Imaging Technologies (ZRG1 EBIT-R 09 F) *Oct 2015*
- NIH-National Cancer Institute, Special Emphasis Review Panel Mouse Models-Molecular Mechanisms of Therapy *Jul 2015*
- Maryland Stem Cell Research Foundation *Apr 2014, March 2016, March 2017*

### Memberships

- Society for Neuroscience *2015 - Present*
- Tissue Engineering and Regenerative Medicine International Society (TERMIS) *2014 - 2019*
- Biomedical Engineering Society (BMES) *2010 - Present*
- Society for Biological Engineers (SBE) *2008 - 2010*
- American Institute for Chemical Engineers (AIChE) *2006 - 2011*
- International Society for Stem Cell Research (ISSCR) *2006 - Present*

### Service

- 2017 BMES Advanced Biomanufacturing (ABioM) SIG, Council Member *2017 - 2020*
- 2017 BMES Annual Meeting, Stem Cell Engineering Track, Co-Chair *Oct. 2017*

- 2017 BMES Advanced Biomanufacturing (ABioM) SIG Meeting, Co-Chair *Aug. 2017*
- 11<sup>th</sup> Annual Wisconsin Stem Cell Symposium, Co-Organizer *Apr. 2016*
- 2015 BMES Annual Meeting, ‘Stem Cells in Tissue Engineering’ and ‘Cell Adhesion and Interactions with the Extracellular Matrix II’ Session Chair *Oct. 2015*
- 4<sup>th</sup> TERMIS-WORLD Congress, Co-Chair of ‘Translation Tissues and Materials for Neural Repair’ track (Neural & Spine TWIG) *Sept. 2015*
  - Successfully solicited \$25,000 sponsorship from the Burroughs Wellcome Fund.
- TERMIS-AM Meeting, Student and Young Investigator Section (SYIS) Poster Judge *Dec. 2014*
- BMES Annual Meeting, ‘CNS injury: SCI, TBI and Concussion’ and ‘Directing Stem Cell Differentiation’ Session Chair *Oct. 2014*
- 18<sup>th</sup> Regenerative Medicine Workshop at Hilton Head, Organizing Committee and Workshop Chair *Jan. 2014*
- BMES Annual Meeting, “Cellular Bioengineering” Session Chair *Sept. 2013*
- New Directions in Tissue Engineering & Regenerative Medicine Workshop Lecturer *Jul. 2013*
- Biomaterials & Tissue Engineering Gordon Conference, Poster Session Chair *Aug. 2013*

#### **Reviewer for Journals and Conferences**

- Hilton Head/ Charleston Regenerative Medicine Workshop, Abstract Reviewer *2014- Present*
- TERMIS Annual Conference Abstract Reviewer *2015- 2016*
- Society for Biomaterials Annual Conference Abstract Reviewer *2014 - 2016*
- BMES Cellular and Molecular Bioengineering SIG Reviewer *2014- 2016*
- BMES Annual Conference Abstract Reviewer *2013 - Present*
- ISSCR Annual Conference Abstract Reviewer *2013 - 2018*
- *Ad Hoc* Current Opinions in Biotechnology (IF: 8.035) *2017 - Present*
- *Ad Hoc* ACS Biomaterials Science & Engineering (IF: 3.234) *2017 - Present*
- *Ad Hoc* Reviewer for Cell Stem Cell (IF: 22.387) *2016 - Present*
- *Ad Hoc* Reviewer for Biomaterials (IF: 8.557) *2016 - Present*
- *Ad Hoc* Reviewer for Nature Methods (IF: 27.195) *2015 - Present*
- *Ad Hoc* Reviewer for PLoS Computational Biology (IF: 5.670) *2015 - Present*
- *Ad Hoc* Reviewer for Biotechnology Journal (IF: 3.708) *2014 - Present*
- *Ad Hoc* Reviewer for Advance Functional Materials (IF: 10.342) *2014 - Present*
- *Ad Hoc* Reviewer for Stem Cell Research (IF: 4.76) *2013 - Present*
- *Ad Hoc* Reviewer for Stem Cell Reviews and Reports (IF: 4.453) *2013 - Present*
- *Ad Hoc* Reviewer for Integrative Biology (IF: 4.446) *2011 - Present*



\$6,000 (DC) REU Supplement

“CAREER: Engineering CNS Morphogenesis Ex Vivo: Spinal Cord”

The major goals of this project are to engineer 3-D spinal cord organoids with biomimetic tissue structure, D/V & R/C cytoarchitecture, and neuronal circuitry.

