

ERIK D. HERZOG

Department of Biology, Washington University, St. Louis, MO 63130
 (314)935-8635 herzog@wustl.edu

EDUCATION

1989-1994 Syracuse University, Institute for Sensory Research
 Ph.D. in Neuroscience with Robert Barlow
 Thesis: "Vision in *Limulus*: From optics to neurons to behavior"

1984-1987 Duke University
 BA in Biology & BA in Spanish, *cum laude*, with distinction in Biology
 Thesis: "Physiology & sequence of a novel pheromone in crabs" with Daniel Rittschof

RESEARCH EXPERIENCE

2012- Professor, Washington Univ, Dept of Neuroscience
 2011- Professor, Washington Univ, Dept of Biology
 2006-2011 Associate Professor, Washington Univ, Dept of Biology
 2000-2006 Assistant Professor, Washington Univ, Dept of Biology
 1998-2000 Research Assistant Professor, Univ of Virginia, Dept of Biology
 1994-1998 Postdoc, Univ of Virginia, NSF Center for Biological Timing, with Dr. Gene Block
 1995 National Undersea Research Center, Aquarius Underwater Habitat, with Dr. Tom Cronin
 1989-1994 Graduate Assistant, Syracuse Univ, Institute for Sensory Research, with Dr. Bob Barlow
 1993 Alvin submersible TAG cruise, Syracuse Univ and WHOI, with Dr. Steven Chamberlain
 1988-1989 Research diver, Trout Lake Research Station, Univ. of Wisconsin, with Dr. Tom Frost
 1987-1988 Research diver, McMurdo Base, Antarctica, Scripps Institute, with Dr. Ted DeLaca
 1986-1987 Undergraduate, Duke Univ Marine Lab, with Drs. Daniel Rittschof and Richard Forward

HONORS AND AWARDS

2015 James E. McLeod Faculty Teaching Award, ArtSci Council, WU
 2015 Bauer Lecturer, Brandeis University
 2014 Excellence in Advising and Mentoring Award, WU Arts and Sciences Council
 2012 Visiting Scholar, Bernstein Center for Computational Neuroscience, Berlin, Germany
 2011 Honorable Mention for Faculty Mentor of the Year, WU Office of Undergrad Research
 2010 Outstanding Faculty Mentor Award, Washington U. Postdoctoral Society
 2010 Special Recognition Mentor Award, Washington U. Graduate Student Senate
 2008 Outstanding Faculty Mentor Award, Washington U. Graduate Student Senate
 2007 Visiting Fellow, Japanese Society for the Promotion of Science
 1998 – 2000 NIH Shannon Award
 1993 Outstanding Teaching Assistant Award, Syracuse University
 1988 CALS Scholarship for first place in scientific writing competition, U of Wisconsin
 1987 Graduation *cum laude*, with distinction, Duke University

TEACHING EXPERIENCE

Course master, Washington University
 Neurophysiology lab (Bio404)-fall 2000-16
 Biological Clocks (Bio4031)-alternate springs
 Independent study (Bio200/500)-year round
 Neuroscience & Behavior (Bio5926)-summers
 Co-instructor/guest lecturer, Washington University
 Freshman Seminar in Biology (Bio181)—fall
 Freshman Seminar in Imaging (Bio1810)--fall
 Biomed Eng Design (BME431)--fall 2001-3
 Neuroethology (Bio3421)—alternate spring
 Cellular Neurobiology (Bio5571)—fall

Neural Systems (Bio5651)—spring
 Bio & Pathology Vision (Bio5501)—alternate fall
 Ethics (Bio5011)—spring 2007 & 2014
 Developmental Bio Rave (Bio5215)—spring 2001-5
 Entering Mentoring (Bio5922)—fall 2010
 Math & Stats of Exp Neurosci (Bio5691)—twice
 CCSN Project Building (Bio5622)—spring
 European Union Clocks Course—1-week graduate course held in Tallin, Estonia, 2008
 SERB School of Chronobiology—1 week graduate course held in Shillong, India, 2012
 European Chronobiology School—1 week graduate course held in Berlin, Germany 2012
 International Chronobiology School—1 week graduate course held in Nashville, USA 2013
 International Chronobiology School—1 week graduate course held in Sapporo, Japan 2014

CURRENT RESEARCH GRANTS

NIH U01 EB021956-01	Herzog, Henson & Kevrekidis (co-PIs)	04/01/16-03/31/21
Multiscale modeling of the mammalian circadian clock: The role of GABA signaling		
NIH 1R01NS095367-01	Herzog & Herzel (co-PIs)	06/01/15-05/31/18
CRCNS: The balance between robustness and sensitivity in circadian synchrony		
NIH 1R01 GM104991	Herzog & Nerbonne (Co-PIs)	01/01/13-12/31/16
Neuronal Excitability in the Regulation of Circadian Rhythms		
March of Dimes	Herzog, England, Jungheim and Fay (Co-PIs)	11/1/14-10/31/19
Center for Prematurity Research at Washington University: Chronodisruption and pre-term birth.		
Keck Foundation NAFKI CB2	Herzog, Bloch & Li (Co-PIs)	05/01/15-06/30/17
Collective behavior of oscillators: From Cells to Societies		

