

## CURRICULUM VITAE

Carl Hirschie Johnson

### PRESENT POSITION:

Professor of Biological Sciences, 1999-present; (Associate Professor, 1994-99; Assistant Professor, 1987-94); Professor, Vanderbilt University Medical Center, Department of Molecular Physiology and Biophysics; 2007-present. Stevenson Professor of Biological Sciences, Vanderbilt University, 2011-2018. Cornelius Vanderbilt Chaired Professor of Biological Sciences, 2019-present.

### EDUCATION AND DEGREES AWARDED:

Ph.D., Stanford University, 1982. Dissertation co-advisers—Professors Colin Pittendrigh (deceased) and David Epel. Professor Pittendrigh was a member of the National Academy of Sciences.

B.A. in Plan II (Honors Liberal Arts), University of Texas at Austin, 1976. Undergraduate research adviser—Michael Menaker (now at University of Virginia, Charlottesville, VA).

Participated in the Physiology Course (summer, 1979) and the Analytical and Quantitative Light Microscopy Course (March, 1983) at the Marine Biological Laboratory, Woods Hole, MA.

### POSTDOCTORAL STUDIES:

Harvard University, Postdoctoral Research Associate and Teaching Fellow in Biology; supervisor—Professor J. W. Hastings (deceased). January 1982 - August, 1987. Professor Hastings was a member of the National Academy of Sciences.

### Complete List of Published Work in MyBibliography:

<http://www.ncbi.nlm.nih.gov/sites/myncbi/carl.johnson.1/bibliography/40700187/public/?sort=date&direction=ascending>

### RESEARCH PUBLICATIONS (full-length publications only):

- 1981 **Johnson, C. H.**, and D. Epel. Intracellular pH of sea urchin eggs measured by the dimethylloxalidinedione (DMO) method. *J. Cell Biology* 89: 284-291.
- 1982 **Johnson, C. H.**, and D. Epel. Starfish oocyte maturation and fertilization: intracellular pH is not involved in activation. *Devel. Biol.* 92: 461-469.
- 1983 Lee, H. C., **C. H. Johnson**, and D. Epel. Changes in internal pH associated with initiation of motility and acrosome reaction of sea urchin sperm. *Devel. Biol.* 95: 31-45.
- 1983 **Johnson, C. H.**, and D. Epel. Heavy metal chelators prolong motility and viability of sea urchin sperm by inhibiting spontaneous acrosome reactions. *J. Exp. Zool.* 226: 431-440.
- 1983 **Johnson, C. H.**, D. L. Clapper, M. W. Winkler, H. C. Lee, and D. Epel. A volatile

- inhibitor immobilizes sea urchin sperm in semen by depressing the intracellular pH. *Devel. Biol.* 98: 493-501.
- 1983 **Johnson, C. H.** Changes of intracellular pH are not correlated with the circadian rhythm of *Neurospora*. *Plant Physiol.* 72: 129-133.
- 1984 **Johnson, C. H.**, J. F. Roeber, and J. W. Hastings. Circadian changes of enzyme concentration account for rhythm of enzyme activity in *Gonyaulax*. *Science* 223: 1428-1430.
- 1985 **Johnson, C. H.**, S. Inoue, A. Flint, and J. W. Hastings. Compartmentalization of algal bioluminescence: autofluorescence of bioluminescent particles in the dinoflagellate *Gonyaulax* as studied with image-intensified video microscopy and flow cytometry. *J. Cell Biology* 100: 1435-1446.
- 1985 Nicolas, M. T., **C. H. Johnson**, J. M. Bassot, and J. W. Hastings. Immunogold labelling of organelles in the bioluminescent dinoflagellate *Gonyaulax* with anti-luciferase antibody. *Cell Biol. Int. Reports* 9: 797-802.
- 1985 Dube, F., T. Schmidt, **C. H. Johnson**, and D. Epel. The hierarchy of requirements for an elevated intracellular pH during early development of sea urchin embryos. *CELL* 40: 657-666.
- 1987 Nicolas, M. T., G. Nicolas, **C. H. Johnson**, J. M. Bassot, and J. W. Hastings. Characterization of the bioluminescent organelles in *Gonyaulax* after fast-freeze fixation and antiluciferase immunogold staining. *J. Cell Biology* 105: 723-735.
- 1987 Olesiak, W., A. Ungar, **C. H. Johnson**, and J. W. Hastings. Are protein synthesis inhibition and phase-shifting of the circadian clock in *Gonyaulax* correlated? *J. Biol. Rhythms* 2: 121-138.
- 1989 Broda, H., **C. H. Johnson**, W. Taylor, and J. W. Hastings. Temperature dependence of phase response curves for drug-induced phase shifts. *J. Biol. Rhythms* 4: 327-333.
- 1989 **Johnson, C. H.**, I. Miwa, T. Kondo, and J. W. Hastings. Circadian rhythm of photoaccumulation in *Paramecium bursaria*. *J. Biol. Rhythms* 4: 405-415.
- 1989 **Johnson, C. H.**, and J. W. Hastings. Circadian phototransduction: phase-resetting and frequency of the circadian clock of *Gonyaulax* cells in red light. *J. Biol. Rhythms* 4: 417-437.
- 1990 **Johnson, C. H.** and H. Nakashima. Cycloheximide inhibits light-induced phase-shifting of the circadian clock in *Neurospora*. *J. Biol. Rhythms* 5: 159-167.
- 1991 Kondo, T., **C. H. Johnson**, and J. W. Hastings. Action spectrum for resetting the circadian phototaxis rhythm in the CW15 strain of *Chlamydomonas*. I. Cells in darkness. *Plant Physiol.* 95: 197-205.

- 1991 **Johnson, C. H.**, T. Kondo, and J. W. Hastings. Action spectrum for resetting the circadian phototaxis rhythm in the CW15 strain of *Chlamydomonas*. II. Illuminated cells. *Plant Physiol.* 97: 1122-1129.
- 1992 Byrne, T. E., M. R. Wells, and **C. H. Johnson**. Circadian rhythms of chemotaxis to ammonium and of methylammonium uptake in *Chlamydomonas*. *Plant Physiol.* 98: 879-886.
- 1992 **Johnson, C. H.**, and T. Kondo. Light pulses induce "singular" behavior and shorten the period of the circadian phototaxis rhythm in the CW15 strain of *Chlamydomonas*. *J. Biol. Rhythms* 7: 313-327.
- 1993 Kondo, T., C. A. Strayer, R. D. Kulkarni, W. Taylor, M. Ishiura, S. S. Golden, and **C. H. Johnson**. Circadian rhythms in prokaryotes: luciferase as a reporter of circadian gene expression in cyanobacteria. *Proc. Natl. Acad. Sci. USA* 90: 5672-5676. [PMCID: PMC46783](#)
- 1994 Jacobshagen, S., and **C. H. Johnson**. Circadian rhythms of gene expression in *Chlamydomonas reinhardtii*: cyclic changes of mRNA abundance of cab II,  $\beta$ -tubulin, and cytochrome c. *Eur. J. Cell Biology* 64: 142-152.
- 1994 Kondo, T., N. F. Tsinoremas, S. S. Golden, **C. H. Johnson**, S. Kutsuna, and M. Ishiura. Circadian clock mutants of cyanobacteria. *Science* 266: 1233-1236. [PMID: 7973706](#)
- 1994 **Johnson, C. H.**, Y. Nakaoka, and L. Miwa. The effects of altering extracellular potassium ion concentration on the membrane potential and circadian clock of *Paramecium bursaria*. *J. Exp. Biol.* 197: 295-308.
- 1995 Goto, K., and **C. H. Johnson**. Is the cell division cycle gated by a circadian clock? The case of *Chlamydomonas reinhardtii*. *J. Cell Biology* 129: 1061-1069.
- 1995 **Johnson, C. H.**, M. R. Knight, T. Kondo, P. Masson, J. Sedbrook, A. Haley, and A. Trewavas. Circadian oscillations of cytosolic and chloroplastidic free calcium in plants. *Science* 269: 1863-1865. [PMID: 7569925](#)
- 1995 Liu, Y, N.F. Tsinoremas, **C.H. Johnson**, N.V. Lebedeva, S.S. Golden, M. Ishiura, and T. Kondo. Circadian orchestration of gene expression in cyanobacteria. *Genes and Development* 9: 1469-1478.
- 1995 Liu, Y, S.S. Golden, T. Kondo, M. Ishiura, and **C.H. Johnson**. Bacterial luciferase as a reporter of circadian gene expression in cyanobacteria. *J. Bacteriology* 177: 2080-2086.
- 1996 Tsinoremas, N.F., M. Ishiura, T. Kondo, C.R. Andersson, K. Tanaka, H. Takahashi, **C.H. Johnson**, and S.S. Golden. A sigma factor that modifies the circadian expression of a subset of genes in cyanobacteria. *EMBO Journal* 15: 2488-2495.
- 1996 Liu, Y., N.F. Tsinoremas, S.S. Golden, T. Kondo, and **C.H. Johnson**. Circadian expression of genes involved in the purine biosynthetic pathway of the cyanobacterium