- Center for Cell Manufacturing Technologies, #1648035 10/01/2017 – 09/30/2022  
NSF Engineering Research Center (\$3,500,000 awarded to date) \$540,127; 0.5 Summer  
\$373,809 (DC)  
“Analysis of Cryopreservation’s Effect of Cell Isolates and Manufactured Therapeutic Phenotypes”  
The major goal of this proposal is to determine optimal cryopreservation methods that minimally perturb therapeutic CAR-T and iPSC-CM phenotypes for direct clinical transplantation.
- UG3 (PI–Moore, Co-PI– Ashton, Rajaraman) 10/01/2019 – 9/30/2021  
NIH/NCATS \$498,206 (DC); 1 calendar  
“Human Microphysiological Model of Afferent Nociceptive Signaling”  
The major goal of the proposal is to develop a hPSC-derived model of the synapse between DRG sensory neurons and dorsal horn spinal neurons. My lab is responsible for derivation of dorsal horn spinal cultures containing NK1R<sup>+</sup> neurons.
- R01 Ar077191-01 (PI– Suzuki) 4/01/2020 – 3/31/2025  
NIH/NIAMS \$250,000/yr. (DC); 0.6 acad.  
“Stem Cell-Based Tissue Engineering for Myotendinous Junction Modeling and Repair”  
The major goals of this project are to create iPSC-derived skeletal muscle-tendon units and evaluate their utility as an *in vitro* model to study muscle-tendon formation and to repair muscle-tendon damage in regenerative therapy. Specifically, my lab will provide micropatterned substrates for bioengineering muscle-tendon units.  
Role: Co-I
- UW–Madison Fall Research Competition (PI– Ashton) 1/01/2020 – 12/31/2020  
UW–Madison Graduate School \$45,203 (DC); 0 calendar  
“Evaluating Human Pluripotent Stem Cell-Derived Neural Rosette Arrays as a Neural Tube Defect Risk Screening Platform”  
The major goals of this proposal are to demonstrate (1) forebrain and cervical spinal neural rosette array reproducibility and (2) conduct a small library chemical screen to determine the assay’s predictive efficacy, including sensitivity and specificity.
- Draper Technology Innovation Fund (PI– Ashton) 5/01/2020 – 7/31/2021  
WARF Discovery-2-Product (D2P) \$50,000 (DC); 0 cal.  
“Validating Neural Rosette Arrays as a Neural Tube Defect Risk Screening Platform”  
The major goals of this proposal are to demonstrate (1) lumbosacral spinal neural rosette array reproducibility and (2) conduct a small library chemical screen to determine the assays predictive efficacy, including sensitivity and specificity.
- WARF Accelerator (PI-Ashton) 1/01/2021 – 12/31/2021  
Wisconsin Alumni Research Foundation (WARF) \$130,705 (DC); 0 cal.  
“High-Throughput Human Developmental Neurotoxicity Screening using Neural Rosette Arrays”

The major goals of this proposal are (1) develop a 96-well plate version of the forebrain and cervical spinal neural rosette array, (2) screen a developmental neurotoxicity library for efficacy, and (3) create a start-up and submit a STTR proposal for technology commercialization.