CURRENT TEACHING AND OUTREACH GRANTS

NIH R13NS096777-01 The Society for Research on Biological Rhythms Conference, Herzog (PI), 2016-17.
NIH R25NS090985-01 BP-ENDURE St. Louis: A Neuroscience Pipeline, Herzog (PI), 2015-20.
Society for Neuroscience Chapter Annual Grants, Herzog (PI), 2009-present.
St. Louis Area Brain Bee, supported annually by funds from 5 organizations, Herzog (PI), 2011-present.
Dana Alliance Lending Libraries, Herzog (PI), 2007-present
HHMI grant to renovate Neurophysiology lab course, Elgin (PI), 2003-present.

SELECTED RECENT PROFESSIONAL ACTIVITIES

President elect, Society for Research on Biological Rhythms (2016-18, President 2018-20)
 Director, [NINDS BP-ENDURE: St. Louis Neuroscience Pipeline](#) (2015-)
 Co-Director, [Neuroscience Graduate Program](#), Washington University (2012-2017)
 Associate Chair, [Department of Biology](#), Washington University (2009-)
 Chair, WU Biology Curriculum Implementation Committee (2010-)
 Vice-Chair, New Investigator Awards Review Committee, WU (2014-2016)
 Member, Arts and Sciences Academic Planning Committee, WU (2012-)
 Member, Standing Committee on Facilitating Inclusive Classrooms, WU (2015-)
 Member, McDonnell Center for Cellular and Molecular Neuroscience, Grant Review Panel (2015-)
 Member, McDonnell Centers, Postdoctoral Grants Review Panel, WU (2015-)
 Member, BRS NIH Study Section (2008-2011), NDPR NIH Study Section (2011-2012; 2016-temporary member)
 Member, NIH Sleep Disorders Research Advisory Board (2016-)
 Fundraising Chair, Society for Research on Biological Rhythms (2014-2016)
 Program Chair, Society for Research on Biological Rhythms (2012-2014)
 Director, Chronobiology Summer School (2013)
 Faculty Fellow, Washington University Institute for School Partnerships (2011-)

Member, Neuroscience Program Steering Committee, Washington University (2008-)
 Chapter Representative, St. Louis Chapter, Society for Neuroscience (2007-2016)
 Director, Low Light Imaging Core Facility, Washington University (2007-)
 Executive Advisory Committee, Philosophy-Neuroscience-Psychology program, Washington Univ (2010-)
 Executive Advisory Board, CCSN Pathway, Washington Univ Graduate School (2007-)
 Chair, Neuroscience Outreach, Washington Univ (2006-)
 Executive Advisory Board, Young Scientist Program (2004-)
 Elected member, AAAS Electorate Nominating Committee, Neuroscience Section (2009-2012)
 Member, DBBS Evaluation Committee (2009-2011)
 Executive Advisory Board, Society for Research on Biological Rhythms (2008-2011)
 University Representative, Midstates Science and Math Consortium (2007-2012)
 Coordinator, Clocks Journal Club (2000-)

EDITORIAL BOARDS

Journal of Biological Rhythms (2004-)
 Neurobiology of Sleep and Circadian Rhythms (2015-)

