Curriculum Vitae
Héctor E. Acarón Ledesma, PhD

F.M. Kirby Neurobiology Center
Boston Children's Hospital & Harvard Medical School
Center for Life Sciences Boston
3 Blackfan Circle
Boston, MA 02115

Tel: (787) 244-4805
Email: hector.acaron@childrens.harvard.edu

Multiphoton Imaging | Patch-Clamp Electrophysiology | Data Science | Machine Learning | Ophthalmology | Neurobiology | Nanotechnology | Viral Vectors | Animal Models | Programming in MATLAB & Python |

CURRENT POSITION

Research Fellow, F.M. Kirby Neurobiology Center, Boston Children's Hospital (2020 – Present)

Lead and manage preclinical studies focusing on information transfer across the early visual system and exploring synaptic, cellular, and sensory deficits in mouse models of neurodevelopmental disorders and glial dysfunction.

Negotiated and supervised the acquisition of a two-photon imaging system and customized it for simultaneous imaging, optogenetic stimulation, and electrophysiological recordings.

EDUCATION

Certification in Applied Data Science (2023)
Massachusetts Institute of Technology, Cambridge, MA

Ph. D. The University of Chicago, Biophysical Sciences (2020)
Thesis: Mechanisms underlying motion discrimination in the mammalian retina
Advisors: Dr. Wei Wei and Dr. Bozhi Tian

B. Sc. cum laude with Honors, Cornell University, Biological Engineering (2013)
Thesis: DNA nanotechnology as a tool for the construction of functionalized metamaterials
Advisor: Dr. Dan Luo

FELLOWSHIPS, HONORS & AWARDS

2022 – Present	NIH F32 – Ruth L. Kirschstein NRSA Postdoctoral Fellowship
2019	University of Chicago Biological Sciences Division Travel Award
2019 – 2020	NIH F31 – Ruth L. Kirschstein NRSA Predoctoral Fellowship
2018	University of Chicago Graduate Council Travel Award
2015 – 2018	National Science Foundation Graduate Research Fellowship (NoA in 2014)
2013	Graduated cum laude with Honors, Cornell University
2012 – 2013	Biology Research Fellowship, Cornell University
2012	AMGEN Scholars Program
2011 – 2013	Alpha Epsilon: Biological Engineering Honor Fraternity, President
2011	Leadership Alliance Early Identification Program
2009 – 2013	Dean's List, Cornell University
2009 – 2013	Elizabeth L. Grover '75 Scholarship
2009 – 2013	Alfred & Evelyn Longhouse Scholarship
2008	4th Place Grand Award, Intel International Science & Engineering Fair

PREVIOUS EXPERIENCE

2018 – 2019 Instructor, Leadership Alliance Early Summer Program, Office of the Provost, The University of Chicago

2012 Amgen Scholar at Columbia University with Dr. Laura Kaufman – Structural chemistry, biomaterials, tissue engineering

2011 Leadership Alliance Early Identification Program at Weill Cornell Medical College with Dr. Olivier Elemento – Computational biology, biomarkers, gene networks

SELECTED PUBLICATIONS

Acaron Ledesma, H.,* Smith, R. G., Ding, J., Huang, X., Chen, Q., Chan, C., Lin, M. Z., Wang, S., Wei, W. (2023). Voltage-gated mechanisms compartmentalize starburst amacrine cell dendrites for motion detection. under review *Nature Communications*

Jiang, Q., Litvina, E. Y., **Acaron Ledesma, H.**, Shu, G., Sonoda, T., Wei, W., & Chen, C. (2022). Functional convergence of on-off direction-selective ganglion cells in the visual thalamus. *Current Biology*, *32*(14), 3110-3120.

Huang, X., Kim, A. J., **Acaron Ledesma, H.**, Ding, J., Smith, R. G., & Wei, W. (2022). Visual stimulation induces distinct forms of sensitization of On-Off direction-selective ganglion cell responses in the dorsal and ventral retina. *Journal of Neuroscience*, *42*(22), 4449-4469.

Ding, J.*, Chen, A., Chung, J., **Acaron Ledesma, H.**, Berson, D., Palmer, S., & Wei, W. (2021). Spatially displaced excitation contributes to the encoding of interrupted motion by the retinal direction-selective circuit. *eLife*

Fang, Y.*, Prominski, A.*, Rotenberg, M.*, Meng, L.*, **Acarón Ledesma, H.***, Lv, Y., Yue, J., Schaumann, E., Jeong, J., Yamamoto, N., Jiang, Y., Elbaz, B., Wei, W., Tian, B. (2020). Micelle-enabled self-assembly of porous and monolithic carbon membranes for bioelectronic interfaces. *Nature Nanotechnology*.

Huang, X.*, **Acaron Ledesma, H.,** & Wei, W. (2020). Synapse formation in the developing vertebrate retina. *In Synapse Development and Maturation* (pp. 213-234). Academic Press.

Acaron Ledesma, H.*, Li, X., Carvalho-de-Souza, J., Wei, W., Bezanilla, F., Tian, B. (2019). An atlas of nano-enabled neural interfaces. *Nature Nanotechnology, 14, 645–657.*

Acarón Ledesma, H. A.*, & Tian, B. (2017). Nanoscale silicon for subcellular biointerfaces. *Journal of Materials Chemistry B*.

Shi, X.*, Barchini, J.*, **Acarón Ledesma, H.**, Koren, D., Jin, Y., Liu, X., Wei, W., Cang, J. (2017). Retinal origin of direction selectivity in the superior colliculus. *Nature Neuroscience, 20*, 550-558.

Pei, Z.*, Chen, Q., Koren, D., Giammarinaro, B., **Acarón Ledesma, H.,** & Wei, W. (2015). Conditional Knock-Out of Vesicular GABA Transporter Gene from Starburst Amacrine Cells Reveals the Contributions of Multiple Synaptic Mechanisms Underlying Direction Selectivity in the Retina. *The Journal of Neuroscience*, *35*(38), 13219-13232.