

Jason D. Berndt, Ph.D.

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Education

Postdoctoral fellow. Pharmacology & Cell Biology. Univ. of Washington, Seattle, WA. 07/2012.

Ph.D. Neuroscience (Developmental Biology). Univ. of Wisconsin, Madison, WI. 08/2006.

B.A. Psychology (Behavioral Neuroscience). Univ. of Texas, Austin, TX. 05/1998.

Experience

PreCyte, Inc., Seattle, WA

Principal Scientist

11/2019 – present

Senior Scientist

12/2018 – 11/2019

I contribute in a team effort to create a novel cell-based assay to detect blood-based biomarkers of early Alzheimer's disease and lung cancer. My primary function is to interrogate large next generation sequencing datasets and related bioinformatic and clinical information using sophisticated data visualization and machine learning in R. In addition, I spearheaded wet lab process development efforts leading to a 100% increase in yield and reproducibility. I report directly to C-suite executives with whom I interact daily, present analysis reports at weekly group meetings, and am responsible for mentoring junior staff. I participate in strategic decisions related to scientific direction; patents, IP and partnerships; as well as budgets and staffing. Recently, my outstanding performance was recognized leading to a promotion within a year of employment.

Fred Hutchinson Cancer Research Center, Seattle, WA

Staff Scientist

08/2017 – 11/2018

J. A. Cooper lab – Basic Science Division

I performed primary research on the role of protein ubiquitylation in receptor tyrosine kinase signaling involved in breast cancer. I used CRISPR-Cas9 to create over 100 gene edited cell lines. I developed novel biochemical assays to identify protein posttranslational modifications and protein-protein interactions. I used bioinformatics to reveal patterns in proteomic and pharmacogenomic datasets that may be useful for stratifying patient subsets and identifying drug targets.

Howard Hughes Medical Institute & University of Washington, Seattle, WA

Research Specialist II

02/2015 – 08/2017

Acting Instructor

08/2012 – 08/2013

Senior Associate

09/2006 – 07/2012

R. T. Moon lab – Institute for Stem Cell and Regenerative Medicine and Dept. of Pharmacology

I held positions of increasing responsibility in the Moon lab. My postdoctoral work was divided into two phases. First, in collaboration with Merck and other members of the Moon lab I pioneered methods to identify novel drug targets in the Wnt- β -catenin signaling pathway. I performed mass spectrometry-based proteomics and high-throughput siRNA screening, and developed custom computational methods to integrate these data. Second, through primary research and collaboration with academic labs, I conducted follow up studies using biochemistry, molecular biology, and immunological-based methods using both cultured human cells and in vivo animal models of various human diseases. I also had hands on experience in the differentiation and characterization

of gene-edited human embryonic stem cells. Beginning in 2012 my primary role was to coordinate a diverse research program involving human stem cell differentiation, tissue regeneration, cancer, and neurodegeneration. Dr. Moon was unable to be in the office for much of this time due to health concerns and recruited me back from the editor position described below in 2015. I handled project management, recruiting and supervision of seven employees, grant writing and manuscript publication until the lab closed in 2017. My time in the Moon lab produced 19 publications.

American Association for the Advancement of Science, Washington, DC

Associate Editor

09/2013 – 12/2015

At *Science Signaling* I edited primary research and review articles related to cell signaling with an emphasis on systems biology and computational approaches. I managed aggressive weekly publication deadlines while handling ~25 papers at a time and ~six new papers per week. My role was to evaluate manuscripts for scientific impact and rigor and prioritize them for publication. I also was responsible for monitoring research trends in other journals and writing weekly “Editor’s choice” summaries of important scientific discoveries. I authored two longer articles, titled “Breakthroughs of Year”. I managed complex interpersonal and technical relationships between the board of reviewing editors, peer reviewers, and manuscript authors. As part of a team of only five editors, I represented the journal within the organization and at four national conferences.