PUBLICATIONS IN REFEREED JOURNALS Undergraduate authors *equal contribution

1. Abel JH*, Meeker K*, Granados-Fuentes D*, St John PC, Wang TJ, Bales BB, Doyle FJ 3rd, Herzog ED, Petzold LR (2016) Functional network inference of the suprachiasmatic nucleus. *PNAS* 113:4512-7.
2. Hermanstynne TO, Simms CL, Carrasquillo Y, Herzog ED, and Nerbonne JM (2016) Distinct firing properties of vasoactive intestinal polypeptide-expressing neurons in the suprachiasmatic nucleus. *J Biol Rhythms* 31: 57-67. PMC in progress.
3. Herzog ED, Kiss IZ, Mazuski C. (2015) Measuring synchrony in the mammalian central circadian circuit. *Methods Enzymol.* 552:3-22.
4. Mazuski C and Herzog ED (2015) Circadian rhythms: To sync or not to sync. *Curr Bio* 25: 337-9. PMC in progress.
5. Granados-Fuentes D, Hermanstynne TO, Carrasquillo Y, Nerbonne JM and Herzog ED (2015) IA channels encoded by Kv1.4 and Kv4.2 regulate circadian period of PER2 expression in the suprachiasmatic nucleus. *J Biol Rhythms.* 30:396-407. PMC in progress.
6. Pourzanjani A, Herzog ED, Petzold LR (2015) On the Inference of Functional Circadian Networks Using Granger Causality. *PLoS One.* 10:e0137540. PMC4586144.
7. Tso MC, Herzog ED (2015) Was Cajal right about sleep? *BMC Biol.* 13:67. PMC4548903.
8. Leone MJ, Beaulieu C, Marpegan L, Simon T, Herzog ED, and Golombek DA (2015) Glial and light-dependent glutamate metabolism in the suprachiasmatic nuclei. *Chronobio Int* 23: 573-78. PMC in progress.
9. Kunst M, Tso MC, Ghosh DD, Herzog ED, Nitabach MN (2014) Rhythmic control of activity and sleep by class B1 GPCRs. *Crit Rev Biochem Mol Biol.* 2014 Nov 20:1-13. PMC 25410535
10. Miller JE*, Granados-Fuentes D*, Wang T, Marpegan L, Holy TE, Herzog ED (2014). Vasoactive intestinal polypeptide mediates circadian rhythms in mammalian olfactory bulb and olfaction. *J Neurosci.* 34:6040-6. PMC3996221.
11. Bedont JL, Legates TA, Slat EA, Byerly MS, Wang H, Hu J, Rupp AC, Qian J, Wong GW, Herzog ED, Hattar S, and Blackshaw S (2014) Lhx1 controls terminal differentiation and circadian function of the suprachiasmatic nucleus. *Cell Rep* 7:609-22. PMC 24767996.
12. Ananthasubramaniam B, Herzog ED, Herzog H (2014) Timing of neuropeptide coupling determines synchrony and entrainment in the mammalian circadian clock. *PLoS Comput Biol.* 10:e1003565. PMC 3990482.
13. An S, Harang R, Meeker K, Granados-Fuentes D, Tsai CA, Mazuski C, Kim J, Doyle FJ 3rd, Petzold LR, Herzog ED (2013) A neuropeptide speeds circadian entrainment by reducing intercellular synchrony. *Proc Natl Acad Sci U S A.* 110:E4355-61. PMC 3832006.
14. Musiek ES, Lim MM, Yang G, Bauer AQ, Qi L, Roh JH, Ortiz-Gonzalez X, Culver JP, Herzog ED, Hogenesch JB, Dikranian K, Giasson BI, Weaver DR, Holtzman DM, and FitzGerald GA (2013) Impairment of the positive limb of the core circadian clock disrupts neuronal redox homeostasis and promotes neurodegeneration. *J Clinical Investigation.* 123:5389-400. PMC 3859381.
15. Slat E, Freeman GM Jr, Herzog ED. (2013) The clock in the brain: neurons, glia, and networks in daily rhythms. *Handb Exp Pharmacol.* 217:105-23.