- Synechococcus* sp. strain PCC 7942. *Mole. Microbiol.* 20: 1071-1081.
- 1996 Mori, T., B. Binder, and **C.H. Johnson**. Circadian gating of cell division in cyanobacteria growing with average doubling times of less than 24 hours. *Proc. Natl. Acad. Sci. USA* 93: 10183-10188.
- 1996 Jacobshagen, S., K.L. Kindle, and **C.H. Johnson**. Transcription of *cabII* is regulated by the biological clock in *Chlamydomonas reinhardtii*. *Plant Mole. Biol.* 31: 1173-1184.
- 1998 Ishiura, M., S. Kutsuna, S. Aoki, H. Iwasaki, C. R. Andersson, A. Tanabe, S. S. Golden, **C. H. Johnson**, and T. Kondo. Expression of a gene cluster *kaiABC* as a circadian feedback process in cyanobacteria. *Science* 281: 1519-1523.
- 1998 Ouyang, Y., C.R. Andersson, T. Kondo, S.S. Golden, and **C.H. Johnson**. Resonating circadian clocks enhance fitness in cyanobacteria. *Proc. Natl. Acad. Sci. USA* 95: 8660-8664.
- 1999 Xu, Y., D. Piston, and **C.H. Johnson**. A bioluminescence resonance energy transfer (BRET) system: Application to interacting circadian clock proteins. *Proc. Natl. Acad. Sci. USA* 96: 151-156. [PMCID: PMC15108](#)
- 1999 Minko, I., S.P. Holloway, S. Nikaido, O.W. Odom, M. Carter, **C.H. Johnson**, and D.L. Herrin. *Renilla* luciferase as a vital reporter for chloroplast gene expression in *Chlamydomonas*. *Mole. and Gen. Genetics* 262: 421-425.
- 1999 Sai, J., and **C.H. Johnson**. Different circadian oscillators control  $Ca^{++}$  fluxes and *Lhcb* gene expression. *Proc. Natl. Acad. Sci. USA* 96: 11659-11663. [PMCID: PMC18090](#)
- 2000 Nikaido, S.S., and **C.H. Johnson**. Daily and circadian variation in survival from ultraviolet radiation in *Chlamydomonas reinhardtii*. *Photochem. Photobiol.* 71: 758-765.
- 2000 Xu, Y., T. Mori, and **C.H. Johnson**. Circadian clock-protein expression in cyanobacteria: rhythms and phase-setting. *EMBO Journal* 19: 3349-57.
- 2001 Wood, N.T., A. Haley, M. Viry-Moussaïd, **C. H. Johnson**, A.H. van der Luit, and A.J.Trewavas. The calcium rhythms of different cell types oscillate with different circadian phases. *Plant Physiol.* 125: 787-796. [PMCID: PMC64880](#)
- 2001 Mori, T., and **C.H. Johnson**. Independence of circadian timing from cell division in cyanobacteria. *J. Bacteriol.* 183: 2439-2444.
- 2001 Xu, Y., and **C.H. Johnson**. A clock- and light-regulated gene that links the circadian oscillator to *LHCB* gene expression. *PLANT CELL* 13: 1411-1425.
- 2002 Suzuki, L., and **C.H. Johnson**. Photoperiodic Control of Germination in the Unicell *Chlamydomonas*. *Naturwissenschaften* 89:214-220. [PMID: 12135086](#)
- 2002 Schoenhard, J.A., M. Eren, **C.H. Johnson**, and D.E. Vaughan. Alternative splicing yields

- novel BMAL2 variants: tissue distribution and functional characterization. *Am. J. Physiol.* 283: C103-C114.
- 2002 Sai, J., and **C.H. Johnson**. Dark-stimulated calcium ion fluxes in the chloroplast stroma and cytosol. *PLANT CELL* 14: 1279–1291. [PMCID: PMC150780](#)
- 2002 Mori, T., S. V. Saveliev, Y. Xu, W. F. Stafford, M. M. Cox, R. B. Inman, and **C. H. Johnson**. Circadian Clock Protein KaiC forms ATP-dependent Hexameric Rings and Binds DNA. *Proc. Natl. Acad. Sci. USA* 99: 17203–17208.
- 2003 Schoenhard, J.A., Smith, L.H., Painter, C.A., Eren, M., **Johnson, C.H.**, and Vaughan, D.E. Regulation of the PAI-1 promoter by circadian clock components: differential activation by BMAL1 and BMAL2. *Journal of Molecular and Cellular Cardiology* 35: 473-481.
- 2003 Xu, Y., T. Mori, and **C.H. Johnson**. Cyanobacterial circadian clockwork: roles of KaiA, KaiB, and the *kaiBC* promoter in regulating KaiC. *EMBO Journal* 22: 2117-2126.
- 2003 Kolar, J., **C.H. Johnson**, and I. Machackova. Exogenously applied melatonin (N-acetyl-5-methoxytryptamine) affects flowering of the short-day plant *Chenopodium rubrum*. *Physiologia Plantarum* 118: 605-612.
- 2003 Izumo, M., **C.H. Johnson**, and S. Yamazaki. Circadian gene expression in mammalian fibroblasts revealed by real-time luminescence reporting: temperature compensation and damping. *Proc. Natl. Acad. Sci. USA* 100: 16089–16094.
- 2004 Min, H., Y. Liu, **C. H. Johnson**, and Susan S. Golden. Phase determination of circadian gene expression in *Synechococcus elongatus* PCC 7942. *J. Biol. Rhythms* 19: 103-112.
- 2004 Subramanian, C., B.-H. Kim, N.N. Lyssenko, X. Xu, **C.H. Johnson**, and A.G. von Arnim. The *Arabidopsis* repressor of light signaling, COP1, is regulated by nuclear exclusion; mutational analysis by bioluminescence resonance energy transfer. *Proc. Natl. Acad. Sci. USA* 101: 6798-6802.
- 2004 Woelfle, M.A., Y. Ouyang, K. Phanvijhitsiri, and **C.H. Johnson**. The adaptive value of circadian clocks: An experimental assessment in cyanobacteria. *Current Biology* 14: 1481–1486.
- 2004 Pattanayek, R., J. Wang, T. Mori, Y. Xu, **C.H. Johnson**, and M. Egli. Visualizing a circadian clock protein: crystal structure of KaiC and functional insights. *Molecular Cell* 15: 375–388.
- 2004 Xu, Y., T. Mori, R. Pattanayek, S. Pattanayek, M. Egli, and **C.H. Johnson**. Identification of Key Phosphorylation Sites in the Circadian Clock Protein KaiC by Crystallographic and Mutagenetic Analyses. *Proc. Natl. Acad. Sci. USA* 101: 13933-13938.
- 2006 Pattanayek, R., D.R. Williams, S. Pattanayek, Y. Xu, T. Mori, **C.H. Johnson**, P.L. Stewart, and M. Egli. Analysis of KaiA-KaiC protein interactions in the cyano-bacterial

- circadian clock using hybrid structural methods. *EMBO Journal* 25: 2017-2028.
- 2006 Subramanian, C., J.-C. Woo, X. Cai, X. Xu, S. Servick, **C.H. Johnson**, A. Nebenfuhr, and A. von Arnim. A suite of tools and application notes for *in vivo* protein interaction assays using Bioluminescence Resonance Energy Transfer (BRET). *Plant Journal* 48: 138-152.
- 2006 Izumo, M., T.R. Sato, M. Straume, and **C.H. Johnson**. Quantitative analyses of circadian gene expression in mammalian cell cultures. *PLoS Computational Biology* 2: e136.
- 2007 Mori, T., D.R. Williams, M.O. Byrne, X. Qin, H.S. Mchaourab, M. Egli, P.L. Stewart, and **C.H. Johnson**. Elucidating the Ticking of an *in vitro* Circadian Clockwork. *PLoS Biology* 5: e93. [PMCID: PMC1831719](#)
- 2007 Fan, Y., A. Hida, D.A. Anderson, M. Izumo, and **C.H. Johnson**. Cycling of CRYPTOCHROME Proteins Is Not Necessary for Circadian-Clock Function in Mammalian Fibroblasts. *Current Biology* 17: 1091–1100. [PMCID: PMC3434691](#)
- 2007 Xu, X., M. Soutto, Q. Xie, S. Servick, C. Subramanian, A. von Arnim, and **C.H. Johnson**. Imaging Protein Interactions with BRET in Plant and Mammalian Cells and Tissues. *Proc. Natl. Acad. Sci. USA* 104: 10264-10269. [PMCID: PMC1891211](#)
- 2007 Woelfle, M.A., Y. Xu, X. Qin, and **C.H. Johnson**. Circadian rhythms of superhelical status of DNA in cyanobacteria. *Proc. Natl. Acad. Sci. USA* 104: 18819–18824. [PMCID: PMC2141860](#)
- 2007 Bonneau, R., M.T. Facciotti, D.J. Reiss, A.K. Schmid, M. Pan, A. Kaur, V. Thorsson, P. Shannon, M.H. Johnson, C.J. Bare, W. Longabaugh, M. Vuthoori, K. Whitehead, A. Madar, L. Suzuki, T. Mori, D.-E. Chang, J. DiRuggiero, **C.H. Johnson**, L. Hood and N.S. Baliga. A predictive model for transcriptional control of physiology in a free living cell. *CELL* 131: 1354-65.
- 2007 Xu, X., C.T. Hotta, A.N. Dodd, J. Love, R. Sharrock, Y.W. Lee, Q. Xie, **C.H. Johnson**, and A.A.R. Webb. Distinct light and clock modulation of cytosolic free Ca<sup>2+</sup> oscillations and rhythmic *CHLOROPHYLL A/B BINDING PROTEIN2* promoter activity in *Arabidopsis*. *Plant CELL* 19: 3474-90. [PMCID: PMC2174886](#)
- 2008 Pattanayek, R, Williams, DR, Pattanayek, S, Mori, T, Johnson, CH, Stewart, PL, Egli, M. Structural model of the circadian clock KaiB-KaiC complex and mechanism for modulation of KaiC phosphorylation. *EMBO J.* 27: 1767-78. [PMCID: PMC2435126](#)
- 2008 Ciarleglio, C.M., K. Ryckman, S.V. Servick, A. Hida, S. Robbins, N. Wells, J. Hicks, S.A. Larson, J.P. Wiedermann, K. Carver, N. Hamilton, K.K. Kidd, J.R. Kidd, J.R. Smith, J. Friedlaender, D.G. McMahon, S. Williams, M.L. Summar, and **C.H. Johnson**. Genetic Differences in Human Circadian Clock Genes Among Worldwide Populations. *J. Biol. Rhythms* 23: 330-340. [PMCID: PMC2579796](#)
- 2008 Robertson, J.B., C.C. Stowers, E. Boczek, and **C.H. Johnson**. Real-time Luminescence