**Pending:**

- R21 HD103111-01 (PI–Ashton, co-I–Iskandar) 4/01/2021 – 6/30/2022  
 NIH/NICHD \$275,000 (DC); 1.5 sum.  
 “Evaluating Human Pluripotent Stem Cell-Derived Neural Rosette Arrays as a Neural Tube Defect Risk Screening Platform”  
 The major goal is to determine whether Neural Rosette Arrays can predict an increase in Neural Tube Defect risk due to environmental (Aim 1) and genetic (Aim 2) factors.
- U01 HG012097 (PIs-Ashton, Roy, Sridharan) 7/01/2021 – 6/30/2026  
 NIH/NHGRI \$6,538,422 (DC); 1 sum.  
 “Assessing the impact of genetic variation on gene regulatory networks in early development”  
 In this application, we combine single cell molecular profiling, *in vitro* model systems and network-based computational methods to uncover generalizable principles of how static genomic variation contributes to regulatory network and phenotypic differences in early human development.

**Completed:**

- Fall Research Competition (PI– Ashton) 7/01/2013 – 6/30/2014  
 UW Madison Graduate School \$57,134 (DC); 0 calendar  
 “Engineering hydrogels for scalable microvasculature production”  
 The major goals of this project were to modify alginate hydrogels to support endothelial cell culture, develop a micro-injection molding procedure to create polyvinyl alcohol sacrificial lattices, and combine the technologies to create vascularized hydrogels.
- Draper Technology Innovation Fund (PI– Ashton) 9/01/2013 – 6/30/2014  
 Wisconsin Alumni Research Foundation \$50,000 (DC); 0 calendar  
 “Delineating morphogen regulation of Hox genes in hPSC-derived hindbrain and spinal neuronal cultures”  
 This was awarded to execute experiments that would provide data to better protect our novel NSC derivation protocol during patenting efforts.
- ICTR Basic Research Awards Program (Co-PI– Mitchell & Ashton) 7/01/2014 – 12/31/2015  
 UW Madison \$50,000 (DC); 0 calendar  
 “Phrenic Motor Neuron Derivation and Transplantation”  
 The major goals of this proposal are to develop the first-ever protocol for deriving phrenic motor neurons from hPSCs and test whether acute intermittent hypoxia treatments will enhance their engraftment upon transplantation.
- RIC Type 1 Award (PI– Saha, Co-I– Ashton, Ansari) 06/01/2015 – 05/30/2016  
 UW-Madison College of Engineering \$44,424 (DC); 0 calendar  
 “Advance Biomanufacturing of Gene-Edited Human Cells”

The major goal of this project was to develop a high-throughput method for performing CRISPR/Cas9 genome editing and cell phenotype selection of human pluripotent stem cells.

- ICTR Novel Methods Award Program (PI– Saha, Co-I– Ashton, Chang) 08/01/2015 – 07/31/2016  
UW-Madison \$10,000 (DC); 0 calendar  
“Probing Neuronal Complexity Deeper and Faster”  
The major goal of this project was to develop and automate, high-throughput method for analyzing neurite morphology within human pluripotent stem cell-derived neuronal cultures.
- 1R21NS082618-01A1 (PI– Ashton, Co-I– Beebe) 8/01/2014 – 05/31/2017  
NIH/NINDS \$348,422; 1.5 calendar  
\$119,406/yr. (DC)  
“High-Throughput Modeling of ALS Using iPSC-derived Neural Tube Microarrays”  
The major goals of this project are to create microfluidic arrays containing 2D morphogenetically patterned hindbrain and spinal cord tissues and use these ‘neural tube microarrays’ to model Amyotrophic Lateral Sclerosis (ALS).
- Innovation Grant (PI-Ashton) 09/01/2016 – 08/30/2018  
UW-Madison Division of Diversity, Equity, & Educational Achievement \$ 9,789.28 (DC)  
“Biomedical Engineering Diversity Outreach Program”  
The goal of this project is to increase STEM outreach amongst underrepresented high school students in Madison and Milwaukee, Wisconsin to increase undergraduate applicants to UW-Madison College of Engineering.
- 1R01GM110567-01A1 (PI– Audhya, Co-I– Ashton, Otegun) 03/01/2015 – 01/31/2019  
NIH/NIGMS \$ 6,174 (DC); 0.45 calendar  
“Regulatory mechanisms that control vesicle secretion at the endoplasmic reticulum”  
The long-term goals of this proposal are to define the molecular mechanisms that regulate the spatial distribution of organelles in the early secretory pathway and to determine the importance of this architecture to normal membrane trafficking during cell growth and development.
- MRSEC Seed Award 04/01/2018 – 03/31/2019  
UW-Madison Material Research Science & Engineering Center \$45,270 (DC)  
“Grafting bioactive, thermoresponsive poly-N-isopropylacrylamide brushes from microcontact printed self-assembled monolayers”  
The major goal is to develop a computational-experimental framework for predicting and validating the thermoresponsive behavior of poly-N-isopropylacrylamide brushes modified with bioactive motifs.
- R42TR001270 Administrative Supplement 9/21/2018 – 6/30/2019  
Co-PI– M Moore and J Curley, **Sub-award PI- RS Ashton** \$100,000 (DC) Total: \$240,000  
NIH/NINDS  
“Peripheral Nerve-on-a-chip for Predictive Preclinical Pharmaceutical Testing”  
In this sub-award, the Ashton lab is responsible for deriving dI4 NK1R<sup>+</sup> nociceptive interneurons from hPSCs that can be incorporated into Axosim’s peripheral nerve model.