16. Freeman, GM, Jr, Krock RM, Aton SJ, Thaben P, and Herzog ED (2013) GABA networks destabilize genetic oscillations in the circadian pacemaker. *Neuron* 78: 799-806. PMC 3683151.
17. Freeman GM Jr, Nakajima M, Ueda HR, Herzog ED (2013) Picrotoxin dramatically speeds the mammalian circadian clock independent of Cys-loop receptors. *J Neurophysiol.* 110: 103-8. PMC3727043.
18. Satoh A, Brace CS, Rensing N, Cliften P, Wozniak DF, Herzog ED, Yamada KA, Imai S (2013) Sirt1 Extends Life Span and Delays Aging in Mice through the Regulation of Nk2 Homeobox 1 in the DMH and LH. *Cell Metab.* 18:416-30. PMC3794712.
19. Granados-Fuentes D, Herzog ED (2013) The clock shop: coupled circadian oscillators. *Exp Neurol.* 243:21-7. PMC3568450.
20. Bloch G, Herzog ED, Levine JD, Schwartz WJ. (2013) Socially synchronized circadian oscillators. *Proc Biol Sci.* 280:20130035. PMC3712435.
21. Kronfeld-Schor N, Dominoni D, de la Iglesia H, Levy O, Herzog ED, Dayan T, Helfrich-Forster C. (2013) Chronobiology by moonlight. *Proc Biol Sci.* 280:20123088. PMC3712431.
22. Heldermon C, E. Qin, K. Ohlemiller, E.D. Herzog, J. Brown, C. Vogler, W. Hou, J. Orrock, B. Crawford, and M. Sands (2013) Disease correction by combined neonatal intracranial AAV and systemic lentiviral gene therapy in Sanfilippo Syndrome type B mice. *Gene Therapy* March 28. PMC3701029
23. Granados-Fuentes D*, Norris AJ*, Carrasquillo Y, Nerbonne JM, Herzog ED (2012) I(A) channels encoded by Kv1.4 and Kv4.2 regulate neuronal firing in the suprachiasmatic nucleus and circadian rhythms in locomotor activity. *J Neurosci.* 32:10045-52. PMC375207
24. Webb AB, Taylor SR, Thoroughman KA, Doyle FJ 3rd, Herzog ED (2012) Weakly circadian cells improve resynchrony. *PLoS Comput Biol* 8:e1002787. PMC3510091
25. An S*, Tsai CA*, Ronecker J, Bayly A and Herzog ED (2012) Spatiotemporal distribution of vasoactive intestinal polypeptide receptor 2 in mouse suprachiasmatic nucleus. *J Comp Neurol.* 520:2730-41. PMC 3961765.
26. C.D. Chiang*, C.L. Lewis*, M.D. E. Wright*, S. Agapova, B. Akers, T.D. Azad, K. Banerjee, P. Carrera, A. Chen, J. Chen, X. Chi, J. Chiou, J. Cooper, M. Czurylo, C. Downs, S.Y. Ebstein, P.G. Fahey, J.W. Goldman, A. Grieff, S. Hsiung, R. Hu, Y. Huang, A. Kapuria, K. Li, I. Marcu, S.H. Moore, A.C. Moseley, N. Nauman, K.M. Ness, D.M. Ngai, A. Panzer, P. Peters, E.Y. Qin, S. Sadhu, A. Sariol, A. Schellhase, M.B. Schoer, M. Steinberg, G. Surick, C.A. Tsai, K. Underwood, A. Wang, M.H. Wang, V.M. Wang, D. Westrich, L.J. Yockey, L. Zhang, and E.D. Herzog (2012) Learning chronobiology by improving Wikipedia. *J Biol Rhythms* 27: 333-6.
27. Webb AB, Fetsch CR, Israel E, Roman CM, Encarnación CH, Zacks JM, Thoroughman KA and Herzog ED (2012) Training scientists in a science center improves science communication to the public. *Advances in Physiology Education* 36: 72-6.
28. Granados-Fuentes D, Ben-Josef G, Perry G, Wilson DA, Sullivan-Wilson A, and Herzog ED (2011) Daily rhythms in olfactory discrimination depend on clock genes, but not the suprachiasmatic nucleus. *J Biol Rhythms* 26: 552-60. PMC3658462
29. Schroder S, Herzog ED and Kiss IZ (2012) Transcription-based oscillator model for light induced splitting as anti-phase circadian gene expression in the suprachiasmatic nuclei. *J Bio Rhythms* 27: 79-90.
30. An S, Irwin RP, Allen CN, Tsai CA, Herzog ED (2011) Vasoactive intestinal polypeptide requires parallel changes in adenylate cyclase and phospholipase C to entrain circadian rhythms to a predictable phase. *J Neurophysiol.* 105: 2289-96. PMC3094187
31. Freeman GM Jr, Herzog ED (2011) Neuropeptides go the distance for circadian synchrony. *Proc Natl Acad Sci U S A.* 108:13883-4. PMC3161583
32. Beaulé C, Granados-Fuentes D, Marpegan L, Herzog ED (2011) In vitro circadian rhythms: imaging and electrophysiology. *Essays Biochem.* 49:103-17. PMC3677547
33. Tinkum KL, Marpegan L, White LS, Sun J, Herzog ED, Piwnica-Worms D, Piwnica-Worms H. (2011) Bioluminescence Imaging Captures the Expression and Dynamics of Endogenous p21 Promoter Activity in Living Mice and Intact Cells. *Mol Cell Biol.* 31:3759-72. PMC3165732
34. Meeker K, Harang R, Webb AB, Welsh DK, Doyle FJ 3rd, Bonnet G, Herzog ED, Petzold LR (2011) Wavelet measurement suggests cause of period instability in mammalian circadian neurons. *J Biol Rhythms.* 26:353-62.
35. Vasalou C, Herzog ED, Henson MA (2011) Multicellular model for intercellular synchronization in circadian neural networks. *Biophys J.* 101:12-20. PMC3127187
36. **Marpegan L, Swanstrom AE, Chung K, Simon T, Haydon PG, Khan SK, Liu AC, Herzog ED, Beaulé C (2011) Circadian regulation of ATP release in astrocytes. *J Neurosci.* 31:8342-50. PMC3135876. **featured on the Cover and in "This week in the journal" by the editors of J Neurosci.