- Monitoring of Cell-cycle and Respiratory Oscillations in Yeast. *Proc. Natl. Acad. Sci. USA* 105: 17988–17993. [PMCID: PMC2584751](#)
- 2008 Vougiopoulou, K., Y. Ferandin, K. Bettayeb, V. Myrianthopoulos, O. Lozach, Y. Fan, **C.H. Johnson**, P. Magiatis, A.-L. Skaltsounis, E. Mikros, and L. Meijer. Soluble 3', 6-substituted indirubins with enhanced selectivity towards glycogen synthase kinase -3 alter circadian period. *J. Med. Chem.* 51: 6421–6431. [PMCID: PMC2717725](#)
- 2008 Hotta, C.T., X. Xu, Q. Xie, A.N. Dodd, **C. H. Johnson**, and A.A. Webb. Are there multiple circadian clocks in plants? *Plant Signal Behav.* 3: 342-4. [PMCID: PMC2634278](#)
- 2009 Wang, Y., J. Jia, H. Bu, Y. Zhao, Y. Xu, **C.H. Johnson**, and J. Kolar. Genetic transformation of *Nicotiana tabacum L.* by *Agrobacterium tumefaciens* carrying genes in the melatonin synthesis pathway and the enhancement of antioxidative capability in transgenic plants. *Chinese Journal of Biotechnology* (in Chinese, abstract in English) 25: 1014-1021.
- 2009 Robertson, J.B., Y. Zhang, **C.H. Johnson**. Light Emitting Diode Flashlights as Effective and Inexpensive Light Sources for Fluorescence Microscopy. *J. Microscopy* 236: 1-4. [PMCID: PMC2751867](#)
- 2009 Xu, X., R. Graeff, Q. Xie, K.L. Gamble, T. Mori, **C.H. Johnson**. The *Arabidopsis* Circadian Clock Incorporates a cADPR-Based Feedback Loop. *Science* 326: 230-b (Online Technical Comment). [PMCID: PMC2934760](#)
- 2009 Xu, Y., T. Mori, X. Qin, H. Yan, M. Egli, **C.H. Johnson**. Intramolecular Regulation of Phosphorylation Status of the Circadian Clock Protein KaiC. *PLoS ONE* 4: e7509. [PMCID: PMC2778140](#)
- 2009 Pattanayek, R., T. Mori, Y. Xu, S. Pattanayek, **C.H. Johnson**, M. Egli. Structures of KaiC Circadian Clock Mutant Proteins: A New Phosphorylation Site at T426 and Mechanisms of Kinase, ATPase and Phosphatase. *PLoS ONE* 4: e7529. [PMCID: PMC2777353](#)
- 2010 Shi, S., A. Hida, O.P. McGuinness, D.H. Wasserman, S. Yamazaki, **C.H. Johnson**. Circadian Clock Gene Bmal1 Is Not Essential; Functional Replacement with its Paralog, Bmal2. *Current Biology* 20: 316-321. [PMCID: PMC2907674](#)
- 2010 Qin, X., M. Byrne, Y. Xu, T. Mori, and **C.H. Johnson**. Coupling of a core post-translational pacemaker to a slave transcription/translation feedback loop in a circadian system. *PLoS Biology* 8: e1000394. [PMCID: PMC2885980](#).
- 2010 Qin, X., M. Byrne, T. Mori, P. Zou, D.R. Williams, H. Mchaourab, and **C.H. Johnson**. Intermolecular Associations Determine the Dynamics of the Circadian KaiABC Oscillator. *Proc. Natl. Acad. Sci. USA* 107: 14805-10. [PMCID: PMC2930409](#).
- 2011 Gamble, K.L., A.A. Motsinger-Reif, A. Hida, H.M. Borsetti, S.V. Servick, C.M. Ciarleglio, S. Robbins, J. Hicks, K. Carver, N. Hamilton, N. Wells, M.L. Summar, D.G.

- McMahon, and **C.H. Johnson**. Shift Work in Nurses: Contribution of Phenotypes and Genotypes to Adaptation. *PLoS ONE* 6: e18395. [PMCID: PMC3076422](#).
- 2011 Pattanayek, R., D.R. Williams, G. Rossi, S. Weigand, T. Mori, **C.H. Johnson**, P.L. Stewart, M. Egli. Combined SAXS/EM Based Models of the *S. elongatus* Post-Translational Circadian Oscillator and its Interactions with the Output His-Kinase SasA. *PLoS ONE* 6: e23697. [PMCID: PMC3161067](#).
- 2012 Egli, M., T. Mori, R. Pattanayek, Y. Xu, X. Qin, and **C.H. Johnson**. Dephosphorylation of the Core Clock Protein KaiC in the Cyanobacterial KaiABC Circadian Oscillator Proceeds via an ATP Synthase Mechanism. *Biochemistry* 51: 1547–1558. [PMCID: PMC3293397](#).
- 2012 Zhang, Y., Q. Xie, J.B. Robertson, and **C.H. Johnson**. pHlash: A New Genetically Encoded and Ratiometric Luminescence Sensor of Intracellular pH. *PLoS ONE* 7: e43072. [PMCID: PMC3419163](#)
- 2012 Edgar, R.S., E.W. Green, Y. Zhao, G. van Ooijen, M. Olmedo, X. Qin, Y. Xu, M. Pan, U.K. Valekunja, K.A. Feeney, E.S. Maywood, M.H. Hastings, N.S. Baliga, M. Meroow, A.J. Millar, **C.H. Johnson**, C.P. Kyriacou, J.S. O'Neill, A.B. Reddy. Peroxiredoxins are conserved markers of circadian rhythms. *Nature* 485: 459-64. [PMCID: PMC3398137](#)
- 2013 Ma, P., M.A. Woelfle, and **C.H. Johnson**. An Evolutionary Fitness Enhancement Conferred by the Circadian System in Cyanobacteria. Special issue on "Functionality and Dynamics in Biological Systems." *Chaos, Solitons & Fractals* 50: 65-74. [PMCID: PMC3633149](#)
- 2013 Xu, Y., P. Ma, P. Shah, A. Rokas, Y. Liu, **C.H. Johnson**. Non-optimal codon usage is a mechanism to achieve circadian clock conditionality. *Nature* 495: 116-20. [PMCID: PMC3593822](#)
- 2013 Egli, M., R. Pattanayek, J. Sheehan, Y. Xu, T. Mori, J. Smith, **C.H. Johnson**. Loop-Loop Interactions Regulate KaiA-Stimulated KaiC Phosphorylation in the Cyanobacterial KaiABC Circadian Clock. *Biochemistry* 52: 1208-1220. [PMCID: PMC3587310](#)
- 2013 Shi, S., T. Ansari, O.P. McGuinness, D.H. Wasserman, **C.H. Johnson**. Circadian disruption leads to insulin resistance and obesity. *Current Biology* 23: 372-81. [PMCID: PMC3595381](#)
- 2013 Villarreal, S.A., R. Pattanayek, D.R. Williams, T. Mori, X. Qin, **C.H. Johnson**, M. Egli, and P.L. Stewart. CryoEM and Molecular Dynamics of the Circadian KaiB–KaiC Complex Indicates KaiB Monomers Interact with KaiC and Block ATP Binding Clefs. *J. Molecular Biology* 425: 3311–3324. [PMCID: PMC3940072](#)
- 2013 Xu, Y., P.D. Weyman, M. Umetani, J. Xiong, X. Qin, Q. Xu, H. Iwasaki, and **C. H. Johnson**. Circadian Yin-Yang regulation and its manipulation to globally reprogram gene expression. *Current Biology* 23: 2365-2374. [PMCID: PMC3889637](#)



