

Fabian-Xosé Fernandez, PhD
Email: FabianF@arizona.edu

CHRONOLOGY OF EDUCATION

2003-2008 PhD, Stanford University, Palo Alto, CA, Neurosciences.
1998-2002 BSc, University of Florida, Gainesville, Interdisciplinary Studies Major in Neurobiological Sciences, *Summa cum laude*, *Phi Beta Kappa*

CURRENT POSITION

2022- Associate Professor, Department of Psychology, University of Arizona
Secondary Affiliations with the Department of Neurology (by courtesy), the BIO5 and Evelyn F McKnight Brain Institutes, and the Neuroscience Graduate Interdisciplinary Program. Member of the Graduate Faculty.

PREVIOUS POSITIONS

2015-2022 Assistant Professor, Departments of Psychology and Neurology, McKnight Brain Institute, University of Arizona, Tucson, AZ
2012-2015 Research Associate, Johns Hopkins University, Baltimore, MD

HONORS & AWARDS

2015 Faculty Fellow Award, BIO5 Institute, University of Arizona, Tucson
2008-2009 La Fondation Jérôme-Lejeune Postdoctoral Fellowship
2007 Ruth L. Kirschstein National Research Service Award
2003-2006 National Science Foundation Graduate Research Fellowship

SERVICE & OUTREACH

Local/state

2022- Proposal Reviewer, UA Department of Psychology Pilot program
2021-2022 Grant Reviewer, *UA Research Advancement Grants* program
2019 UA Healthy Campus Coalition, **Brain Health Week Keynote Speaker**, “Sleep and the Brain: Down the Rabbit Hole We Go”
2018 Speaker, UA Women in Medicine & Science (WIMS) Event
2017-present Grant Reviewer, *UA Research, Discovery, and Innovation* limited solicitation programs
2016 Arizona Alzheimer’s Consortium, University of Arizona
Internal Scientific Advisory Board Member
2016 Speaker, UA Science Café, Community Outreach Event, “It’s About Time,” SaddleBrooke Desert View Performing Arts Center
<https://www.youtube.com/watch?v=oG4Tq1mOs5s>

National/International

Editorial Boards and Guest Editorships

2021 *Frontiers in Psychiatry*, Guest Associate Editor

- 2021 *Frontiers in Neurology*, Translation and Processing of Light by the Non-Image Forming Visual System – Context, Mechanisms and Applications <https://www.frontiersin.org/research-topics/12871>
Chief editor of special issue, 17 articles focused on circadian light.
- 2018- Selected to the Editorial Review Board for the *American Journal on Intellectual and Developmental Disabilities* (AJIDD)

Society Memberships and Committees

- 2021- Sleep Research Society
- 2015- Society for Research in Biological Rhythms, Trainee and Travel Awards Committee, <https://srbr.org/about-us/committees/>
- 2015- Association for Psychological Science

Peer Review: Grants, National Agencies and Private Foundations

- 2022 Grant Reviewer, Velux Stiftung, Switzerland
- 2022 Proposal Review, Innovative Mental Health Research Grants Program (Level 1 and Level 2 Awards), IMHR, USA
- 2022 Grant Reviewer, Research fellowship program (AARF and AARF-D), Alzheimer's Association, USA
- 2022 Abstract Review for the Emmett Chappelle Award and Global Diversity Fellowship, Society for Research in Biological Rhythms (SRBR), USA
- 2021 Interim Project Reviewer, Velux Stiftung, Switzerland
- 2020 Grant Reviewer, Definitive Intervention and Feasibility Awards, Health Research Board (HRB), Ireland
- 2020 Proposal Review, Medical Research Council (MRC), United Kingdom
- 2019 Interim Project Reviewer, Velux Stiftung, Switzerland
- 2019 Grant Reviewer, Application for individual research project, Alzheimer's Association, USA
- 2018 Grant Reviewer, Research fellowship program, Alzheimer's Association, USA
- 2017 Grant Reviewer, Velux Stiftung, Switzerland
- 2017 Grant Reviewer, Medical Research Council (MRC), United Kingdom
- 2016 Grant Reviewer, Flanders Research Foundation (FWO), Belgium
- 2014 NIH Summit with NCATS on Next Steps for Down Syndrome Therapeutics, The Down Syndrome Project
- 2012 Consulting, GABA mechanisms for pharmaceutical trials of cognitive enhancement, *Balance Therapeutics*, San Bruno, CA

Peer Review: Journals

Proceedings of the National Academy of Sciences (USA) • Proceedings of the Royal Society B: Biological Sciences • Acta Paediatrica • BMC Biology • BMC Medicine • British Journal of Development Disabilities • Cancers • Clinical and Experimental Immunology • Cortex (several assignments) • Current Opinion in Neurobiology • Heliyon (Cell Press) • International Journal of Molecular Sciences (MDPI, Basel) • Journal of Neurophysiology • Neurobiology of Aging

(several assignments) • Neurobiology of Learning & Memory • Pediatric Neurology • Pediatric Research (American Pediatric Society, Nature Publishing) • Frontiers in Psychiatry • Frontiers in Psychology • Journal of International Medical Research (SAGE) • Journal of Alzheimer’s Disease • Nature and Science of Sleep (annual assignments from 2018-2022) • Neural Plasticity • Sleep Health: Journal of the National Sleep Foundation • Clocks & Sleep • International Journal of Environmental Research & Public Health • Electronics • PLoS ONE • Springer Nature Healthy Ageing and Longevity Book Series • Revista de Psiquiatría y Salud Mental (official publication of the Spanish Society of Psychiatry) • Psychiatria Danubina (official publication of the Danubian Psychiatric Association, sponsored by the Republic of Croatia)