37. Hogenesch JB, Herzog ED (2011) Intracellular and intercellular processes determine robustness of the circadian clock. *FEBS Lett.* 2011 May 20;585(10):1427-34. PMC3117285.
38. Satoh A, Brace CS, Ben-Josef G, West T, Wozniak DF, Holtzman DM, Herzog ED and Imai S (2010) SIRT1 promotes the central adaptive response to diet restriction through activation of the dorsomedial and lateral nuclei of the hypothalamus. *J Neurosci.* 30:10220-32. PMC2922851
39. Heldermon CD, Ohlemiller KK, Herzog ED, Vogler C, Qin E, Wozniak DF, Tan Y, Orrock JL, Sands MS (2010) Therapeutic efficacy of bone marrow transplant, intracranial AAV-mediated gene therapy, or both in the mouse model of MPS IIIB. *Mol Therapy* 18:873-80. PMC2890104.
40. Ratajczak CK, Herzog ED, and Muglia LJ (2010) Clock Gene Expression in Gravid Uterus and Extra-Embryonic Tissues During Late Gestation in the Mouse. *Reprod, Fertility, and Development* 22:743-50. PMC20450826.
41. *Webb AB, Angelo N, Huettner JE and Herzog ED (2009) Intrinsic, non-deterministic circadian rhythm generation in identified mammalian neuron. *Proc Nat Acad Sci.* 106:16493-8. *Recommended reading by Faculty of 1000. PMC2752526.
42. *Keller M, Mazuch J, Abraham U, Eom GD, Herzog ED, Volk HD, Kramer A, Maier B. (2009) A circadian clock in macrophages controls inflammatory immune responses. *Proc Nat Acad Sci.* 106:21407-12. *Recommended reading by Faculty of 1000. PMC2795539
43. Beaulé C, Swanstrom A, Leone MJ, Herzog ED (2009) Circadian modulation of gene expression, but not glutamate uptake, in mouse and rat cortical astrocytes" *PLoS One.* 4:e7476. PMC2758999.
44. Vasalou C, Herzog ED and Henson MA (2009) Small world network models of intercellular coupling predict enhanced synchronization in the suprachiasmatic nucleus. *J Biol Rhythm* 24: 243-54. PMC2819153.
45. **Marpegan L, Krall TJ and Herzog ED (2009) Vasoactive intestinal polypeptide entrains circadian rhythms in astrocytes. *J Biol Rhythm* 24:135-43. **Recommended reading by Faculty of 1000. PMC2679954.
46. Freeman GM Jr, Webb AB, An S, Herzog ED (2008) For whom the bells toll: Networked circadian clocks. *Sleep and Biological Rhythms* 6: 67–75.
47. Herzog ED (2007) Neurons and networks in daily rhythms. *Nature Reviews Neurosci.* 8:790-802.
48. Roizen J, Luedke CE, Herzog ED, Muglia LJ (2007) Oxytocin in the circadian timing of birth.*PLoS ONE* 2:e922. PMC1976559.
49. Kozlov SV, Bogenpohl JW, Howell MP, Wevrick R, Panda S, Hogenesch JB, Muglia LJ, Van Gelder RN, Herzog ED, Stewart CL (2007) The imprinted gene *Magel2* regulates normal circadian output. *Nature Genetics* 39:1266-72.
50. Heldermon CD, Hennig AK, Ohlemiller KK, Ogilvie JM, Herzog ED, Breidenbach A, Vogler C, Wozniak DF, and Sands MS. Development of sensory, motor and behavioral deficits in the murine model of Sanfilippo syndrome type B. *PLoS. ONE.* 2:e772, 2007. PMC1945015.
51. To TL, Henson MA, Herzog ED, Doyle FJ 3rd (2007) A molecular model for intercellular synchronization in the Mammalian circadian clock. *Biophys J.* 92:3792-803. PMC1868999.
52. Gross S, Abraham U, Prior JL, Herzog ED, Piwnica-Worms D (2007) Continuous Delivery of D-Luciferin by Implanted Micro-osmotic Pumps Enables True Real-Time Bioluminescence Imaging of Luciferase Activity In Vivo. *Mol Imaging* 6:121-30.
53. Indic P, Schwartz WJ, Herzog ED, Foley NC, Antle MC (2007) Modeling the behavior of coupled cellular circadian oscillators in the suprachiasmatic nucleus *J Biol Rhythms* 22:211-9.
54. Saxena MT, Aton SJ, Hildebolt C, Prior JL, Abraham U, Piwnica-Worms D, Herzog ED (2007) Bioluminescence imaging of period1 gene expression in utero. *Mol Imaging* 6:68-72.
55. Aton SJ, Huettner JE, Straume M and Herzog ED (2006) GABA and $G_{i/o}$ differentially control circadian rhythms and synchrony in clock neurons. *Proc Nat Acad Sci.* 103:19188-93. PMC1748197.
56. Granados-Fuentes D, Tseng A and Herzog ED (2006) A circadian clock in the olfactory bulb controls olfactory responsivity. *J Neurosci.* 26(47):12219-25.
57. Herzog ED and Muglia LJ (2006) You are when you eat. *Nat Neurosci.* 9:300-2. *Invited News & Views.*
58. Aton SJ and ED Herzog (2005) Come together, right now: Synchronization of rhythms in the brain's circadian clock. *Neuron* 48: 531-534. *Invited review.*
59. Abraham U, Prior JL, Granados-Fuentes D, Piwinica-Worms DR and Herzog ED (2005) Independent circadian oscillations of Period1 in specific brain areas in vivo and in vitro. *J Neurosci.* 25:8620-6.
60. Aton SJ, Colwell CS, Harmar AJ, Waschek J and Herzog ED (2005) Vasoactive intestinal polypeptide mediates circadian rhythmicity and synchrony in distinct subsets of mammalian clock neurons. *Nature Neurosci* 8:476-83.