- 2013 Robertson, J.B., C. R. Davis, and **C. H. Johnson**. Visible light alters yeast metabolic rhythms by inhibiting respiration. *PNAS* 110: 21130-21135. [PMCID: PMC3876234](#)
- 2014 Pattanayek, R., Y. Xu, A. Lamichhane, **C.H. Johnson**, and M. Egli. An arginine tetrad as mediator of input-dependent and -independent ATPases in the clock protein KaiC. *Acta Crystallographica Section D, Biological Crystallography* 70(Pt 5): 1375-90. [PMCID: PMC4722857](#)
- 2014 Yan Y, Jiang L, Aufderheide KJ, Wright GA, Terekhov A, Costa L, Qin K, McCleery WT, Fellenstein JJ, Ustione A, Robertson JB, **Johnson CH**, Piston DW, Hutson MS, Wikswa JP, Hofmeister W, Janetopoulos C. A Microfluidic-Enabled Mechanical Microcompressor for the Immobilization of Live Single- and Multi-Cellular Specimens. *Microsc Microanal.* 20: 141-51. [PMCID: PMC4026272](#)
- 2015 Veatch, O.J., J.S. Pendergast, M.J. Allen, R.M. Leu, **C.H. Johnson**, S.H. Elsea, and B.A. Malow. Genetic Variation in Melatonin Pathway Enzymes in Children with Autism Spectrum Disorder and Comorbid Sleep Onset Delay. *J. Autism & Developmental Disorders* 45: 100-10. [PMCID: PMC4289108](#)
- 2015 Shi, S., T.J. Bichell, R.A. Ihrle, **C.H. Johnson**. Ube3a Imprinting Impairs Circadian Robustness in Angelman Syndrome Models. *Current Biology* 25: 537–545. [PMCID: PMC4348236](#)
- 2015 Qin, X., T. Mori, Y. Zhang, and **C.H. Johnson**. PER2 Differentially Regulates Clock Phosphorylation versus Transcription by Reciprocal Switching of CK1 $\epsilon$  Activity. *J. Biological Rhythms* 30: 206–216. [PMCID: PMC4697459](#)
- 2016 Shi, S.-Q, M.J. White, H.M. Borsetti, J.S. Pendergast, A. Hida, C.M. Ciarleglio, P.A. de Verteuil, A.G. Cadar, C. Cala, D.G. McMahon, R.C. Shelton, S.M. Williams, **C.H. Johnson**. Molecular Analyses of Circadian Gene Variants Reveal Sex-dependent Links Between Depression and Clocks. *Translational Psychiatry* 6: e748. [PMCID: PMC4872462](#)
- 2016 Ma, P., T. Mori, C. Zhao, T. Thiel, **C.H. Johnson**. Evolution of KaiC-dependent timekeepers: a proto-circadian timing mechanism confers adaptive fitness in the purple bacterium *Rhodospseudomonas palustris*. *PLoS Genetics* 12: e1005922. [PMCID: PMC4794148](#)
- 2016 Yang, J., D. Cumberbatch, S. Centanni, S. Shi, D. Winder, D. Webb, **C.H. Johnson**. Coupling Optogenetic Stimulation with NanoLuc-based Luminescence (BRET) Ca<sup>++</sup> Sensing. *Nature Communications* 7: 13268. [PMCID: PMC5476805](#)
- 2017 Jazmin, L.J., Y. Xu, Y.E. Cheah, A.O. Adebisi, **C.H. Johnson**, and J.D. Young. Isotopically nonstationary <sup>13</sup>C flux analysis of cyanobacterial isobutyraldehyde production. *Metabolic Engineering* 42: 9-18. [PMCID: PMC5660605](#)
- 2017 Tackenberg, M.C., **C.H. Johnson**, T.L. Page, and S. Daan. Revealing oft-cited but unpublished papers of Colin Pittendrigh and co-workers. *J. Biol. Rhythms* 32: 291-294.

[PMCID: PMC5697742](#)

- 2017 Hughes, M.E. . . . **C.H. Johnson** . . . J.B. Hogenesch (93 authors). Guidelines for genome-scale analysis of biological rhythms. *J. Biol. Rhythms* 32: 380-393. [PMCID: PMC5692188](#)
- 2018 **Mori, T.**, S. Sugiyama, **M. Byrne**, **C.H. Johnson**, T. Uchihashi, T. Ando. Revealing circadian mechanisms of integration and resilience by visualizing clock proteins working in real time. *Nature Commun.* 9: 3245. [PMCID: PMC6092398](#)
- 2019 Guo, G., K. Wang, S-S. Hu, T. Tian, P. Liu, **T. Mori**, P. Chen, **C. H. Johnson**, X. Qin. Auto-kinase activity of Casein Kinase 1  $\delta/\epsilon$  Governs the Period of Mammalian Circadian Rhythms. *J. Biological Rhythms*, accepted.

#### REVIEWS AND BOOK CHAPTERS:

- 1985 Hastings, J. W., H. Broda, and **C.H. Johnson**. Phase and period effects of physical and chemical factors. Do cells communicate? In: *Temporal Order*, L. Rensing and N. I. Jaeger, eds. (Springer-Verlag), pp. 213-221.
- 1985 **Johnson, C. H.**, and J. W. Hastings. Bioluminescence and Chronobiology. In: Photobiology 1984, Longworth, Jaffer, and Shropshire, eds. (Praeger, New York), pp. 189-193.
- 1986 **Johnson, C. H.**, and J. W. Hastings. The elusive mechanism of circadian clocks. *American Scientist* 74: 29-36.
- 1992 **Johnson, C. H.**, T. Kondo, and K. Goto. Circadian rhythms in *Chlamydomonas*. In: Circadian Clocks from Cell to Human; Proceedings of the Fourth Sapporo Symposium on Biological Rhythms (Hokkaido University Press), pp. 139-155.
- 1992 **Johnson, C. H.** Phase response curves: what can they tell us about circadian clocks? In: Circadian Clocks from Cell to Human; Proceedings of the Fourth Sapporo Symposium on Biological Rhythms (Hokkaido University Press), pp. 209-246.
- 1994 **Johnson, C. H.** Illuminating the clock: circadian photobiology. *Seminars in Cell Biology* 5: 355-362.
- 1994 Kondo, T., M. Ishiura, S.S. Golden, and **C.H. Johnson**. Circadian rhythms of cyanobacteria expressed from a luciferase reporter gene. In: Evolution of Circadian Clock, eds. T. Hiroshige and K. Honma (Hokkaido University Press, Sapporo), pp. 59-73.
- 1995 **Johnson, C. H.** Photobiology of circadian rhythms. In: CRC Handbook of Organic Photochemistry and Photobiology, Horspool and Song, eds. (CRC Press, Boca Raton, FL), pp. 1602-1610.
- 1996 **Johnson, C.H.**, S.S. Golden, M. Ishiura, and T. Kondo. Circadian clocks in prokaryotes.

*Mole. Microbiol.* 21: 5-11.

- 1997 S.S. Golden, M. Ishiura, **C.H. Johnson**, and T. Kondo. Cyanobacterial circadian rhythms. *Annu. Rev. Plant Physiol. and Plant Mole. Biol.* 48: 327-354.
- 1998 S.S. Golden, M. Ishiura, **C.H. Johnson**, and T. Kondo. Circadian rhythms in cyanobacteria. In: Microbial Responses to Light and Time. M.X. Caddick, S. Baumberg, D.A. Hodgson, and M.K. Phillips-Jones, eds. (Cambridge Univ. Press, Cambridge, U.K.), pp. 225-236.
- 1998 **Johnson, C.H.**, M. Knight, A. Trewavas, and T. Kondo. A clockwork green: circadian programs in photosynthetic organisms. Chapter 1 in: Biological Rhythms and Photoperiodism in Plants. P. Lumsden and A. Millar, eds. (BIOS Scientific Publishers, Oxford), pp. 1-34.
- 1998 **Johnson, C.H.**, S.S. Golden, and T. Kondo. Adaptive significance of circadian programs in cyanobacteria. *Trends in Microbiol.* 6: 407-410.
- 1998 Golden, S.S., **C.H. Johnson**, and T. Kondo. The cyanobacterial circadian system: a clock apart. *Curr. Opin. Microbiol.* 1: 669-673.
- 1999 **Johnson, C.H.**, and S.S. Golden. Circadian programs in cyanobacteria: adaptiveness and mechanism. *Annual Review of Microbiology* 53: 389-409.
- 1999 **Johnson, C.H.** Forty years of PRCs—what have we learned? *Chronobiol. Int.* 16: 711-743.
- 1999 Lakin-Thomas, P.L., and **C.H. Johnson**. Commentary: molecular and cellular models of circadian systems. *J. Biol. Rhythms* 14: 486-489.
- 1999 Xu, Y, D.W. Piston, and **C.H. Johnson**. Resonance energy transfer as an emerging strategy for monitoring protein-protein interactions *in vivo*: BRET vs. FRET. *Spectrum* 12: 9-14.
- 2000 Mori, T., and **C.H. Johnson**. Circadian control of cell division in unicellular organisms. In: Progress in Cell Cycle Research, Volume 4. L. Meijer, A. Jezequel, and B. Ducommun, eds. (Kluwer Academic/Plenum Press, N.Y.), pp. 185-192.
- 2001 **Johnson, C.H.**, S.S. Golden, and T. Kondo. Circadian Rhythms in Cyanobacteria. In: *Nature Encyclopedia of Life Sciences*, Nature Publishing Group, London: www.els.net.
- 2001 **Johnson, C.H.** Endogenous timekeepers in photosynthetic organisms. *Annu. Rev. Physiol.* 63: 695-728.
- 2001 DasSarma, S., S.P. Kennedy, B. Berquist, W.V. Ng, N.S. Baliga, J.L. Spudich, M.P. Krebs, J.A. Eisen, **C.H. Johnson**, L. Hood. Genomic perspective on the photobiology of *Halobacterium* species NRC-1, a phototrophic, phototactic, and UV-tolerant haloarchaeon. *Photosynthesis Res.* 70: 3-17.

- 2001 Mori, T., and **C.H. Johnson**. Circadian programming in cyanobacteria. *Sem. Cell Develop. Biol.* 12: 271-278.
- 2001 Suzuki, L., and **C.H. Johnson**. Algae know the time of day: circadian and photoperiodic programs. *J. Phycol.* 37: 1-10.
- 2001 **Johnson, C.H.**, and T. Kondo. Circadian rhythms in unicellular organisms. In: Handbook of Behavioral Neurobiology (Plenum Press). Chapter 3, pp. 61-77.
- 2002 Xu, Y., A. Kanauchi, D.W. Piston, and **C.H. Johnson**. Resonance energy transfer as an emerging technique for monitoring protein-protein interactions *in vivo*: BRET vs. FRET. In: Luminescence BioTechnology, K. Van Dyke, C. Van Dyke and K. Woodfork, eds. (CRC Press, N.Y.), pp. 529-538.
- 2002 Xu, Y., D. Piston, and **C.H. Johnson**. BRET assays for protein-protein interactions in living cells. In: Green Fluorescent Protein: Applications and Protocols (Methods in Molecular Biology series), B.W. Hicks, ed. (Humana Press, Totowa, N.J.), pp. 121-133.
- 2002 Berthold, F., C.H. Johnson, A. Kanauchi, A. Heding, M. Peukert, M. Hennecke, and B. Hutter. Development of a sensitive instrument for Bioluminescence Resonance Energy Transfer (BRET) applications. In: Bioluminescence & Chemiluminescence: Progress & Current Applications, L.J. Kricka and P.E. Stanley, eds. (World Scientific), pp. 193-196.
- 2003 Hastings, J. W. and **C. H. Johnson**. Bioluminescence and chemiluminescence. In Methods in Enzymology; Biophotonics A. G. Mariott and I. Parker, eds. Volume 360, pp. 75-104.
- 2003 Xu, Y., A. Kanauchi, A.G. von Arnim, D.W. Piston, and **C.H. Johnson**. Bioluminescence resonance energy transfer: monitoring protein-protein interactions in living cells. In Methods in Enzymology; Biophotonics A. G. Mariott and I. Parker, eds. Volume 360, pp. 289-301.
- 2003 **Johnson, C.H.**, J.A. Elliott, and R.G. Foster. Entrainment of circadian programs. *Chronobiology International* 20: 741-774.
- 2004 **Johnson, C.H.**, J.A. Elliott, R.G. Foster, Ken-Ichi Honma, and Richard Kronauer. Fundamental properties of circadian rhythms. Chapter 3 in: Chronobiology: Biological Timekeeping. J.C. Dunlap, J.J. Loros, and P.J. DeCoursey. (Sinauer; Sunderland, MA), pp. 66-105.
- 2004 **Johnson, C.H.** Global orchestration of gene expression by the biological clock of cyanobacteria. *Genome Biology* 5: 217.1-217.4.
- 2004 **Johnson, C.H.** Precise circadian clocks in prokaryotic cyanobacteria. *Current Issues in Molecular Biology* 6: 103-110.
- 2004 Subramanian, C., Y. Xu, **C.H. Johnson**, and A.G. von Arnim. *In vivo* detection of