Scientific Advisory Committees

- 2022-2025 Selected to the External Council of Scientific Advisors (ECSA) for the Institute for Mental Health Research, <https://www.imhr.org/esca>
- 2022 Invited to the Sleep Research Society’s Key Opinion Leaders’ Round Table on Circadian Rhythm Disorders. Attendance limited to other key opinion leaders in sleep and circadian science and top corporate supporters (Avadel, Dreem, Eisai, Jazz, Philips, ResMed, Takeda, and WHOOP). Co-chaired by: Drs. Elizabeth B. Klerman and Kenneth P. Wright
- 2021 Invited to The Industry Advisory Council, an annual scientific meeting hosted by the Sleep Research Society Foundation (SRSF). Key opinion leaders in the sleep and circadian sciences are invited to this exclusive event each year to discuss issues, share research ideas and techniques, and brainstorm potential solutions to challenges facing the field. Chaired by: Dr. Phyllis C. Zee
- 2020- Selected to Scientific Advisory Committee for the multi-site clinical study, “Comparing the Effectiveness of Zolpidem and Cognitive Behavioral Therapy for Insomnia in Rural Adults.” Funded by the Patient-Centered Outcomes Research Institute (PCORI). Lead Investigators: Katie L. Stone, Daniel J. Buysse, and Sairam Parthasarathy

Departmental and University Committees

- 2022- Member of the UA Department of Psychology Research Committee and Human-Subjects Review Board
- 2019-2021 Co-Director of the *Awards Committee* of the UA Department of Psychology; spearheaded several successful award applications for faculty colleagues, including those recognizing **Drs. Lynn Nadel** (APF Gold Medal Award for Life Achievement in the Science of Psychology, APS William James Fellow Award), **Rebecca L. Gomez** (APS Fellow), **Arne Ekstrom** (APS Fellow), and **Jeff Stone** (University of Arizona Distinguished Professor Award)
- 2019- Behavioral Sleep Medicine Seminar Series, *Planning Committee*, University of Arizona College of Medicine

2016-2018 Elected and served on the *Faculty Executive Advisory Committee* (FEAC) of the UA Department of Psychology; developed an instrument to track graduate student progress in accordance with self-study guidelines set out by the UA Office of Instruction & Assessment.

PUBLICATIONS

1. **Fernandez F.**, Misilmeri M.A., Felger J.C., and Devine D.P. Nociceptin/Orphanin FQ increases anxiety-related behavior and circulating levels of corticosterone during neophobic tests of anxiety. *Neuropsychopharmacology*, 29: 59-71, **2004**.
2. **Fernandez F.**, Morishita W., Zuniga E., Nguyen J., Blank M., Malenka R.C., and Garner C.C. Pharmacotherapy for cognitive impairment in a mouse model of Down syndrome. *Nature Neuroscience*, 10: 411-413, **2007**.

Commentary in: Samson K. Drug removed by FDA in 1982 improves learning in Down syndrome mice. *Neurology Today*, 7: 1, 2007.

Commentary in: Hampton T. Down syndrome Drugs. *Journal of the American Medical Association*, 297: 1423, 2007.

Media Coverage in: Fox, Maggie. Drug may treat mental symptoms of Down syndrome. *Reuters*, February 2007.

Media Coverage in: Langreth, Robert. IQ-Boosting drugs aim to help Down syndrome kids learn. *Bloomberg*, March 2014.

3. **Fernandez F.** and Garner C.C. Object recognition memory is conserved in Ts1Cje, a mouse model of Down syndrome. *Neuroscience Letters*, 421: 137-141, **2007**.
4. **Fernandez F.** and Garner C.C. Over-inhibition: a model for developmental intellectual disability. *Trends in Neurosciences*, 30: 497-503, **2007**.
5. **Fernandez F.** and Garner C.C. Episodic-like memory in Ts65Dn, a mouse model of Down syndrome. *Behavioural Brain Research*, 188: 233-237, **2008**.
6. Ruby N.F., Hwang C.E., Wessells C., **Fernandez F.**, Zhang P., Sapolsky R., and Heller H.C. Hippocampal-dependent learning requires a functional circadian system. *Proceedings of the National Academy of Sciences*, 105: 15593-15598, **2008**.

Media Coverage in: Circadian clock may be critical for remembering what you learn, researchers say. *ScienceDaily*, October 2008.

7. **Fernandez F.**, Trinidad J.C., Blank M., Feng D.D., Burlingame A.L., and Garner C.C. Normal protein composition of synapses in Ts65Dn mice, a mouse model of Down syndrome. *Journal of Neurochemistry*, 110: 157-169, **2009**.