- EPA-G2013-STAR-L1 (Project PI– Ashton, Co-I– Saha) 12/01/2014 – 11/30/2018  
EPA Center #83573701, Director– Murphy (\$5,999,999) 1 year NCE to 11/30/2019  
\$1,179,097; 1.0 calendar  
\$794,191 (DC)

“Brain Models for Analysis of Pathways”

The major goal of this proposal is to generate a high-throughput screening platform composed of 3D models of brain tissues to identify environmental toxins that damage midbrain dopaminergic neurons and thereby could potentially cause Parkinsonian symptoms or disease.

- Innovation in Regulatory Science Award (PI– Ashton, Co-I– Saha) 09/01/2014 – 08/31/2019  
#1014150, Burroughs Wellcome Fund 1 year NCE to 8/31/2020  
\$500,000 (DC); 1.5 calendar

“Organoid Microarrays for Pan-Hindbrain and Spinal Cord Screening”

The major goal of this proposal is to develop a standardized and high-throughput screening platform containing an array of 3D hindbrain and spinal cord organoids derived from human pluripotent stem cells for applications in regulatory sciences.

- 4R33NS082618-03 (PI– Ashton, Co-I– Beebe, Zhang) 09/15/2017 – 07/31/2019  
NIH/NINDS 1 year NCE to 07/31/2020  
\$779,184; 2.0 calendar  
\$528,669 (DC)

“High-Throughput Modeling of ALS Using iPSC-derived Neural Tube Microarrays”

The major goals of this project are to create microfluidic arrays containing 2D morphogenetically patterned hindbrain and spinal cord tissues and use these ‘neural tube microarrays’ to model Amyotrophic Lateral Sclerosis (ALS).

**TEACHING:**

**Courses:**

- BME 430, Biological Interactions with Materials 2017 - Present
- BME 520, Stem Cell Bioengineering 2013 - 2016
- BME 200/300, Biomedical Engineering Design 2011- Present
- BME 701, Biomedical Engineering Seminar 2015 - 2016

**Guest Lectures:**

- ANA 675: Molecular & Cellular Organogenesis 2012
- BME 517: Biology in Engineering Seminar 2012, 2016
- BME 510: Introduction to Tissue Engineering 2011-Present

**Workshops:**

- Lecture and lab on “Engineering the Stem Cell-Biomaterial Interface”, December 2013  
Rehabilitative and Regenerative Medicine for Minority Health and Health  
Disparities: Frontiers Advanced Training Course October 2019  
(Howard University, Washington, DC)

- Lectures and lab on “Engineering the Stem Cell-Biomaterial Interface”, International Summer School entitled “From 2D to 3D Medical Solutions” (Vipava, Slovenia) *August 2013*