- protein-protein interaction in plant cells using BRET. IN: Signal Transduction Protocols (Methods in Molecular Biology series). Editors, R.C. Dickson and M.D. Mendenhall (Humana Press, Totowa, N.J.), vol. 284, pages 271-286.
- 2004 **Johnson, C.H.** and M. Egli. Visualizing a biological clockwork's cogs. *Nature Structural and Molecular Biology* 11: 584-585.
- 2004 **Johnson, C.H.** As time glows by in bacteria. *Nature* 430: 23-24.
- 2005 Mittag, M., S. Kiaulehn, and **C.H. Johnson**. The circadian clock in *Chlamydomonas reinhardtii*: What is it for? What is it similar to? *Plant Physiol.* 137: 399-409.
- 2005 **Johnson, C.H.** Testing the adaptive value of circadian systems. *Methods in Enzymology* 393: 818-837 (M.W. Young, ed.).
- 2005 Soutto M., Y. Xu, and **C. H. Johnson**. Bioluminescence RET (BRET): techniques and potential. In: Molecular Imaging: FRET Microscopy and Spectroscopy. A. Periasamy and R.N. Day, eds. (Oxford University Press, NY), pp. 260-271.
- 2005 **Johnson, C.H.** and C.P. Kyriacou. Clock evolution and adaptation: whence and whither? Chapter 10 in Endogenous Plant Rhythms (eds. A.J.W. Hall and H. McWatters), Blackwell Publishing Ltd, Oxford, pp. 237-260.
- 2006 **Johnson, C.H.**, and S.S. Golden. Circadian Rhythms in Cyanobacteria. In: *Nature Encyclopedia of Life Sciences*, Nature Publishing Group, London: www.els.net.
- 2006 **Johnson, C.H.**, R. Shingles, and W.F. Ettinger. Regulation and role of Ca<sup>++</sup> fluxes in the chloroplast. In: R.R. Wise and J.K. Hooper (eds). Chapter 20 in The Structure and Function of Plastids. Vol. 23. In Govindjee (series ed) *Advances in Photosynthesis and Respiration*, Kluwer Academic Press, pp. 403-416.
- 2006 **Johnson, C.H.** Reminiscences from Pittendrigh's last Ph.D. student. *Resonance* 11: 22-31.
- 2006 Woelfle, M.A. and **C.H. Johnson**. No promoter left behind: global orchestration of circadian gene expression in cyanobacteria. *Journal of Biological Rhythms* 21: 419-431. [PMCID: PMC3431602](#)
- 2007 **Johnson, C.H.** Bacterial circadian programs. IN: *Cold Spring Harbor Symposia on Quantitative Biology* (Cold Spring Harbor Press; Cold Spring Harbor, N.Y.), Volume 72, pp. 395-404.
- 2008 **Johnson, C.H.**, Y. Xu, T. Mori. A Cyanobacterial Circadian Clockwork. *Current Biology* 18: R816-R825. [PMCID: PMC2585598](#)
- 2008 **Johnson, C.H.**, M. Egli, P.L. Stewart. Structural Insights into a Circadian Oscillator. *Science* 322: 697-701. [PMCID: PMC2588432](#)

- 2009 **Johnson, C.H.**, and Y. Xu. The Decade of Discovery: How *Synechococcus elongatus* became a model circadian system 1990–2000. Chapter 4 in: Bacterial Circadian Programs, J.L. Ditty, S.R. Mackey, C.H. Johnson, eds. (Springer), pp. 63-86.
- 2009 Woelfle, M.A., and **C.H. Johnson**. The adaptive value of the circadian clock system in cyanobacteria. Chapter 12 in: Bacterial Circadian Programs, J.L. Ditty, S.R. Mackey, C.H. Johnson, eds. (Springer), pp. 205-221.
- 2009 **Johnson, C.H.** From skepticism to prominence: circadian clocks in bacteria. *Microbe* 4: 411-418.
- 2010 **Johnson, C.H.** Circadian Clocks and Cell Division: What's the Pacemaker? *Cell Cycle* 9: 3864-3873. [PMCID: PMC3047750](#)
- 2011 **Johnson, C.H.**, P.L. Stewart, and M. Egli. The Cyanobacterial Circadian System: from Biophysics to Bioevolution. *Annu. Rev. Biophysics* 40:143–167. [PMCID: PMC3093959](#)
- 2011 Xie, Q., M. Soutto, X. Xu, Y. Zhang, and **C.H. Johnson**. Bioluminescence Resonance Energy Transfer (BRET) Imaging in Plant Seedlings and Mammalian Cells. In: Methods in Molecular Imaging, K. Shah, ed. (Methods in Molecular Biology Series, Humana Press), vol. 680, pp. 3-28. [PMCID: PMC3432581](#)
- 2011 Robertson, J.B., and **C.H. Johnson**. Luminescence as a Continuous Real-Time Reporter of Promoter Activity in Yeast Undergoing Respiratory Oscillations or Cell Division Rhythms. In: Yeast Genetic Networks, A. Becskei, ed. (*Methods in Molecular Biology* Series, Humana Press), pp. 63-79. [PMCID: PMC3433746](#)
- 2011 **Johnson, C.H.** Circadian Programs in Cyanobacteria. In: *Nature Encyclopedia of Life Sciences*, Nature Publishing Group, London: www.els.net.
- 2013 Gamble, K.L., D. Resuehr, and **C.H. Johnson**. Shift work and circadian dysregulation of reproduction. *Frontiers in Systems and Translational Endocrinology* 4:92. [PMCID: PMC3736045](#)
- 2013 Egli, M., and **C.H. Johnson**. A circadian clock nanomachine that runs without transcription or translation. *Current Opinion Neurobiology* 23:732–740. [PMCID: PMC3735861](#)
- 2013 de la Iglesia, H.O. and **C.H. Johnson**. Biological Clocks: Riding the tides. *Current Biology* 23: R921-R923. [PMCID: PMC4307598](#)
- 2013 Bittman EL, **Johnson CH**. Animal care practices in research on biological rhythms and sleep. *J. Biol Rhythms* 28: 303-4. [PMID: 24132055](#)
- 2014 **Johnson, C.H.** Carl Hirschie Johnson (*Current Biology* feature Q&A). *Current Biology* 24: 100-102.
- 2014 **Johnson, C. H.**, and M. Egli. Metabolic compensation and circadian resilience in prokaryotic cyanobacteria. *Annu. Rev. Biochem.* 83: 221-47. [PMCID: PMC4259047](#)

- 2015 Egli, M. and **C.H. Johnson**. Biochemistry that Times the Day. *Biochemistry* 54: 104-109. [PMCID: PMC4303296](#)
- 2015 Mori, T., H. Mchaourab, and **C.H. Johnson**. Circadian Clocks: Unexpected Biochemical Cogs. *Current Biology* 25: R842-4. [PMCID: PMC4697453](#)
- 2015 **Johnson, C. H.** Adventures in Mammalian Circadian Clocks as Applied to Human Disorders. Honma & Aschoff Prize Lecture. In: *Circadian Clocks, Proceedings of the 30th Anniversary of the Sapporo Symposium on Biological Rhythms* (Hokkaido University Press, Sapporo), pp. 2-17.
- 2016 Zhang, Y., J.B. Robertson, Q. Xie, **C.H. Johnson**. Monitoring Intracellular pH change with a Genetically Encoded and Ratiometric Luminescence Sensor in Yeast and Mammalian Cells. Chapter 9 in: *Bioluminescence: Methods and Protocols, Third Edition*, S.-B. Kim, ed. (Methods in Molecular Biology Series, Humana Press), pp. 117-130. [PMID: 27424899](#)
- 2017 **Johnson, C.H.**, C. Zhao, Y. Xu, and T. Mori. Timing the day: what makes bacterial clocks tick? *Nature Reviews Microbiology* 15: 232-242. [PMCID: PMC5696799](#)
- 2019 **Shi, S.**, and **C.H. Johnson**. Circadian biology and sleep in monogenic neurological disorders and its potential application in drug discovery. *Current Opinion in Behavioral Sciences* 25: 23–30. [PMCID: PMC6615557](#)

#### BOOKS:

- 1990 **Johnson, C. H.** *An Atlas of Phase Response Curves for Circadian and Circatidal Rhythms*. Dept. of Biology, Vanderbilt University, 715 pages.
- 2009 *Bacterial Circadian Programs*, J.L. Ditty, S.R. Mackey, **C.H. Johnson**, eds. (Springer), 333 pages.