8. Heller H.C., Colas D., Ruby N., **Fernandez F.**, Chuluun B., Blank M., and Garner C.C. Long term repair of learning disability through short-term reduction of CNS inhibition. *Foundations of Augmented Cognition. Neuroergonomics and Operational Neuroscience*, 5638: 818-825, **2009**.
9. **Ruby N.F.***, **Fernandez F.***, Zhang P., Klima J., Heller H.C., and Garner C.C. Circadian locomotor rhythms are normal in Ts65Dn "Down Syndrome" mice and unaffected by pentylentetrazole. *Journal of Biological Rhythms*, 25: 63-66, **2010**.
***Co-Primary Authors**
10. **Fernandez F.***, Torres V., and **Zamorano P.*** An evolutionarily conserved mechanism for presynaptic trapping. *Cellular and Molecular Life Sciences*, 67: 1751-1754, **2010**.
***Co-Corresponding Authors**
11. Torres V., Barra L., Garcés F., Ordenes K., Leal-Ortiz S., Garner C.C., **Fernandez F.**, and Zamorano P. A bicistronic lentiviral vector based on the 1D/2A Sequence of foot-and-mouth disease virus expresses proteins stoichiometrically. *Journal of Biotechnology*, 146: 138-142, **2010**.
12. Ruby N.F., **Fernandez F.**, Garrett A., Klima J., Zhang P., Sapolsky R., and Heller H.C. Spatial memory and long-term object recognition are impaired by circadian arrhythmia and restored by the GABA_A antagonist pentylentetrazole. *PLoS ONE*, 8: e72433, **2013**.
13. **Fernandez F.*** and Edgin J.O. Poor sleep as a precursor to cognitive decline in Down syndrome: A hypothesis. *Journal of Alzheimer's Disease & Parkinsonism*, 3:2, **2013**.
***Corresponding Author**
14. **Zampieri B.L.***, **Fernandez F.***, Pearson J.N., Stasko M.R., and Costa A.C.S. Ultrasonic vocalizations during male-female interaction in the mouse model of Down syndrome Ts65Dn. *Physiology & Behavior*, 128: 119-125, **2014**. ***Co-Primary Authors**
15. **Fernandez F.**, Lu D., Ha P., Costacurta P., Heller H.C., and Ruby N.F. Dysrhythmia in the suprachiasmatic nucleus inhibits memory processing, *Science*, 346: 854-857, **2014**.

Editorial Feature in: The Sun rises (and sets) on hamster memories.
Science, 346: 822, 2014.

Commentary in: Lewis S. Remembering night and day.
Nature Reviews Neuroscience, 16: 3, 2015.
16. **Fernandez F.*** and Reeves R.H. Assessing cognitive improvement in people with Down syndrome: Important considerations for drug efficacy trials. *Handbook of Experimental Pharmacology*, 228: 335-380, **2015**. ***Corresponding Author**

Translated and editorialized in: Jesús Florez (Cantabria, Spain), La práctica del ensayo clínico en el síndrome de Down, Revista Síndrome de Down, 32: 106-110, 2015.

17. **Fernandez F.* and Edgin J.O.** Pharmacotherapy in Down syndrome: Which way forward? *Lancet Neurology*, 15: 776-777, **2016**. ***Corresponding Author**

Media Coverage in: Agence France-Presse, Down's syndrome 'can be treated with green tea'. *UK Telegraph*, June 2016.
18. **Fernandez F.***, Nyhuis C.C., Anand P., Demara B.I., Ruby N.F., Spanò G., Clark C., and Edgin J.O. Young children with Down syndrome show normal circadian development, but poor sleep efficiency: A cross-sectional study across the first 60 months of life. *Sleep Medicine*, 33: 134-144, **2017**. ***Corresponding author**
19. Clark C.A.C., **Fernandez F.**, Sakhon S., Spanò G., and Edgin J.O. The medial temporal memory system in Down syndrome: Translating animal models of hippocampal compromise. *Hippocampus*, 27: 683-691, **2017**.
20. Lewis S.A., Negelspach D.C., Kaladchibachi S., Cowen S.L., and **Fernandez F.*** Spontaneous alternation: A potential gateway to spatial working memory in Drosophila. *Neurobiology of Learning and Memory*, 142: 230-235, **2017**. ***Corresponding Author**
21. Ruby N.F., Fisher N., Patton D.F., Paul M.J., **Fernandez F.***, and **Heller H.C.*** Scheduled feeding restores memory and modulates c-Fos expression in the suprachiasmatic nucleus and septohippocampal complex. *Scientific Reports (Nature Publishing Group)*, 7: 6755, **2017**. ***Co-Senior Authors**
22. Kaladchibachi S. and **Fernandez F.*** Precision light for the treatment of psychiatric disorders. *Neural Plasticity*, 5868570, 1-16, **2018**. ***Corresponding Author**
23. Kaladchibachi S., Negelspach D.C., and **Fernandez F.*** Circadian phase-shifting by light: Beyond photons. *Neurobiology of Sleep and Circadian Rhythms*, 5: 8-14, **2018**. ***Corresponding Author**
24. Maple A.M., Rowe R.K., Lifshitz J., **Fernandez F.***, and **Gallitano A.L.*** Influence of schizophrenia-associated gene *Egr3* on sleep behavior and circadian rhythms in mice. *Journal of Biological Rhythms*, 33: 662–670, **2018**. ***Co-Senior Authors**
25. Negelspach D.C., Kaladchibachi S., and **Fernandez F.*** The circadian activity rhythm is reset by nanowatt pulses of ultraviolet light. *Proceedings of the Royal Society of London B: Biological Sciences*, 285: 1884, **2018**. ***Corresponding Author**
26. Kaladchibachi S., Negelspach D.C., and **Fernandez F.*** Responses to intermittent light stimulation late in the night phase before dawn. *Clocks & Sleep (Basel)*, 1: 26-41, **2019**. ***Corresponding Author** (invited for inaugural issue by Ed. Christian Cajochen)
27. Kaladchibachi S., Secor M.A., Negelspach D.C., and **Fernandez F.*** Longitudinal study of sleep and diurnal rhythms in *Drosophila ananassae*. *Experimental Gerontology*, 116: 74-79, **2019**. ***Corresponding Author**