61. *Prolo LM, Takahashi JS, and Herzog ED (2005) Circadian rhythm generation and entrainment in astrocytes. *J Neurosci*. 25:404-8. *Recommended reading by Faculty of 1000; featured in “This week in the journal” by the editors of *J Neurosci*.
62. Hastings MH and ED Herzog (2004) Clock genes, oscillators, and cellular networks in the suprachiasmatic nuclei. *J Biol Rhythms* 19: 400-413. *Invited review*.
63. Aton, SJ, GD Block, H Tei, S Yamazaki, and ED Herzog (2004) Plasticity of circadian behavior and the suprachiasmatic nucleus following exposure to non-24 hour light cycles. *J Biol Rhythms* 19:198-207.
64. Granados-Fuentes, D, MT Saxena, LM Prolo, SJ Aton and ED Herzog (2004) Olfactory bulb neurons express functional, entrainable circadian rhythms. *Eur J Neurosci* 19: 898-906.
65. Granados-Fuentes, D, LM Prolo, U Abraham and ED Herzog (2004) The suprachiasmatic nucleus entrains, but does not sustain, circadian rhythmicity in the olfactory bulb. *J Neurosci*. 24: 615-9.
66. Herzog, ED, SJ Aton, R Numano, Y Sakaki and H Tei (2004) Temporal precision in the mammalian circadian system: A reliable clock from less reliable neurons. *J Biol. Rhythms* 19: 35-46.
67. Van Gelder, RN, ED Herzog (2003) Oscillatory mechanisms underlying the murine circadian clock. *Science* STKE. 209:tr7 (http://stke.sciencemag.org/cgi/content/full/sigtrans;CMP_13010/DC1).
68. Van Gelder, RN, ED Herzog, WJ Schwartz, and PH Taghert (2003) Circadian rhythms: In the loop at last. *Science* 300: 1534-1535. *Invited review*.
69. Herzog, ED and RM Huckfeldt (2003) Circadian entrainment to temperature, but not light, in the isolated suprachiasmatic nucleus. *J Neurophysiol*. 90:763-70.
70. Abe, M*, Herzog, ED*, S Yamazaki, M Straume, H Tei, Y Sakaki, M Menaker and GD Block (2002) Circadian rhythms in isolated brain regions. *J Neurosci*. 22:350-6. **First 2 authors contributed equally*.
71. Herzog, ED and WJ Schwartz (2002) A neural clockwork for encoding circadian time *J Appl Physiol* 92:401-8.
72. Wilsbacher, LD, S Yamazaki, ED Herzog, E-J Song, LA Radcliffe, M Abe, GD Block, E Spitznagel, M Menaker, and JS Takahashi (2002) Photic and circadian expression of luciferase in mPeriod1-luc transgenic mice *in vivo*. *Proc. Nat. Acad. Sci*. 99:489-494.
73. Aujard, F, ED Herzog and GD Block (2001) Aging alters circadian rhythmicity of individual suprachiasmatic nucleus neurons in mice. *Neurosci* 106:255-61.
74. Herzog, ED and G Tosini (2001) The mammalian circadian clock shop. *Seminars in Cell & Developmental Biology* 12:295-303.
75. Nunemaker, CS, RA Defazio, ME Geusz, ED Herzog, GR Pitts, and SM Moenter (2001) Long-term recordings of networks of immortalized gonadotropin-releasing hormone neurons reveal episodic patterns of electrical activity. *J Neurophysiol* 86:86-93.
76. Abe, M, ED Herzog, GD Block (2000) Lithium lengthens the circadian period of individual suprachiasmatic nucleus neurons. *Neuroreport* 11: 3261-4.
77. Herzog, ED, MS Grace, J Williamson, C Harrer, and GD Block (2000) The role of *Clock* in developmental expression of neuropeptides in the suprachiasmatic nucleus. *J Comp Neurol* 424: 86-98.
78. Herzog, ED and GD Block (1999) Keeping an eye on retinal clocks. *Chronobiology International* 16: 229-247.
79. Herzog, ED, J.S Takahashi, and GD Block (1998) *Clock* controls circadian period in isolated suprachiasmatic nucleus neurons. *Nature Neuroscience* 1: 708-713.
80. RN Jinks, B-A Battelle, ED Herzog, L Kass, GH Renninger, and SC Chamberlain (1998) Sensory adaptations in hydrothermal vent shrimp from the Mid-Atlantic Ridge. *Cahiers de Biologie Marine* 39: 309-312.
81. Herzog, ED, ME Geusz, SBS Khalsa, M Straume, and GD Block (1997) Circadian rhythms in mouse SCN explants on multimicroelectrode plates. *Brain Research* 757: 285-290.
82. Passaglia, CL, ED Herzog, FA Dodge, S Jackson, and RB Barlow, Jr. (1997) Deciphering a neural code for vision. *Proceedings of National Academy of Sciences* 94: 12649-12654.
83. Lakin, RC, RN Jinks, B-A Battelle, ED Herzog, L Kass, GH Renninger, and SC Chamberlain (1997) Retinal anatomy of *Chorocaris chacei*, a deep-sea hydrothermal vent shrimp from the Mid-Atlantic Ridge. *Journal of Comparative Neurology* 385: 503-514.
84. Herzog, ED, MK Powers, and RB Barlow (1996) *Limulus* vision in the ocean day and night: Effects of image size and contrast. *Visual Neuroscience* 13: 31-41.
85. Nuckley, DJ, RN Jinks, B-A Battelle, ED Herzog, L Kass, GH Renninger, and SC Chamberlain (1996) Retinal anatomy of new Bresiliid shrimp from hydrothermal vent fields on the Mid-Atlantic Ridge. *Biological Bulletin* 190: 98-110.