#### BOOK REVIEW:

- 1988 **Johnson, C. H.** *The Mathematical Structure of the Human Sleep-Wake Cycle*, by Steven Strogatz. *Bull. Math. Biol.* 50: 324-326.

#### OBITUARIES:

- 2014 **Johnson, C.H.**, J.C. Dunlap, T. Roenneberg. Woody Hastings. *J. Biological Rhythms* 29: 315-317. [PMID: 25332348](#)
- 2014 Greenberg, E.P., K.H. Nealon, and **C.H. Johnson**. Woody Hastings: Sixty-five years of fun. *Proc. Natl. Acad. Sci. USA* 111: 14964-5. [PMCID: PMC4210301](#)

#### PATENTS:

Granted: European Patent Office (Patent # 99957096.3). "Bioluminescence Resonance Energy Transfer (BRET) System," June 16, 1999.

Pending with the United States Patent and Trademark Office: "Manipulating the Circadian Clock to Increase Gene Expression"

#### TEACHING EXPERIENCE:

Vanderbilt University: Human Biology (BSci 1105), Introduction to Biological Sciences (BSci 1511), Biological Clocks (BSci 3230), Cell Biology (B 201), Introductory Biology (B 100), and Seminar (B 280).

Visiting Lecturer, 1/88-2/88, University of Tsukuba, Tsukuba, Japan.

Lecturer in courses on circadian rhythms, photobiology, and cell biochemistry/physiology at Harvard University (spring '82, '83, '84, '87, and fall '85); and Harvard Medical School.

Tutor at North House, Harvard University, 1983-1987.

Question-writer for Medical College Admissions Test (MCAT) Oct. 1977 - May 1980.

#### HONORS AND FELLOWSHIPS:

NIH MERIT award for my grant R01 GM067152 from the NIGMS (now R37 GM067152)

Aschoff and Honma Prize in Biological Rhythm Research 2014

President, Society for Research on Biological Rhythms, 5/12-5/14  
(President-Elect 5/10-5/14)

Stevenson Professor of Biological Sciences, Vanderbilt University (endowed chair position), 2011-2018

Visiting Professorship, Northwest University, Xi'an, China 2008

Chancellor's Research Award, August 2005 (Vanderbilt University)

Research Scientist Development Award (NIMH) #MH01179 (7/1/94 - 6/30/04).

Human Frontier Science Program Grant (6/1/96 - 5/31/99)

Ampère Fellowship, Ibaraki University in Mito, Japan (7/92-8/92).

Jean and Katsuma Dan Fellow for 1986 (for 3 months of research/study in Japan, spent at the National Institute for Basic Biology in Okazaki, 8/86 - 12/86).

National Institutes of Health postdoctoral fellowship (NRSA F 32 GM08288), 1982-1985.



National Science Foundation Graduate fellowship, 1976-1979.

Ettlinger Award for outstanding Plan II student, University of Texas, 1976.

Phi Beta Kappa, University of Texas at Austin, 1975.

#### RESEARCH GRANT SUPPORT:

##### Current Support (Johnson is PI on all these grants):

National Institute of General Medical Sciences (NIGMS) # R37 GM067152 (01/01/2003-12/31/2024): MERIT Award, "Circadian Programs in Bacteria"

National Institute of General Medical Sciences (NIGMS) # R01 GM107434-01 (08/01/2013 – 06/30/2021), "Regulation and Significance of Sustained Circadian Oscillations"

National Institute of Neurological Disorders and Stroke (NINDS) # R01 NS104497-01 (09/01/2017 – 08/31/2021), "Circadian and Sleep Programming in Angelman Syndrome Mouse Models"

National Institute of Mental Health (NIMH) # R21 MH116150-01 (03/15/18 – 03/31/20), "Coupling Optogenetics with Novel Luminescence Reporters of Neural Activity"

##### Expired (Johnson was PI on all these grants):

Research Scientist Development Award (NIMH) #K02-MH01179 (7/1/94 - 6/30/04) (Career development award to maximize my time for research)

National Institute of Mental Health (NIMH) #R21 MH107713-01 (09/01/2015 – 06/30/2017; NCE to 06/30/2018), "Novel Luminescence Reporters of Neural Activity Partnered with Optogenetics"

National Institute on Drug Abuse (NIDA) # 1R21 DA034446-01A1 (04/01/2013-03/31/2015), "Coupling Optogenetic Neural Stimulation with Novel Reporters of Synaptic Activity"

National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK); Mouse Metabolic Phenotyping Centers #5 U24 DK076169-08 (05/01/14 – 04/30/15 ), "Daily timing of feeding as a treatment for obesity: fact or fiction?"

National Institute of General Medical Sciences (NIGMS) #1R01 GM088595 {EUREKA} (08/01/09-07/31/13), "Experimental Evolution of Circadian Oscillators"

National Heart, Lung, and Blood Institute (NHLBI) # R21 HL102492 (07/01/10 –06/30/13), "Analysis of Mammalian Circadian Mechanism with Cell-permeant Clock Proteins"

National Institute of Mental Health (NIMH) # R21 MH082258 (04/01/09-01/31/11, NCE to 04/30/12), "Circadian Clock Gene Polymorphisms Associated with Depression"

National Science Foundation SGER # IOS-0854942 (02/15/09-01/31/11), "Monitoring Cytoplasmic and Intraorganellar pH in Plants with a Novel BRET Reporter"

National Institute of Mental Health (NIMH) # R21 MH080035 (06/01/07-05/31/10), "Novel ratiometric luminescence reporters for intracellular free calcium"

National Institute of Neurological Disorders and Stroke (NINDS) # R21 NS054991 (09/01/07-06/30/10), "Screening for Chronotherapeutics Applied to Hypersomnia and Other Sleep

Disorders"

National Institute of Mental Health (NIMH) #R01 MH043836 (4/1/88 - 6/30/06) (Ca<sup>++</sup> fluxes in plant and animal clock systems)

National Institute of General Medical Sciences (NIGMS) #R01 GM65467 (4/1/02-3/31/06) (BRET Interaction System for Circadian Clock Proteins)

National Science Foundation #MCB-0114653 (9/1/01-8/31/05) (BRET in plants; collaboration with University of Tennessee)

National Institute of Mental Health (NIMH) #R21 MH65910 (7/01/02-6/30/04) (Cell-permeant Clock Proteins)

National Institute of General Medical Sciences (NIGMS) #R21-GM59984 (5/1/00-4/30/02) (BRET in mammalian cells)

Air Force Office of Sponsored Research F49620-01-1-0448 (7/1/01-6/30/02) (Cell-permeable circadian clock proteins)

National Science Foundation #MCB-9874371 (3/15/93 - 3/31/02) (Circadian programming in cyanobacteria)

National Science Foundation #INT-9605193 (7/1/97 - 6/30/01) (Melatonin and Calcium in Plant Photoperiodism; U.S.-Czech research project)

Human Frontier Science Program (6/1/96 - 5/31/99) (Phototransduction of the cyanobacterial clock)

INVITED PRESENTATIONS (not including departmental seminars):

Gordon Conference on Chronobiology, Invited Speaker 6/83, 6/87, 6/89, 5/95, 8/97, 7/99, 8/01, 5/03, 8/05, 5/07, 7/09, 6/11, 7/13, 6/15, 7/17, 6/19 (sites for half of these Gordon Conference meetings were international).

Society for Research on Biological Rhythms (Symposium Plenary Speaker) 5/88, 5/92, 5/94, 5/96, 5/98, 5/00, 5/02, 6/04, 5/10, 5/12, 5/16, 5/18 (and I also organized the Symposium session for the 2010 meeting).

President and organizer of SRBR 2014 meeting in Big Sky, Montana.

Sapporo Symposium (Sapporo, Japan), recipient of the Aschoff and Honma Prize in Biological Rhythm Research 2014, 7/14

Plenary Lecturer, 13th Workshop on Cyanobacteria, Univ. of Colorado 6/2019

Gordon Conference on Microbial Stress Response, Invited Speaker 7/2018.

Gordon Conference on Oscillations & Dynamic Instabilities in Chemical Systems, Invited Speaker 7/2016.

Gave the prestigious Van Leeuwenhoek Lecture at University of Leiden (Netherlands) 4/16

Invited Plenary Speaker at meeting of the International Society for Bioluminescence and Chemiluminescence, Tsukuba, Japan 6/16

Speaker in lectures for adult learners (mostly retirees), Osher Lifelong Learning Institute,

Lentz Public Health Center, Nashville TN, October 30, 2015.

Invited Speaker, EMBO/EMBL Symposium: "Biological Oscillators: Design, Mechanism, Function" (Heidelberg, Germany), 11/2015 and 6/2018

Invited Speaker, Angelman Syndrome Foundation Scientific Conference 7/15 (Chicago, IL) and 8/18 (Chapel Hill, NC).

Invited Lecturer, 9th European Workshop on the Molecular Biology of Cyanobacteria (Texel, Netherlands), 9/14

Invited Speaker, Duke Symposium on "Microbial Systems Physiology", October 2014 (at Duke University)

Plenary Lecture, European Biological Rhythms Society (Munich, Germany), 8/13

American Society for Microbiology Annual Meetings: organized and spoke at Symposia on "Microbial Rhythms" 5/11 and "Bacterial Clocks" 6/05; invited Symposium speaker, 5/97.

American Society for Cell Biology Annual Meeting: organized and spoke in Mini-Symposium on "Clocks," 12/09.

Cold Spring Harbor Symposium on "Biological Clocks & Rhythms," Symposium Speaker, 5/07.