28. **Fernandez F.** Circadian responses to fragmented light: Research synopsis in humans. *Yale Journal of Biology & Medicine*, 92: 337-348, **2019**.
29. Grandner M., Khader W., Warlick C., and **Fernandez F.** Acculturation and Sleep: Implications for Sleep and Health Disparities. *Sleep*, 42: 1-2, **2019**.
30. Kaladchibachi S., Negelspach D.C., Zeitzer J.M., and **Fernandez F.*** Optimization of circadian responses with shorter and shorter millisecond flashes. *Biology Letters of the Royal Society*, 15: 20190371, **2019**. ***Lead Corresponding Author**
31. Tubbs A.S., Dollish H.K., **Fernandez F.**, and Grandner M.A. The basics of sleep physiology and behavior. In *Sleep and Health*, p. 3-10, **2019**.
32. Tubbs A.S., Khader W., **Fernandez F.**, and Grandner M.A. The common denominators of sleep, obesity, and psychopathology. *Current Opinion in Psychology*, 34: 84-88, **2020**.
33. Tubbs A.S., Perlis M.L., Basner M., Chakravorty S., Khader W., **Fernandez F.**, and Grandner M.A. Relationship of nocturnal wakefulness to suicide risk across months and methods of suicide. *Journal of Clinical Psychiatry*, 81: 19m12964, **2020**.
- Invited for a commentary in:* Tubbs A.S., Fernandez F-X., and Grandner M.A. From the Scientist Series, James Kirk Bernard Foundation, January 20, 2021 <https://jameskirkbernardfoundation.org/programs/scientific-research/>
34. Giordano K.R., Denman C.R., Dollish H.K., **Fernandez F.**, Lifshitz J., Akhter M., and Rowe R.K. Intracerebral hemorrhage in the mouse altered sleep-wake patterns and activated microglia. *Experimental Neurology*, 327: 113242, **2020**.
35. **Fernandez F-X.***, Flygare J., and Grandner M.A. Narcolepsy and COVID-19: Sleeping on an opportunity? *Journal of Clinical Sleep Medicine*, 16: 1415, **2020**.
***Corresponding Author**
- Editorial Response in:* Mignot E., Black S. Narcolepsy risk and COVID-19. *Journal of Clinical Sleep Medicine*, 16: 1831-1833, 2020.
36. Snyder H.M., Bain L.J., Brickman A.M., Carrillo M.C., Esbensen A.J., Espinosa J.M., **Fernandez F.**, Fortea J., Hartley S.L., Head E., Hendrix J., Kishnani P.S., Lai F., Lao P., Lemere C., Mobley W., Mufson E.J., Potter H., Zaman S.H., Granholm A-C., Rosas H.D., Strydom A., Whitten M.S., and Rafii M.S. Further understanding the connection between Alzheimer's disease and Down syndrome. *Alzheimer's & Dementia*, 16: 1065-1077, **2020**.
37. Khader S., Tubbs A.S., Haghghi A., Athey A., Killgore W.D., Hale L., Branas C., Gehrels J.-A., Alfonso-Miller P., **Fernandez F-X.***, and **Grandner M.A.*** Onset insomnia and insufficient sleep duration are associated with suicide ideation in university students and athletes. *Journal of Affective Disorders*, 274: 1161-1164, **2020**.
***Co-Corresponding Authors**

38. Killgore W.D., Cloonen S.A., Taylor E.C., **Fernandez F.**, Grandner M.A., and Dailey N.S. Suicidal ideation during the COVID-19 pandemic: The role of insomnia. *Psychiatry Research*, 290: 113134, **2020**.
39. Tubbs A.S., Harrison-Monroe P., **Fernandez F-X.**, Perlis M.L., and Grandner M.A. When reason sleeps: attempted suicide during the circadian night. *Journal of Clinical Sleep Medicine*, 16: 1809-1810, **2020**.
40. Khader S., **Fernandez F-X.**, Seixas A., Knowlden A., Ellis J., Williams N., Hale L., Perlis M.L., Jean-Louis G., Killgore W.D., Alfonso-Miller P., and Grandner M.A. What makes people want to make changes to their sleep? Assessment of perceived risks of insufficient sleep as a predictor of intent to improve sleep. *Sleep Health (Journal of the National Sleep Foundation)*, 7: 98-104, **2021**.
41. Tubbs A.S., **Fernandez F-X.**, Perlis M.L., Hale L., Branas C., Barrett M., Chakravorty S., Khader W., and Grandner M.A. Suicidal ideation is associated with nighttime wakefulness in a community sample. *Sleep*, 44: zsa128, 1-9, **2021**.
42. Lee R., Tapia A., Kaladchibachi S., Grandner M.A., and **Fernandez F-X.*** Meta-analysis of light and circadian timekeeping in rodents. *Neuroscience and Biobehavioral Reviews*, 123: 215-229, **2021**. *Corresponding Author
43. Wong K.Y. and **Fernandez F-X.*** Circadian responses to light-flash exposure: Conceptualization and new data guiding future directions. *Frontiers in Neurology*, 12: 627550, **2021**. *Corresponding Author
44. **Fernandez F-X.***, Kaladchibachi S., and Negelspach D.C. Resilience in the suprachiasmatic nucleus: Implications for aging and Alzheimer's disease. *Experimental Gerontology*, 147: 111258, **2021**. *Corresponding Author
45. **Tubbs A.S.***, **Fernandez F-X.***, Ghani S., Karp J., Patel S., Parthasarathy S., and Grandner M.A. Prescription medications for insomnia are associated with suicidal thoughts and behaviors in two nationally representative samples. *Journal of Clinical Sleep Medicine*, 17: 1025-1030, **2021**. *Co-Primary Authors (Article selected by the journal to provide Continuing Medical Education credit)
- Editorial Feature in: Do prescription hypnotic medications increase or decrease suicidality? Journal of Clinical Sleep Medicine*, 17: 871-872, 2021.
46. Wills C.A., Ghani S., Tubbs A.S., **Fernandez F-X.**, Athey A.B., Turner R., Robbins R., Patterson F., Warlick C., Alfonso-Miller P., Killgore W.D.S., and Grandner M.A. Chronotype and social support among student athletes: Impact on depressive symptoms. *Chronobiology International*, 38: 1319-1329, **2021**.