Professional development

Continuing education

- Data Science Specialization (R programming language). Johns Hopkins University. 10 course certificate program through Coursera.com. completed 09/2018.
- Beginner and Intermediate Python for Data Science. Fred Hutch, Seattle, WA. 04/2017 and 05/2018.
- Targeted Proteomics Workshop (Skyline). University of Washington, Seattle, WA. 07/2016.
- Python Bootcamp. Software Carpentry. University of Washington, Seattle, WA. 02/2013.
- Proteomics Bioinformatics (TPP-SEQUEST). Institute for Systems Biology, Seattle, WA. 05/2008.
- Mass Spectrometry Biotechnology. Thermo-Fisher, Palm Springs, FL. 03/2008.

Teaching

- Guest lecturer, *Drug Discovery and Emerging Therapeutics*. Department of Pharmacology, Graduate Course, University of Washington, Spring 2009.
- Guest lecturer, *Signal Transduction*. Molecular and Cellular Biology Program, Graduate Course, University of Washington, Fall 2008.
- Guest lecturer, *Development of the Nervous System*. Neuroscience Training Program, Graduate Course, University of Wisconsin, Fall 2004.
- Member, *Carnegie Initiative on the Doctorate*. Curriculum development committee. Neuroscience Training Program, University of Wisconsin and Carnegie Foundation for the Advancement of Teaching, Palo Alto, CA, 09/2003 - 01/2006.
- Teaching assistant, *Cellular Neurobiology*. Undergraduate Course, University of Wisconsin, Fall 2003.
- Member, *Show and Tell: Zoology Research Seminar*. Department of Zoology. University of Wisconsin; Organizing committee, 09/2001 – 09/2003; as chair, 09/2003 - 09/2005.

Awards and Honors

- Jaconette L. Tietze Young Scientist Award, University of Washington, \$20,000, 04/2013.
- Travel Award, Society for Developmental Biology and National Science Foundation, 05/2005.
- Graduated *Cum Laude Ampla et Magna*, B.A., University of Texas, 05/1998.

Editorials, Perspectives and Reviews

1. **Berndt JD**, Wong W. 2014: Signaling breakthroughs of the year. *Sci Signal*. 2015 Jan 6; 8(358): eg1.
2. **Berndt JD**, Gough NR. 2013: Signaling breakthroughs of the year. *Sci Signal*. 2014 Jan 7; 7(307): eg1.
3. **Berndt JD**, Moon RT. Making a point with Wnt signals. *Science*. 2013 Mar 22; 339(6126): 1388-1389.
4. **Berndt JD**, Biechele TL, Moon RT, Major MB. Integrative analysis of genome-wide RNA interference screens. *Sci Signal*. 2009 May 12; 2(70): pt4.
5. **Berndt JD**, Moon RT, Major MB. β -catenin gets jaded and von Hippel-Lindau is to blame. *Trends Biochem Sci*. 2009 Mar; 34(3): 101-4.
6. Halloran MC, **Berndt JD**. Current progress in neural crest cell motility and migration and future prospects for the zebrafish model system. *Dev Dyn*. 2003 Nov; 228(3): 497-513.