86. Renninger, GH, L Kass, RA Gleeson, CL Van Dover, B-A, Battelle, ED Herzog, RN Jinks, and SC Chamberlain (1995) Sulfide as a chemical stimulus for deep-sea hydrothermal vent shrimp. *Biological Bulletin* 189: 69-76.
87. O'Neill, PJ, RN Jinks, ED Herzog, B-A, Battelle, L Kass, GH Renninger, and SC Chamberlain (1995) The morphology of the dorsal eye of the hydrothermal vent shrimp, *Rimicaris exoculata*. *Visual Neuroscience* 12: 861-875.
88. Herzog, ED, CL Passaglia, S Dodge, N Levine, and RB Barlow, Jr. (1993). *Limulus* vision in the ocean: Comparing neural and behavioral thresholds. *Biological Bulletin* 185: 307-308.
89. Herzog, ED and RB Barlow, Jr. (1992) *Limulus*-eye view of the world. *Visual Neuroscience* 9: 571-580.
90. Herzog, ED and RB Barlow, Jr. (1991) Ultraviolet light from the nighttime sky enhances retinal sensitivity of *Limulus*. *Biological Bulletin* 181: 321-322.

BOOK CHAPTERS

1. Herzog ED and Taghert PH (2009) Circadian neural networks. In: The Circadian Clock; Protein Reviews, Vol. 12. Chapter 8. Albrecht U (Ed.) Springer Pub.
2. Block, GD, M Kerbeshian and ED Herzog (1999) Chronobiology. In: Neuroendocrinology in physiology and medicine. P.M. Conn and M.E. Freeman (eds.). Humana Press, Inc. Totowa, N.J. pp. 391-403.
3. Barlow, RB and ED Herzog (1994) Vision in *Limulus*. In: Sensory Systems. Consultants Bureau, NY, 8: 157-163.

MENTORING

Mentor for 11 postdocs, 7 graduate students, 52 undergraduates, 18 high school students in their research efforts. Major advisor for over 130 Biology majors. Served on ~47 PhD thesis committees and ~17 qualifying exam committees.

Ph.D. students:

Sara Aton (Assistant Prof, U Michigan)	Emily Slat (MSTP, Washington University)
Alexis Webb (Postdoctoral fellow, UCL)	Cristina Mazuski (Current)
Sungwon An (Hanwha Corp, Korea)	Matt (Chak Foon) Tso (Current)
Mark Freeman (Psychiatry Resident, Stanford)	

Postdoctoral fellows:

Daniel Granados-Fuentes (Research Scientist, WU)	Carrie Simms (Postdoc, WU)
Meera Saxena (Co-founder, Luminomics Inc.)	Paula Nieto (Assistant Prof., Mendoza, Argentina)
Ute Abraham (Research Fellow, Charite, Berlin)	Tracey Hermanstyne (current)
Luciano Marpegan (Assistant Prof., Quilmes, Argentina)	Carmel Martin-Fairey (current)
Christian Beaulieu (Res. Development Officer, U Ottawa)	Vania Carmona-Alcocer (current)
Jae-Eun Kang Miller (Postdoc, Columbia U)	Jeff Jones (current)

Undergraduate researchers:

Nikhil Angelo	Erica Greenberg	Jessica Phelan
Fola Babatunde	Alison Greenlaw	Deeangelee Pooran
Sachin Bansal	Karen Halpert	Laura Prolo
Allison Bayly	Rachel Huckfeldt	Tanvi Puri
Andrea Binz	Demia Jones	Julie Ronecker
Julia Button	Meaghan Kenfield	Sammita Satyanarayan
Gal Ben-Josef	Jihee Kim	Nainesh Shah
Jim Bogenpohl	TJ Krall	Ryan Speese
Annalisa Breidenbach	Lauren Krebs	Jasmin Sponagel
Samantha Chen	Becca Krock	Anne Sun
Catherine Choi	Shawn Kumar	Daniel Sun
Suli Chong	Kevin Liang	Adrienne Swanstrom
Kevin Chung	Lindsey McIntyre	Manar –ul AlSwaby
Hreem Dave	Obinna Ndum	Connie Tsai
Dayo Fadelu	Andrew Nylander	Alan Tseng
Dina Ghosh	Amaka Onwuzurike	Thomas Wang
Kristina Govorovska	Dora Oroian	John Webb