47. Rahman S.A.*, **Fernandez F-X.***, and Spitschan M*. Research Editorial for Translation and Processing of Light by the Non-Image Forming Visual System – Context, Mechanisms, and Applications. “It’s about light.” *Frontiers in Neurology*, 12: 727849, **2021**. ***Co-Corresponding Authors**
48. Gao F.J., Klinedinst D., **Fernandez F-X.**, Cheng B., Savonenko A., Devenney B., Li Y., Wu D., Pomper M.G., and Reeves R.H. Forebrain Shh overexpression improves cognitive function in an aneuploid mouse model of Down syndrome and its euploid littermates. *Acta Neuropathologica Communications* (Springer Nature), 9: 137, **2021**.
Original Preprint: Forebrain Shh overexpression improves cognitive function in a Down syndrome mouse model and euploid littermates. *bioRxiv*, doi: 10.1101/2021.01.18.427185v2, 2021.
49. Tubbs A.S., **Fernandez F-X.**, Johnson D.A., Perlis M.L., and Grandner M.A. Nocturnal and morning wakefulness are differentially associated with suicidal ideation in a nationally representative sample. *Journal of Clinical Psychiatry*, 82: 20m13820, **2021**.
50. Grandner M.A. and **Fernandez F-X.** The translational neuroscience of sleep: A contextual framework. *Science*, 374: 568-573, **2021**.
Introduction to special section in: The many benefits of healthy sleep. *Science*, 374 (6567): 551, 2021.
51. Dollish H.K., Kaladchibachi S., Negelspach D.C., and **Fernandez F-X.*** The Drosophila circadian phase response curve to light: Conservation across seasonally relevant photoperiods and anchorage to sunset. *Physiology & Behavior*, 245: 113691, **2022**.
***Corresponding Author**
Original Preprint: The circadian phase response curve to light: Conservation across seasons and anchorage to sunset. *bioRxiv*, doi: 10.1101/2021.04.08.439018, 2021.
52. **Fernandez F-X.** Current insights into optimal lighting for promoting sleep and circadian health: Brighter days and the importance of sunlight in the built environment. *Nature and Science of Sleep*, 14: 25-39, **2022**.
53. Kaladchibachi S., Negelspach D.C., Zeitzer J.M., and **Fernandez F-X.*** Investigation of the aging clock’s intermittent-light responses uncovers selective deficits to green millisecond flashes. *Journal of Photochemistry and Photobiology B: Biology*, 228: 112389, **2022**. ***Corresponding Author**
54. Tubbs A.S., Ghani S.B., Valencia D., Jean-Louis G., Killgore W.D.S., **Fernandez F-X.***, and **Grandner M.A.*** Racial/ethnic minorities have greater declines in sleep duration with higher risk of cardiometabolic disease: an analysis of the U.S. National Health Interview Survey. *Sleep Epidemiology*, 2: 100022, **2022**. ***Co-Senior Authors**