Primary research publications

1. Rabinowitz JS, Robitaille AM, Wang Y, Ray CA, Thummel R, Gu H, Djukovic D, Raferty D, **Berndt JD**, and Moon RT. Transcriptomic, proteomic, and metabolomic landscape of positional memory in the caudal fin of zebrafish. *Proc Natl Acad Sci U S A*. 2017 Jan 31; 114(5): E717-E726.
2. Xu Z, Robitaille AM, **Berndt JD**, Davidson KC, Fischer KA, Mathieu J, Potter JC, Ruohola-Baker H, Moon RT. Wnt/ β -catenin signaling promotes self-renewal and inhibits the primed state transition in naive human embryonic stem cells. *Proc Natl Acad Sci U S A*. 2016 Oct 18; 113(42): E6382-E6390.
3. Strand NS, Hoi KK, Phan TM, Ray CA, **Berndt JD**, Moon RT. Wnt/ β -catenin signaling promotes regeneration after adult zebrafish spinal cord injury. *Biochem Biophys Res Commun*. 2016 Sep 2; 477(4): 952-956.
4. Madan B, Walker MP, Young R, Quick L, Orgel KA, Ryan M, Gupta P, Henrich IC, Ferrer M, Marine S, Roberts BS, Arthur WT, **Berndt JD**, Oliveira AM, Moon RT, Virshup DM, Chou MM, Major MB. USP6 oncogene promotes Wnt signaling by deubiquitylating Frizzleds. *Proc Natl Acad Sci U S A*. 2016 May 24; 113(21): E2945-E2954.
5. Forero A, Tisoncik-Go J, Watanabe T, Zhong G, Hatta M, Tchitchek N, Selinger C, Chang J, Barker K, Morrison J, **Berndt JD**, Moon RT, Josset L, Kawaoka Y, Katze MG. The 1918 Influenza Virus PB2 Protein Enhances Virulence through the Disruption of Inflammatory and Wnt-Mediated Signaling in Mice. *J Virol*. 2015 Dec 9; 90(5): 2240-2253.
6. Robin NC, Agoston Z, Biechele TL, James RG, **Berndt JD**, Moon RT. Simvastatin Promotes Adult Hippocampal Neurogenesis by Enhancing Wnt/ β -Catenin Signaling. *Stem Cell Reports*. 2013 Dec 26; 2(1): 9-17.
7. James RG, Bosch KA, Kulikaukas RM, Yang PT, Robin NC, Toroni RA, Biechele TL, **Berndt JD**, von

- Haller PD, Eng JK, Wolf-Yadlin A, Chien AJ, Moon RT. Protein kinase PKN1 represses Wnt/ β -catenin signaling in human melanoma cells. *J Biol Chem*. 2013 Nov 29; 288(48): 34658-34670.
8. Korvatska O, Strand NS, **Berndt JD**, Strovast T, Chen DH, Leverenz JB, Kiianitsa K, Mata IF, Karakoc E, Greenup JL, Bonkowski E, Chuang J, Moon RT, Eichler EE, Nickerson DA, Zabetian CP, Kraemer BC, Bird TD, Raskind WH. Altered splicing of ATP6AP2 causes X-linked parkinsonism with spasticity (XPDS). *Hum Mol Genet*. 2013 Aug 15; 22(16): 3259-3268.
 9. Conrad W, Major MB, Cleary MA, Ferrer M, Roberts B, Marine S, Chung N, Arthur WT, Moon RT, **Berndt JD**, Chien AJ. FAM129B is a novel regulator of Wnt/ β -catenin signal transduction in melanoma cells. *F1000Res*. 2013 May 31; 2:134.
 10. Hubert CG, Bradley RK, Ding Y, Toledo CM, Herman J, Skutt-Kakaria K, Girard EJ, Davison J, **Berndt J**, Corrin P, Hardcastle J, Basom R, Delrow JJ, Webb T, Pollard SM, Lee J, Olson JM, Paddison PJ. Genome-wide RNAi screens in human brain tumor isolates reveal a novel viability requirement for PHF5A. *Genes Dev*. 2013 May 1; 27(9): 1032-1045.
 11. Davidson KC, Adams AM, Goodson JM, McDonald CE, Potter JC, **Berndt JD**, Biechele TL, Taylor RJ, Moon RT. Wnt/ β -catenin signaling promotes differentiation, not self-renewal, of human embryonic stem cells and is repressed by Oct4. *Proc Natl Acad Sci U S A*. 2012 Mar 20; 109(12): 4485-4490.
 12. **Berndt JD**, Aoyagi A, Yang P, Anastas JN, Tang L, Moon RT. Mindbomb 1, an E3 ubiquitin ligase, forms a complex with RYK to activate Wnt/ β -catenin signaling. *J Cell Biol*. 2011 Sep 5; 194(5): 737-750.
 13. Klinghoffer RA, Frazier J, Annis J, **Berndt JD**, Roberts BS, Arthur WT, Lacson R, Zhang XD, Ferrer M, Moon RT, Cleary MA. A lentivirus-mediated genetic screen identifies dihydrofolate reductase (DHFR) as a modulator of β -catenin/GSK3 signaling. *PLoS One*. 2009 Sep 3; 4(9): e6892.
 14. **Berndt JD**, Clay MR, Langenberg T, Halloran MC. Rho-kinase and myosin II affect dynamic neural crest cell behaviors during epithelial to mesenchymal transition in vivo. *Dev Biol*. 2008 Dec 15; 324(2): 236-244.
 15. Major MB, Roberts BS, **Berndt JD**, Marine S, Anastas J, Chung N, Ferrer M, Yi X, Stoick-Cooper CL, von Haller PD, Kategaya L, Chien A, Angers S, MacCoss M, Cleary MA, Arthur WT, Moon RT. New regulators of Wnt/ β -catenin signaling revealed by integrative molecular screening. *Sci Signal*. 2008 Nov 11; 1(45): ra12.
 16. Xing Y, Takemaru K, Liu J, **Berndt JD**, Zheng JJ, Moon RT, Xu W. Crystal structure of a full-length β -catenin. *Structure*. 2008 Mar; 16(3): 478-487.
 17. Major MB, Camp ND, **Berndt JD**, Yi X, Goldenberg SJ, Hubbert C, Biechele TL, Gingras AC, Zheng N, MacCoss MJ, Angers S, Moon RT. Wilms tumor suppressor WTX negatively regulates WNT/ β -catenin signaling. *Science*. 2007 May 18; 316(5827): 1043-1046.
 18. **Berndt JD**, Halloran MC. Semaphorin 3d promotes cell proliferation and neural crest cell development downstream of TCF in the zebrafish hindbrain. *Development*. 2006 Oct; 133(20): 3983-3992.
 19. Liu Y, **Berndt J**, Su F, Tawarayama H, Shoji W, Kuwada JY, Halloran MC. Semaphorin3D guides retinal axons along the dorsoventral axis of the tectum. *J Neurosci*. 2004 Jan 14; 24(2): 310-8.
 20. Villarreal JS, Gonzalez-Lima F, **Berndt J**, Barea-Rodriguez EJ. Water maze training in aged rats:

effects on brain metabolic capacity and behavior. *Brain Res.* 2002 Jun 7; 939(1-2): 43-51.

21. Valla J, Chen K, **Berndt JD**, Gonzalez-Lima F, Cherry SR, Games D, Reiman EM. Effects of image resolution on autoradiographic measurements of posterior cingulate activity in PDAPP mice: implications for functional brain imaging studies of transgenic mouse models of Alzheimer's Disease. *Neuroimage.* 2002 May; 16(1): 1-6.
22. Gonzalez-Lima F, **Berndt JD**, Valla JE, Games D, Reiman EM. Reduced corpus callosum, fornix and hippocampus in PDAPP transgenic mouse model of Alzheimer's disease. *Neuroreport.* 2001 Aug 8; 12(11): 2375-2379.
23. Valla J, **Berndt JD**, Gonzalez-Lima F. Energy hypometabolism in posterior cingulate cortex of Alzheimer's patients: superficial laminar cytochrome oxidase associated with disease duration. *J Neurosci.* 2001 Jul 1; 21(13): 4923-4930.
24. Nair HP, **Berndt JD**, Barrett D, Gonzalez-Lima F. Maturation of extinction behavior in infant rats: large-scale regional interactions with medial prefrontal cortex, orbitofrontal cortex, and anterior cingulate cortex. *J Neurosci.* 2001 Jun 15; 21(12): 4400-4407.
25. Nair HP, **Berndt JD**, Barrett D, Gonzalez-Lima F. Metabolic mapping of brain regions associated with behavioral extinction in preweanling rats. *Brain Res.* 2001 Jun 8; 903(1-2): 141-153.
26. **Berndt JD**, Callaway NL, Gonzalez-Lima F. Effects of chronic sodium azide on brain and muscle cytochrome oxidase activity: a potential model to investigate environmental contributions to neurodegenerative diseases. *J Toxicol Environ Health A.* 2001 May 11; 63(1): 67-77.
27. Reiman EM, Uecker A, Gonzalez-Lima F, Minear D, Chen K, Callaway NL, **Berndt JD**, Games D. Tracking Alzheimer's disease in transgenic mice using fluorodeoxyglucose autoradiography. *Neuroreport.* 2000 Apr 7; 11(5): 987-991.