Technicians:

Stacey Vile

Laura Prolo

Alissa Nelson

Tatiana Simon Cierra Smith

High school students and teachers:

Sai Allu

Kush Banerjee

Betty Buchanan

Christina Clothier

Mavis Coffman

Tina Gegen

Boris Graypel

Martiae Jenkins

Harry Keely

Mickey Hayes

Max Herzog

Maggie Nodel

Rachel Osgood

Taylor Patton

Julie Serot

Alison Bayly

Omkar Venkatesh

Imai Douglas

INVITED LECTURES IN LAST EIGHT YEARS (SELECTED)

Plenary, WU Dept. of Neuroscience Retreat (5/16)

Society for Research on Biological Rhythms (5/16)

Keynote, Texas Society for Circadian Biology (4/16)

Pennsylvania State Univ, Neuroscience (12/15)

Keynote, Midstates Science & Math Consortium (11/15)

Berg Symposium, Washington University (10/15)

Janelia Research Campus/HHMI, Conference (9/15)

Oberlin College, Neuroscience (9/15)

Council of Scientific Society Presidents (5/15)

Vanderbilt University, Biological Sciences (4/15)

Bauer Lecturer, Brandeis Univ (3/15)

Duquesne Univ, Biology (3/15)

Peking Univ, Beijing, China (12/14)

NIBS, Beijing, China (12/14)

Suzhou Univ, Suzhou, China (12/14)

Sapporo Symposium on Biological Rhythms (7/14)

NYU, Biology (5/14)

St. Louis Science Academy (3/14)

Oberlin College, Neuroscience (3/14)

Cal State—LA, Biology (2/14)

UCSD—Center for Chronobiology (11/13)

Latin American Society for Chronobiology (10/13)

Michigan State, Neuroscience (10/13)

Chronobiology Gordon Conference (7/13)

LMU, Munich, Germany (11/12)

Univ Groningen, Netherlands (11/12)

Charite, Dept. of Immunology (11/12)

Humboldt Univ, ITB (10/12)

Univ. California-Los Angeles (4/12)

Univ. Memphis (4/12)

Tel Aviv Univ, Zoology (2/12)

Diversity of Timing Meeting, Eid Gedi, Israel (2/12)

Bernstein Center for Comp Neurosci, Berlin (6/11)

World Chronobiology Congress, Mexico (5/11)

CDI Investors Symposium, Washington Univ (9/10)

Univ. Leiden, Lorentz Center, The Netherlands (8/10)

Univ. Pennsylvania, Pharmacology (6/10)

Society for Research on Biological Rhythms (5/10)

NSF-NIH Frontiers in Mathematical Biol Conf (4/10)

Northwestern Univ., Dept. Neurobio and Physiol (4/10)

Keynote Lecture, Imaging Sciences Retreat, WU (4/10)

Nat'l Inst of Diabetes, Digest & Kidney Disorders (4/10)

Univ. Wisconsin, Madison, Neuroscience (4/10)
Keynote Lecture, Univ. Wisconsin-Madison UNP (4/10)
Pediatric Grand Rounds, WUMS (2/10)
National Council to the WUMS (12/09)
Hope Center for Neurological Disorders (11/09)
Foundations of Systems Biology in Engineering (8/09)
Medical Research Council, Cambridge, England (7/09)
Gordon Research Conference on Chronobiology (7/09)
Univ of Ottawa, Institute of Systems Biology (2/09)
Univ of Mass, Special MCB and NSB seminar (2/09)
Univ of Washington, Neurobiology and Behavior (1/09)
Science on Tap, Schlafly Bottleworks, MO (10/08)
Univ of Michigan, Dept. Integrative Biology (10/08)
New York University, Biology (6/08)
Society for Research on Biological Timing (5/08)
St. Louis University, Chemistry (4/08)
University of Nebraska Medical School, MCDB (4/08)
Waseda University (1/08)
Nagoya University (1/08)
Mitsubishi Institute Technology and Life Sciences (1/08)
Hokkaido University (1/08)
Osaka Bioscience Institute (1/08)
Plenary Speaker, Honma Prize Symposium (11/07)
Plenary Speaker, Nebraska INBRE Conference (8/07)
KITP Summer Series, Santa Barabara, CA (7/07)
Soc for Experimental Biology, Washington DC (4/07)
Gatsby Foundation, London (4/07)
Dept. of Biology, Manchester, England (4/07)
Dept. Biology, New Mexico Highlands Univ. (3/07)
Univ California-San Francisco, Neurology (2/07)
Soc for Industrial Applications of Math (2/07)
Harvard University, Neurobiology (1/07)