55. Lee R., McGee A., and **Fernandez F-X.*** Systematic review of drugs that modify the circadian system's phase-shifting responses to light exposure. *Neuropsychopharmacology (Nature Publishing Group)*, 47: 866-879, **2022**. ***Corresponding Author**
56. Tubbs A.S., **Fernandez F-X.**, Grandner M.A., Perlis M.L., and Klerman E.B. The mind after midnight: Nocturnal wakefulness, behavioral dysregulation, and psychopathology. *Frontiers in Network Physiology*, 1: 830338, **2022**.
- Editorial Feature in:* American Academy of Sleep Medicine, Sleep Education Spotlight, "The 'Mind after Midnight: People more likely to make bad decisions late at night," August 2022. <https://sleepeducation.org/mind-after-midnight/>
- Media Coverage in:* De Pacina, Michelle. 'Mind After Midnight': Human brains are not meant to be awake late at night, says new study. *Yahoo!*, August 2022.
- Media Coverage in:* Hayes, Kelly. Human brain not meant to stay awake past midnight, researchers say. *FOX11 Los Angeles*, August 2022.
- Impact Metrics:* 34,000+ total views; 98% Views Rank (article has received more views than 98% of all articles published to date under the Frontiers imprint).
57. Negelspach D.C., Kaladchibachi S., Dollish H.K., and **Fernandez F-X.*** Sleep deprivation does not influence photic resetting of circadian activity rhythms in *Drosophila*. *Clocks & Sleep (Basel)*, 4: 202-207, **2022**. ***Corresponding Author**
58. Mason B.J., Tubbs A.S., **Fernandez F-X.**, and Grandner M.A. Spectrophotometric properties of commercially available blue blockers across multiple lighting conditions. *Chronobiology International*, 39: 653-664, **2022**.
59. Tubbs A.S., Hendershot S., Ghani S.B., Nadorff M., Drapeau C., **Fernandez F-X.**, Perlis M.L., and Grandner M.A. Social jetlag and other aspects of sleep are linked to non-suicidal self-injury among college students. *Archives of Suicide Research (Taylor & Francis)*, doi: 10.1080/13811118.2022.2057262, **2022**.
60. Tubbs A.S., **Fernandez F-X.**, Perlis M.L., and Grandner M.A. Emerging evidence for sleep instability as a risk mechanism for non-suicidal self-injury. *Sleep*, 45: zsac095, **2022**.
61. **Mendoza R.A.***, **Fernandez F-X.***, Tubbs A.S., Perlis M.L., and Grandner M.A. Time-of-day variation in subjective mood among Lumosity users. *medRxiv*, doi: 10.1101/2022.05.12.22275014, **2022**. ***Co-Primary Authors**
62. Steiger A., Farfan J., Looi D., Fisher N., Heller H.C., **Fernandez F-X.**, and Ruby N.F. Reversible suppression of fear memory recall by transient circadian arrhythmia. *Frontiers in Integrative Neuroscience*, 16: 900620, **2022**.

63. Tubbs A.S., Killgore W.D.S., Karp J.F., **Fernandez F-X.***, and **Grandner M.A.*** Insomnia and the interpersonal theory of suicide among civilians, service members, and veterans. *Journal of Psychiatric Research*, **in press**, **2022**. ***Co-Senior Authors**
64. Dollish H.K., Kennedy K.E.R., Grandner M.A., and **Fernandez F-X.*** Melatonin, circadian rhythms, and sleep: An opportunity to understand mechanisms for protecting against neurodegenerative disease in Drosophila. *Healthy Ageing and Longevity Book Series: Sleep and Clocks in Ageing and Longevity* (Springer Nature), **in press**, **2022**. ***Corresponding Author**
65. Mason B.J., **Fernandez F-X.**, Ghani S.B., Lujan M., and Grandner M.A. Basics of circadian rhythms for athletes and sport professionals. In Grandner, M.A. and Athey, A.B. (Eds.) *Sleep and Sport*. London: Academic Press (Elsevier), **in press**, **2022**.
66. Moyer A.J., **Fernandez F-X.**, Li Y., Klinedinst D.K., Florea L.D., Kazuki Y., Oshimura M., and Reeves R.H. Overexpression screen of chromosome 21 genes reveals modulators of Sonic hedgehog signaling relevant to Down syndrome. *Disease Models & Mechanisms* (The Company of Biologists), invited revision, **2022**.

Original Preprint: Overexpression screen of chromosome 21 genes reveals modulators of Sonic hedgehog signaling relevant to Down syndrome. bioRxiv, doi: 10.1101/2022.05.19.492735, **2022**.
67. Tubbs A.S., Taneja K., Ghani S.B., Nadorff M.R., Drapeau C.W., Karp J.F., **Fernandez F-X.**, Perlis M.L., and Grandner M.A. Sleep continuity, timing, quality, and disorder are associated with suicidal ideation and suicide attempts among college students. *Journal of American College Health*, invited revision, **2022**.

NEWS COMMENTARIES

- 2022 **Fabian-Xosé Fernandez.** *NPR, Arizona Public Media*, Determining the real cost of loss of sleep (Arizona Science Episode 336)
- 2014 Jamie Edgin & **Fabian Fernandez.** *The New York Times*, The truth about Down syndrome (August 29th, Section A, Page 23).

MEDIA QUOTES

- 2022 Isabelle Tourne and Daniel Lawler. *Agence France-Presse*, Treatment improves cognition in Down Syndrome patients (September 1st)
- 2022 Oliver Whang. *The New York Times*, The Sleep Debt Collector Is Here (June 24th)
- 2022 Erika Watts. *Medical News Today*, Light and mood: Scientists find brain pathway that may explain sensitivity

DRAFT STAGE (abbreviated sample)

Negelspach D.C., Kaladchibachi S., and Fernandez F-X.
Nighttime integration of light signals across dusk and dawn.
Status: Manuscript in preparation

Kaladchibachi S., Negelspach D.C., and Fernandez F-X.

A parameter space for phase-shifting the circadian pacemaker with near-ultraviolet light.

Status: Manuscript in preparation

Kaladchibachi S., Negelspach D.C., Zeitzer J.M., and Fernandez F-X.

Millisecond patterning optimizes circadian responses to a quarter-second of light.

Status: Manuscript in preparation

Lee R. and Fernandez F-X.

Similarities between the *Drosophila* and human circadian phase-response curves to light:

A meta-analysis of three decades of work.

Status: Manuscript in preparation

UNITED STATES & EUROPEAN PATENTS

Issued

Fernandez F. and Garner C.C. Pharmacological Treatment of Cognitive Impairment (US patent 8,729,067; Europäisches Patent 2032987; Australian Patent Register, 2013204190). Invention licensed to *Balance Therapeutics*, which has gone on to raise \$35 million in venture capital for a Phase IIB clinical trial.