**Undergraduate Student Advising/Mentoring:**

- Jack Maher, Dept. of Biomedical Engineering *2021 - present*
- Noah Nicol, Dept. of Biomedical Engineering *2018 - 2020*
- Tessa Doersch, Neurobiology, College of Letters & Sciences *2018 - 2020*
- Janavi Kotamarthi, Dept. of Biomedical Engineering *2018 - 2020*
- Jacky Tian, Dept. of Biomedical Engineering *2018 - 2020*
- Simon Schirner, Dept. of Biomedical Engineering *2018 - 2018*
- Ben Knudsen, Dept. of Biomedical Engineering *2017 - 2020*
- Siddhant Jain, Dept. of Biomedical Engineering *2017 - 2018*
- Frank Seipel, Dept. of Biomedical Engineering *2017 - 2019*
- Stephanie Cuskey, College of Letters & Science *2017 - 2019*
  - Wisconsin Hilldale Undergraduate/Faculty Research Fellowship UW Madison *2017 – 2018*  
\$4,000
- Andrew Baldys, Dept. of Biomedical Engineering *2017 - 2018*
- Alexandra Doersch, Dept. of Biomedical Engineering *2017 - 2018*
- Kristen Lemke, Dept. of Chemical and Biological Engineering *2015 - 2017*
- Akshitha Sreeram, Dept. of Neuroscience *2014 - 2017*
  - Wisconsin Hilldale Undergraduate/Faculty Research Fellowship UW Madison *2016 – 2017*  
\$4,000
- Joshua Plantz, Dept. of Biomedical Engineering *2014 - 2016*
- Brady Lundin, Dept. of Biomedical Engineering & Biochemistry *2014 - 2017*
  - Wisconsin Hilldale Undergraduate/Faculty Research Fellowship UW Madison *2016 – 2017*  
\$4,000
- Matthew Walker, Dept. of Biomedical Engineering *2013 - 2013*
- Tyler Klann, Dept. of Biomedical Engineering *2012 - 2013*
- Zeeshan Yacoob, College of Letters & Science *2011 - 2014*
  - Wisconsin Hilldale Undergraduate/Faculty Research Fellowship UW Madison *2013 – 2014*  
\$3,500
  - Undergraduate Certificate of Excellence in Stem Cell Sciences
- Maria Estevez, Dept. of Biomedical Engineering *2011 - 2015*
  - Wisconsin Hilldale Undergraduate/Faculty Research Fellowship UW Madison *2014 – 2015*  
\$4,000

**Graduate Student Advising/Mentoring:**

- Frank Seipel, Dept. of Biomedical Engineering *2019- Present*
- Andrew Baldys (M.S.), Dept. of Biomedical Engineering *2018 - 2020*
- Britney Washington, Dept. of Biomedical Engineering, GERS, & BTP *2018 - Present*

- Lauryn Campagnoli (M.S.), Neuroscience Training Program 2018 - 2021
- Maria Estevez-Silva (M.S.), Dept. of Biomedical Engineering 2015 - 2017
- Brett Napiwoki (Ph.D.), Biomedical Engineering (co-advised by Crone) 2015 - 2019
- Katherine Jeffris (M.S.), Biomedical Engineering 2015 - 2016
- Julio Cesar Diaz, Neuroscience Training Program 2015 - 2016
- Sayeed Alireza AghayeeMeibody, Material Science and Engineering 2015 - Present
- Tyler Klann, (M.S., co-Advisor) Dept. of Biomedical Engineering 2013 - 2014
- Carlos Marti-Figueiroa, (Ph.D.) Dept. of Biomedical Engineering & GERS 2013 - 2020
- Jason McNulty, Dept. of Mechanical Engineering (co-advised by Turng, Ph. D.) 2012 - 2015
- Gavin Knight, Dept. of Biomedical Engineering (Ph.D.) 2012 - 2018
  - SCRMC Fall Conference Poster Winner 2014
  - UW Madison, Gregory F. Daniels Travel Award \$1000
- Jin Sha, Visiting Scholar in Dept. of Mechanical Engineering 2011- 2013