INSPIRE Meeting "What makes a good clock? Circadian clocks, brain function and development" (Viareggio, Italy), 3/13

Japan Society for Chronobiology (Sapporo, Japan), Plenary Speaker 9/12

4th International Symposium on Photonic Bioimaging (Sapporo, Japan), 9/12

Environmental Molecular Sciences Laboratory Workshop on Cell Cycle and Rhythms 6/12

German Society for Cell Biology, Symposium Speaker 3/07.

Toronto Discovery District BioImaging Symposium, Toronto, Canada 11/06

United Kingdom Clocks Club (Manchester, U.K.), 6/04.

DFG Research Group Meeting on *Chlamydomonas* (Jena, Germany), 3/04.

World Congress of Chronobiology (Sapporo, Japan), 9/03.

Gordon Conference on Photosensory Receptors 5/02.

Keystone Symposium on Bacterial Chromosomes 2/01.

American Society of Plant Physiology: Minisymposia on Biological Clocks, 6/86, 7/99.

American Society for Photobiology, invited Symposium speaker, 6/92, 7/99, 7/01, 7/02.

Mosbach Colloquium (Gesellschaft für Biochemie), Germany, 3/03

“Time and timing in biological systems,” Second Symposium of the SmithKline Beecham Foundation, Munich, Germany, 11/99.

“Biological rhythms and cancer chemotherapy,” EORTC meeting, San Raphael, France, 9/00.

“Cellular regulatory mechanisms of circadian clocks,” Les Treilles, France, 9/99.

US–Japan Conference on Biological Clocks, 7/94, 12/97, 12/98.

Keynote Symposium speaker at the Society for Experimental Biology, Canterbury, U.K., 4/97.

Ninth International Symposium on Bioluminescence and Chemiluminescence, Woods Hole, MA, 10/96.

Circadian Light Reception and Regulation, Lyon, France, 5/96.

Invited Symposium Speaker, Japan Society for Plant Physiology Meeting, Kagoshima, Japan, 3/96.

EMBO Workshop on Molecular Chronobiology, Leicester, U.K., 9/92.

Fourth Sapporo Symposium on Biological Rhythms, Sapporo, Japan, 8/91.

Convention of the National Association of Biology Teachers, Nashville, TN, 11/91.

International Conferences on the Cell/Molecular Biology of *Chlamydomonas*, 5/88, 4/90, 5/92.

Cyanobacterial Workshop, San Francisco, CA, 5/93.

Annual Meeting of the Japan Society for General and Comparative Physiology, Hiroshima, Japan, 11/86.

Timberline Symposium on Biological Clocks, July 19, 1984.

Ninth International Congress on Photobiology, July 6, 1984.

MEETING AND CHRONOBIOLOGY SCHOOL ORGANIZER

International Summer School in Chronobiology at Peking University (Beijing, China), July 31 - August 6, 2016. I co-organized this Summer School with Professors Ying Xu (Suzhou University, China) and Erquan Zhang (National Institute for Biological Sciences, China).

President and organizer of Society for Research on Biological Rhythms (SRBR) meeting June 14-18, 2014. 680 attendees.

International Summer School in Chronobiology at Vanderbilt University, July 2013 (30 students and 10 Faculty from 13 different countries). I co-organized this Summer School with Prof. Doug McMahon (Vanderbilt University) and Prof. Erik Herzog (Washington University).

Organized and ran the first and second RISER meetings (RISER = Rhythms In SouthEast Region) at Vanderbilt on May 16, 2009 and May 15, 2011, for circadian clock researchers in Tennessee, Kentucky, Georgia, and Missouri.

American Society for Microbiology, organized Symposia on Bacterial Clocks 6/05 and Microbial Rhythms 5/11.

#### INVITED PRESENTATIONS AT OTHER INSTITUTIONS (including departmental seminars):

Centre Algatech (Czech Academy of Sciences; Trebon, Czechia) 6/19  
University of Heidelberg (Germany) 6/18  
Berthold Technologies (Bad Wildbad, Germany) 6/18  
Danforth Plant Science Center (St. Louis MO) 4/18  
Washington University (St. Louis MO) 4/18  
Caltech (Pasadena, CA) 4/18  
Charité, Berlin Germany (two separate lectures) 6/17  
Humboldt University, Berlin Germany (two separate lectures) 6/17  
University of Munich, Munich Germany 6/17  
Czech Academy of Sciences, Prague Czechia 6/17  
University of Pennsylvania (Philadelphia, PA) 3/17  
Stanford University (Palo Alto, CA) 3/17  
Hopkins Marine Station 3/17 (marine biology station of Stanford University)  
National Institute for Biological Sciences, Beijing, China 8/16  
University of Tokyo, Japan 6/16  
Austin Peay State University (Clarksville, TN) 4/16  
University of Sao Carlos, Brazil, 8/15  
Soochow University (Suzhou, China), 3/15  
Zhongshan University (aka Sun Yat Sen University, Guangzhou, China), 3/15  
Hebei Normal University (Shijiazhuang, China), 3/15  
Waseda University (Tokyo, Japan), 6/13  
Kanazawa University (Kanazawa, Japan), 6/13  
Hebei Normal University (Shijiazhuang, China), 5/13  
Chinese Academy of Sciences (Beijing, China), 5/13  
Cornell University (Ithaca, NY) 10/12  
University of Memphis 12/11

University of Alabama Birmingham 9/11  
UCLA (Los Angeles, CA) 4/11  
Conference in honor of Robert Klevecz, Beckman Institute of City of Hope Hospital 9/10  
Stanford University/Hopkins Marine Station 6/09  
University of Tennessee-Knoxville 11/08  
Northwest University, Xi'an China 6/08  
University of Michigan 4/08  
University Joseph Fourier in Saint Martin d'Herès, (France) 5/07  
University of Leicester (U.K.) 8/06  
University of Arizona 7/06  
University of Pittsburgh 4/06  
Beckman Research Institute of the City of Hope, 3/06  
University of North Carolina, 12/05  
Mitsubishi Kagaku, Institute of Life Sciences, Japan 6/05  
Kitasato Medical School, Japan 6/05  
Morehouse Medical School 6/05  
FRET Workshop, University of Virginia 3/05  
University of Oxford (United Kingdom) 7/04  
University of Leicester (United Kingdom) 7/04  
University of Cardiff (United Kingdom) 7/04  
University of Cambridge (United Kingdom) 6/04  
University of Warwick (United Kingdom) 6/04  
University of Virginia 5/04  
Institute for Systems Biology 3/04  
Harvard University 2/04  
MBL Microbial Diversity Class, 7/02  
Osamu Shimomura Symposium (MBL) 7/02  
Tennessee State University 4/02  
Ohio State University 3/02  
Oregon Health and Science University 3/02  
University of Texas 2/02  
Washington University 2/02  
Baylor Medical School 1/02  
Univ. of Alabama at Birmingham 4/2/01  
Murray State 4/6/01  
Michigan State University 11/15/00  
University of Montreal 10/00  
Univ. of Barcelona 9/19/00  
UCLA 10/99  
Johns Hopkins Univ. 1/99  
MTSU 11/98  
Northeastern Univ. 10/98  
Univ. Western Kentucky 11/98  
University of Tennessee 9/97  
University of Maryland 4/97  
University of South Dakota 10/96

RESEARCH INTERESTS:

Circadian Rhythms, Genetics, Human Genetics, Structural Biology, Biophysics, BRET (Bioluminescence Resonance Energy Transfer), Cell Biology

OTHER UNIVERSITY SERVICE:

Investigator, John F. Kennedy Center for Research on Education and Human Development

Faculty Mentor of Assistant Professors:

Dr. Larry Zwiebel (Biological Sciences)

Dr. Antonis Rokas (Biological Sciences)

Dr. Julian Hillyer (Biological Sciences)

Dr. Bill Holmes (Physics)

Membership Chair, Phi Beta Kappa (Alpha of Tennessee, Vanderbilt Chapter), 2014-present

Member of Vanderbilt Brain Institute

Member of Vanderbilt Institute for Chemical Biology

Member of Vanderbilt-Ingram Cancer Center

Member of Vanderbilt Diabetes Center

Member of Vanderbilt Center for Addiction Research

Ph.D. Program Faculty, Center for Human Genetics Research 2010-present

Marshall, Vanderbilt Commencement Exercises 2000-2017

Member of Board of Advisors, Vanderbilt University Center for Ethics 2006-2009

Faculty member, Vanderbilt Center for Teaching Advisory Board 2011-2014

Member, Institutional Biomedical/Biological Sciences Internal Review Committee for Limited Submission Opportunity (LSO) applications, 2012-2014

Member of Vanderbilt Kennedy Center's Planning Committee for VKC Science Day February 28, 2012.

Faculty Search Committees:

Blair School (1991)–Music Theory

Dept. of Biology (1992)–Developmental Biology

Dept. of Biology (1994)–Cell Biology

Dept. of Biology (1997)–Cell Biology (chair of search committee)

Dept. of Biological Sciences (1999)–Neurobiology (chair of search committee)

Dept. of Biological Sciences (2000)–Molecular Genetics  
Dept. of Biological Sciences (2001)–Neurobiology  
Dept. of Biological Sciences (2003)—Structural Biology  
Dept. of Biological Sciences (2004)–Cell Biology  
Dept. of Biological Sciences (2007)–Population Biology  
Dept. of Biological Sciences (2009)–Developmental Genetics  
Dept. of Biological Sciences (2017)–Microbiome

Curriculum Committee (Biol. Sci. Dept.): Chair 2002-2009; Member 2018-present

Member, Graduate Admissions Committee for Department of Biological Sciences 2013,  
2014, 2017, 2018

Lecturer in Vanderbilt Medical School's IGP course, 2002-present

Member, University Calendar Committee, 2005-2009.

Founder's Walk 2004

Lecturer in Vanderbilt Medical School (1991-1999) and Nursing School (1990).