International and U.S. Provisional Applications (all evenly divided attribution)

- Pau S., Grandner M.A., **Fernandez F.**, and Mason B.J. Circadian Rhythm Restoring Blue Blockers.
Attorney Docket: 044974-8065.US00 (UA21-174)
PCT/US2022/038207, U.S. Patent Application No. 63/225, 727
- Pau S., Grandner M.A., **Fernandez F.**, and Mason B.J. Blue Enhancer Glasses.
Attorney Docket: 044974-8066.US00 (UA21-175)
PCT/US2022/038215, U.S. Patent Application No. 63/225, 753
- Pau S., Grandner M.A., **Fernandez F.**, and Mason B.J. Pink Blue Blockers.
Attorney Docket: 044974-8067.US00 (UA21-176)
PCT/US2022/038220, U.S. Patent Application No. 63/225, 785
- Pau S., Grandner M.A., **Fernandez F.**, and Mason B.J. Green Enhancer Glasses.
Attorney Docket: 044974-8068.US00 (UA21-233)
PCT/US2022/038233, U.S. Patent Application No. 63/225, 806
- Pau S., Grandner M.A., **Fernandez F.**, and Mason B.J. Melanopsin Blocker.
Attorney Docket: 044974-8069.US00 (UA21-234)
PCT/US2022/038235, U.S. Patent Application No. 63/225, 848

Invention Disclosures

- **Fernandez F.**, Zeitzer J.M., and Heller H.C. Circadian Responses to Light Exposure.
Reference Number: UA21-112, UNIA 20.22 PROV
- Reeves R.H. and **Fernandez F.** Genes that Modify Sonic Hedgehog Signaling.

Reference Number: Johns Hopkins Technology Ventures, D17028 (Ref: C17028).

- Reeves R.H. and **Fernandez F.** Conditional Expression of Human SHH in Mouse. Reference Number: Johns Hopkins Technology Ventures, D17135 (Ref: C17135).

SCHOLARLY PRESENTATIONS

Invited Symposia and Colloquia

- 2022 *SLEEP*, the 36th Annual Meeting of the Associated Professional Sleep Societies, “Nocturnal Wakefulness and Suicide: The Black Box of the Mind after Midnight.” Charlotte, North Carolina
- 2022 Psychology Department Colloquium, California State University, Northridge, “Nocturnal Wakefulness and Sleep.” Virtual Series.
- 2021 University of Arizona, Translational Sleep Medicine Seminar (limited international series), “Building of the Sleep and Circadian World by Animal Models.”
- 2019 National Institute on Aging – Alzheimer’s Association Workshop on Intersection of Down Syndrome and Alzheimer’s Disease, “Impact of Sleep on Cognition and AD in DS.” Bethesda, Maryland
- 2016 24th Biennial Meeting of the International Society for the Study of Behavioural Development and Association of Psychological Science, “Can broken clocks lead to broken memories?” Vilnius, Lithuania.
- 2015 Trisomy 21 Research Society, Inaugural Meeting, “Circadian biomarkers of pathology progression in DS.” Paris, France.
- Meeting Report in:* Delabar et al. Changing paradigms in Down syndrome: The first international conference of the Trisomy 21 Research Society. *Molecular Syndromology*, 7: 251-261, 2016.
- 2014 Psychology Colloquium Series, University of Arizona, “Down syndrome: Bridging the animal-human divide.” Tucson, Arizona.
- 2014 Universidad Nacional Autónoma de México, Faculty of Psychology, Congress on Intellectual Disabilities, “Neurobiology of Down syndrome.” **Closing Keynote.** Acapulco, México.
- 2009 XXIII Reunion Anual de La Sociedad de Biología Celular de Chile, “Synaptic proteomics in a mouse model of Down syndrome.” Pucón, Chile.
- 2007 Expert Workshop on Chromosome 21, “Pharmacotherapy for intellectual disabilities associated with Down syndrome: Work in a mouse model.” Washington, D.C.
- Meeting Report in:* Pritchard et al. Down syndrome and the genes of human chromosome 21: current knowledge and future potentials. *Cytogenetic and Genome Research*, 121: 67-77, 2008.
- 2007 Children’s Neurobiological Solutions Workshop. Solvang, California.

Interdepartmental Talks

- 2022 UA Entomology Seminar Series, “Establishing Circadian Fundamentals with *Drosophila*.”
- 2022 Behavioral Sleep Medicine Seminar Series, “Daylight and Sleep.”

- 2020 Behavioral Sleep Medicine Seminar Series, “Circadian Rhythms.”
- 2020 Behavioral Sleep Medicine Seminar Series, “Circadian Timekeeping.”
- 2019 Behavioral Sleep Medicine Seminar Series, “Sleep & Aging.”
- 2019 Behavioral Sleep Medicine Seminar Series, “On Narcolepsy.”
- 2019 UA Neuroscience Community Datablitz, “Optimization of circadian responses with millisecond flashes of light.”
- 2019 Behavioral Sleep Medicine Seminar Series, “Chronobiology and circadian rhythms.”
- 2017 Undergraduate Biology Research Program (UBRP) Seminar Series.
- 2016 UA Basic Medical Sciences Colloquium Series (Phoenix Medical Campus), “Dysrhythmia in the SCN produces memory impairment.”
- 2016 BIO5 Fellows Series, “Circadian programming by light.”
- 2016 The McKnight Brain Research Foundation, Ninth Annual Inter-Institutional Meeting, “Changes in time perception during aging can impair memory: Is no clock better than a bad clock?”
- 2016 UA Sleep Research Conference, Inaugural Meeting, “Programming circadian rhythms.”
- 2016 NIH Minority Access to Research Careers (MARC) Program Colloquium, “Development of high-precision light therapies for circadian rhythm disorders.”
- 2015 UA Genetics and Genomics Grand Rounds, “Drug therapy for a multigene neurodevelopmental disorder: Down syndrome as a case study.”
- 2015 UA Neuroscience Community Datablitz, “Dysrhythmia-related memory impairment.”