**Postdoctoral Trainee Advising/Mentoring:**

- Gavin Knight 2018 - Present
- Nisha Iyer 2017 - Present
  - SCRMC Postdoctoral Fellowship (Advisor-Ashton) 1/01/2017 – 12/31/2017
  - UW Madison Stem Cell Stem Cell & Regenerative Medicine Center
- Neha Sehgal 2015 - 2016
- Ethan Lippmann 2012 - 2015
  - SCRMC Postdoctoral Fellowship (Advisor-Ashton) 12/01/2012 – 11/30/2013
  - UW Madison Stem Cell Stem Cell & Regenerative Medicine Center
  - 1F32NS083291-01A1 (Co-Advisors– Ashton & Zhang) 12/01/2013 – 11/30/2016
  - NIH/NINDS \$177,135

**Selected Ashton Lab Alumni**

- Jason D. McNulty, PhD, Senior Molding Engineering, 3M
- Ethan Lippmann, Assistant Professor, Vanderbilt University (Tenure-Track)
- Tyler Klann, Dept. of Biomedical Engineering, Duke University (Ph.D. program)
- Jin Sha, Room 515, 17th Experimental Building, School of Mechanical and Power Engineering East China University of Science & Technology, 130 Meilong Road, Shanghai 200237, P. R. China  
Tel:021-64252363 (Research Faculty)

---

**VOLUNTEER SERVICE:**

- Wisconsin Black Engineering Student Society-NSBE Chapter, Faculty Advisor Apr. 2018present
- Madison Area Technical College’s NSF ATE Stem Cell Workshop, Presenter June 22, 2017
- Madison East High School STEAM Week, Presenter May, 19, 2017
- UW–Madison Black Graduate and Professional Student Association, Advisory Board Fall 2016–present

- Biomedical Engineering Department Diversity Outreach Program, Co-Director *2015 - Present*
  - STEM Boot Camp Faculty Mentoring Lunch, Mentor *Aug. 2015*
  - UW-Madison PEOPLE Program, Sponsored Lab Visit *Jul. 2015*
  - UW–Madison Peer Learning Association, Lecture on Academic Careers *Apr. 2015*
  - UW–Madison Admitted Student of Color Engineering Preview Day, Presenter *Apr. 2015/16/17/18*
  - SCRMC Fall Conference @ UW Madison, Poster Judge *Sept. 2014/18*
  - WARF Discovery Challenge @ UW Madison, Poster Judge *May 2014*
  - Verona High School Advanced Biotechnology Class, Guest Lecturer *April 2014*
  - College of Engineering LEEDS Faculty Roundtable *Oct. 2013*
  - 100 BMM’s Madison Youth Congress, Chair *Apr. 2013*
  - Midwest BME Career Conference, Univ. Illinois at Chicago, Panelist *Apr. 2013*
  - Verona High School’s Brothers United, Invited Speaker *Feb. 2013*
  - Martin Luther King Jr. Youth Service Day (Volunteer Presenter)  
sponsored by the Urban League of Greater Madison and the  
Wisconsin Institute for Discovery *Jan. 16, 2013*
  - UW Madison Engineering Summer Program, Guest Speaker *Jun. 2012/13*
  - “Developing Leaders with an Appreciation of STEM” sponsored by the 100  
Black Men of Madison and the Wisconsin Institute for Discovery, Organizer *Apr.May 2012*
  - UW BMES Chapter Spring Banquet, Guest Speaker *May 2012*
  - 100 Black Men of Madison (100 BMM), Member *2012present*
  - UW Madison College of Engineering Diversity Spring Welcome Career Panel *Jan. 31, 2012*
  - Martin Luther King Jr. Youth Service Day (Volunteer Presenter)  
sponsored by the Urban League of Greater Madison and the  
Wisconsin Institute for Discovery *Jan. 16, 2012*
-