Center for Health Services, Vice-Chair of the Board and Executive Committee  
(1992-1994, 1996-2000). CHS Board member, 1992-2000.

Alternative Spring Break: Faculty Participant 1989, 1990, 1991, 1992.

Member, Committee on Educational Programs (1995-98)

Parent's Weekend Lecturer: 1992, 1993.

“Raft” Debate: 1992, 1993.

#### OTHER SERVICE:

President, Society for Research on Biological Rhythms, 5/12-5/14 (President-Elect, 5/10-  
5/12)

Editorial Advisory Board for *Journal of Biological Rhythms*, 1995-present

Informal Associate Editor of *Photochemistry & Photobiology* specializing in clock  
papers, 1999-2002

Reviewer of manuscripts for other assorted journals including *Science*, *Nature*, *Cell*,  
*Proc. Natl. Acad. Sci.*, *J. Biological Rhythms*, *EMBO Journal*, *Journal of  
Biological Chemistry*, *PLoS Biology*, *Nature Structure and Molecular Biology*,  
*Genes & Development*, *Nature Methods*, *J. Bacteriology*, *Plant Mole. Biol.*,  
*Photochem. Photobiol.*, *J. Phycology*, et al.



Secretary, Society for Research on Biological Rhythms, 5/98-5/00.

Treasurer, Society for Research on Biological Rhythms, 5/96-5/98.

National Institute for Mental Health Workshop on 9/12/96: "Meeting the Future Needs for Neuroscientists and Behavioral Scientists in Mental Health Research"

*Ad hoc* reviewer for Molecular and Cellular Neurobiology Study Sections for the National Institute for Mental Health

Reviewer of various grants for the National Science Foundation, USDA, USAF, etc.

#### MENTORING OF STUDENTS AND POSTDOCTORAL FELLOWS:

##### Ph.D. Dissertation Supervisor:

Yi Liu	Ph.D. completed Summer 1995 (now Full Professor at University of Texas Southwestern Medical Center, USA)
Yan Ouyang	Ph.D. completed Fall 1998
Jiqing Sai	Ph.D. completed Summer 2000
Tetsuya Mori	Ph.D. completed Fall 2001
Mariko Izumo	Ph.D. completed Spring 2005
Brian Robertson	Ph.D. completed Summer 2009; (now Associate Professor at Middle Tennessee State University, USA)
Ximing Qin	Ph.D. completed Fall 2010 (now Assistant Professor at Anhui University, China)
Peijun Ma	Ph.D. completed Fall 2014
Derrick Cumberbatch	Ph.D. completed Spring 2019
Kevin Kelly	Ph.D. candidate
Carla O'Neale	Ph.D. candidate
Lúisa Jabbur	Ph.D. candidate

##### Master's Thesis Supervisor:

Edward Byrne	Master's thesis completed Summer 1992
Lei Shan	Master's thesis completed Spring 1995
Anne Finley	Master's thesis completed Summer 1998 under the Howard Hughes' Summer Master's Program
Kittiporn Phanhvithsiri	Master's thesis completed Summer 2000
Guo Huang	Master's thesis completed Summer 2001
Jill Mecklenborg	Master's thesis completed Summer 2011
Jing Xiong	Master's thesis completed Winter 2014

##### Postdoctoral Fellows:

Dr. Sigrid Jacobshagen	1990-95 (now Assoc. Prof. at Western Kentucky Univ.)
Dr. Selene Nikaido	1993-98 (now Assoc. Prof. at Central Missouri State Univ.)
Dr. Yao Xu	1995-present (now Research Associate Professor)

Dr. Lena Suzuki	1998-2003
Dr. Karen Hicks	1998-1999 (now Assoc. Professor at Kenyon College)
Dr. Akihito Kanauchi	2000-2003
Dr. Tetsuya Mori	2001-present (now Research Assistant Professor)
Dr. Yunzhen Fan	2001-2007 (now Lecturer in China)
Dr. Mark Woelfle	2001-present (Senior Lecturer, Vanderbilt University)
Dr. Vladimir Podust	2002-2003 (now a senior scientist at Amunix)
Dr. Xiaodong Xu	2002-2006 (now Assoc. Prof. at Henan University, China)
Dr. Xiangyang Hu	2003-2004 (now Prof. at Kunming Inst. Botany, China)
Dr. Akiko Hida-Fukuda	2003-2007 (now Section Chief at National Center of Neurology and Psychiatry, Japan)
Dr. Mohammed Soutto	2003-2005 (now postdoc at Vanderbilt)
Dr. Tanuja Bhattacharyya	2003-2004 (now postdoc in Brazil)
Dr. Qiguang Xie	2004-2006 (now Asst. Prof. at Henan University, China)
Dr. Dong-Eun Chang	2004-2006 (now team leader at Metabolix)
Dr. Mariko Izumo	2005-2006 (now postdoc at Univ. Texas SWMC)
Dr. Yunfei Zhang	2007-2014 (now at Anhui University, China)
Dr. Shu-qun Shi	2007-present (now Research Associate Professor)
Dr. Hugo Borsetti	2008-2010 (Asst. Prof. Natl. Univ. of Jujuy, Argentina)
Dr. Brian Robertson	2009-2011 (Assoc. Prof. Middle TN State University)
Dr. Ximing Qin	2010-2014 (Asst. Prof., Anhui University, China)
Dr. James Weeks	2011-2013 (teacher, Franklin Road Academy)
Dr. Peijun Ma	2014-2015 (now postdoc at Broad Institute of MIT)
Dr. Jie Yang	2013-2017 (now Asst. Prof. at Huazhong Univ. of Science and Technology, China)
Dr. Chi Zhao	2015-present
Dr. Thywill Sabblah	2019-present

NSF REU undergraduates:

Doug Kramer	(1999-2000)
Jejo Koola	(Summer 2000)

Other Undergraduates (receiving course credit for laboratory research):

Joyce Chang, William Crouch, Jayati Kesavan, Terrell Joseph, Adam Silverstein, Jon Walsh, Steven Plonk, Amy Patterson, Rachel Bonvillain, Brad Williams, Marianne Macomber, YoungWha Lee, Shawn Stanley, Brooke Hodes, Alycia Dean, Kelly Truesdale, Heather Campbell, Justin Sims, Derrick Choi, Tiffany Gillam, Wendi Bond, Jill Roth, Koryse Woodrooffe, Clay Brown, Jalin Liu, Julie Wang, Luke Oakley, Jing Chen, Kasia Darlak, Dan Roberts, Sarina Sahetya, David Shisler, Luis Huerta, Sonal Patel, Graham Gipson, Erik Schneibel, Sung In Kim, Sydney Larson, Morgan Webb, Sara Chen, Li Zhou, Jae Lee, Morgan Brooks, Noor Ahmed, Rohit Maini, John Stahl, Laura Ballenger, Harish Krishnamoorthi, Yu Ting, Jessica Islam, Yufei Pan, Allison Piazza, Jennifer Best, Scott Coppel, Jason Theobald, Paul Yeh, Jana Bregman, Vasanth Sathiyakumar, Patrick Roth, Cather Cala, Nathan Gibbon, Wenyu Qu, Danielle Kern, Aeron Small, Cathy Zhang, Jing Sun, Jun Song, Jeffrey Savin, Elina Nektalova, Caroline McCool, Christina Stanfield, Megan Garvey, Rafal Kwiecinski, Timothy Chappell, Paul Bonney, Karthik Yarlalagadda, Amanda Mitchell, Rebecca Meltzer, Brendon

Wade, Ashley Libby, Ashwini Joshi, Jingru (Ruth) Yan, Matthew Dunn, Jason Eggold, Jessica Brugman, Conor McMann, Sirui Ma, Emily Bishop, Sam Rafla, Erika Ikizake, Chad Erickson, Rachel Su, Patrick Bray, Minjae Kim, Ian Hurford, Jacob Gussert, Marcell Paguaga, Austin Mallard, Henry Wang, Sung Jin Lee, Emma Follman.

High School Students:

Nina Xu (she was a 2001 Siemens Westinghouse Science & Technology Competition Regional Finalist—this was a prize she received for her work in my laboratory)

John Bolds  
Jesse Chait  
Jordan Salter  
James Yang

Technicians:

Ed Byrne, Jon Walsh, Stein Servick, Karen Helms, Connie Mahautmr, Matthew Pullen, Jing Xiong, Patrick Roth, Kathryn Campbell, Danielle Zelli, Saangho (Mark) Lee, Brendon Wade, Briana Wyzinski, Ian Dew.

Lab aides:

Norman Reed, Idris Abdi, Alycia Dean, Rosalind Simmons, Gerri Manning, Caitlin Grant, Brendon Wade, Jason Eggold, Emily Bishop, Minjae Kim.

Chair of graduate student committees (in addition to supervising my own students):

Alex Flynt (Patton), Xiaoming Zhou (Graham), Shi Meng (McMahon), Rafal Sobota (Williams), Heng Dai (McMahon)

Member of graduate student committees (my students are indicated as CJ):

Yi Liu (CJ), Mariko Izumo (CJ), Yan Ouyang (CJ), Jiqing Sai (CJ), J. Brian Robertson (CJ), Chris Ciarleglio (McMahon), Robin Bairley (Friedman), Dan Anderson (CJ), Ximing Qin (CJ), Peijun Ma (CJ), Heng Dai (McMahon), Lara Jazmin (Young), Todd Lagus (Edd), Harris Manning (Lang), Jing Xiong (CJ), Derrick Cumberbatch (CJ), Kevin Kelly (CJ), Diana Tafoya (Eichman), Michael Tackenberg (McMahon), Adeola Oluyemisi Adebisi (Young), Maria Luísa Jabbur (CJ), Carla O'Neale (CJ), Olivia Cox (McMahon).