POSTERS & ABSTRACTS

(List restricted to communiqués with unpublished data)

1. Dollish H.K., Figueroa A., Janowski A., Snyder R.W., and **Fernandez F.** Actigraphy-Based Measurement of Sleep and Diurnal Rhythms in Subjects with Age-Related Macular Degeneration. *SLEEP*, #0266 (2019).
2. Khader W.S., Tubbs A. S., **Fernandez F.**, Chakravorty S., Hale L., Branas C., Barrett M., Killgore W.D., Wills C.C., and Grandner M.A. Community-Level Daytime Sleepiness and Substance Use: Implications of Sleep Time and Mental Health. *SLEEP*, #0243 (2020).
3. Tubbs A., Morales K., Grandner M., Ellis J., Vargas I., **Fernandez F-X.**, and Perlis M. Insomnia precedes suicidal ideation in a national longitudinal study of sleep continuity (NITES). *SLEEP*, #774 (2021).
4. Taneja K., Tubbs A., **Fernandez F-X.**, Perlis M., and Grandner M. The Relationship Between Sleep and Suicidal Ideation in College Students. *SLEEP*, #775 (2021).
5. Bodicherla K., Tubbs A., **Fernandez F-X.**, Perlis M., and Grandner M. Perceived sleep control and nightmares distinguish college students with suicidal ideation from past attempters. *SLEEP*, #776 (2021).

6. Arevalo S., Tubbs A., **Fernandez F-X.**, Karp J., Klerman E., Chakravorty S., Perlis M, and Grandner M. Demographic and Clinical Features of Nocturnal Suicide. *SLEEP*, #0656 (2022).
7. Valencia D., Begay T., Granados K., Delgadillo M., Ghani S., Molina P., Alfonso-Miller P., **Fernandez F-X.**, Wills C., and Grandner M. A Mexican Spanish Version of the Circadian Energy Scale. *SLEEP*, #0071 (2022).
8. Bobadilla V., **Fernandez F-X.**, Tubbs A., Chakravorty S., Perlis M., Hale L., Branas C., Killgore W., Wills C., and Grandner M. Sedative and Stimulant Misuse and Suicide Ideation in a Community Sample. *SLEEP*, #0689 (2022).
9. Tubbs A., Ghani S., Karp J., **Fernandez F-X.**, Klerman E., Perlis M., and Grandner M. Temporal Patterns of Suicidal Ideation in the Emergency Department. *SLEEP*, #0664 (2022).
10. Watkins E., Tubbs A., **Fernandez F-X.**, Karp J., Klerman E., Basner M., Chakravorty S., Perlis M., and Grandner M. Population Wakefulness and Nocturnal Suicide Risk. *SLEEP*, #0036 (2022).
11. Holt C., Tubbs A., Hendershot S., **Fernandez F-X.**, Karp J., Klerman E., Basner M., Chakravorty S., Perlis M., and Grandner M. Murder on the Midnight Express: Nocturnal Wakefulness and Homicide Risk. *SLEEP*, #0017 (2022).

GRANTS

International

2019-2023 *Programming the Circadian Clock with Precision Flashes of LED Light*, Velux Stiftung, Switzerland, **Role: PI** (\$275,000)

Federal

2021-2022 *Insomnia as a Marker for Suicide Risk in Military Service Members*, Department of Defense, Military Suicide Research Consortium, **Role: co-PI** (\$125,000)

2015-2017 *Hedgehog Treatment of Down Syndrome: Establishing Mechanisms*, NIH/NICHD, R21, **Role: Co-I** (\$270,000)

State-level

2016-2018 *Circadian Programming by Light*, Science Foundation Arizona, Scottsdale, AZ, **Role: PI** (\$200,000) *K-award equivalent

Institutional

- 2020 *From Human to Fly and Back Again: Establishing melatonin's role in the Drosophila circadian and seasonal timekeeping systems*, University of Arizona Research Development & Innovation, Improving Health Project, **Role: PI** (\$50,000)
- 2017-2018 *Calibrating the Function of the Aged Circadian Clock with High-Precision Light*, Arizona Alzheimer's Research Consortium, **Role: PI** (\$12,000)
- 2016-2017 *Establishing Circadian Biomarkers for Age-related Working Memory Impairment*, Arizona Alzheimer's Research Consortium, **Role: PI** (\$15,000)
- 2016-2017 *Sleep and Circadian Function as Biomarkers of Alzheimer's Disease Risk in Down syndrome*, Arizona Alzheimer's Research Consortium, **Role: Co-I** (\$13,000)

Facility

- 2020- *UAHS Sleep Research Center Construction Grant*, NIH Biomedical Research Facilities, C06 (NIH-1C06OD028307), **Role: Part of grant development team** (PI: Dr. Michael Dake; \$5,045,665)