Curriculum Vitae
Héctor E. Acarón Ledesma

F.M. Kirby Neurobiology Center
Boston Children's Hospital & Harvard Medical School
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EDUCATION:

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

RESEARCH & PROFESSIONAL EXPERIENCE

2020 – Present	Postdoctoral Fellow, F.M. Kirby Neurobiology Center, Boston Children's Hospital & Harvard Medical School with Dr. Chinfei Chen – Synaptic physiology, visual neuroscience, neurodevelopment
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

FELLOWSHIPS, HONORS & AWARDS

2022 – Present	NIH F32 – Ruth L. Kirschstein NRSA Postdoctoral Fellowship (NoA in 2021)
2019	University of Chicago Biological Sciences Division Travel Award
2019 – 2020	NIH F31 – Ruth L. Kirschstein NRSA Predoctoral Fellowship (NoA in 2018)
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

PUBLICATIONS

Acaron Ledesma, H.* & Wei, W. (2023). Two distinct populations of orientation sensitive retinal ganglion cells revealed by calcium imaging guided patch-clamp electrophysiology. (in preparation)

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.*

Fang, Y.*, Jiang, Y.*, **Acaron Ledesma, H**.*, Yi, J., Gao, X., Weiss, D. E., Shi, F. & Tian, B. (2018). Texturing silicon nanowires for highly localized optical modulation of cellular dynamics. Nano letters.

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.

Acarón Ledesma, H.*, Koehler, K., & Tian, B. (2017). Flexible Micro-and Nanoelectronics for Tissue Engineering. *In Smart Materials for Tissue Engineering* (pp. 439-472).

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.

POSTERS & PRESENTATIONS

Acarón Ledesma, H., Chan, C., Wang, S., Lin, M.Z., Wei, W. (2019). Dendritic mechanisms underlying motion detection in starburst amacrine cells. Society for Neuroscience. Chicago, IL. Poster Presentation.

Acarón Ledesma, H., Chan, C., Wang, S., Lin, M.Z., Wei, W. (2019). Dendritic mechanisms underlying motion detection in starburst amacrine cells. Gordon Research Conference: Dendrites – Molecules, Structure, and Function. Ventura, CA. Poster Presentation.

Acarón Ledesma, H., Geng, Q., Wei, W. (2018). Two distinct types of orientation-sensitive retinal ganglion cells revealed by calcium imaging-guided patch-clamp recording. FASEB: Retina Neurobiology and Visual Processing. Olean, NY. Poster & Oral Presentation.

Acarón Ledesma, H., Wei, W., Tian, B. (2016). Porous silicon nanostructures for wireless neuromodulation. Materials Research Society Fall Meeting. Boston, MA. Poster Presentation.

J. Barcini, **H. Acarón Ledesma**, Y.-P. Chen, D. Koren, J. Cang, W. Wei. Different origins of visual feature selectivity in two major subcortical structures in the mouse. Program No. 529.13. 2016 Neuroscience Meeting Planner. San Diego, CA: Society for Neuroscience, 2016. Online.

Acarón Ledesma, H., Koren, D., Wei, W. (2016). The role of starburst mediated inhibition in orientation selectivity in the mouse retina. FASEB: Retina Neurobiology and Visual Processing. Dillon, CO. Poster & Oral Presentation.

Salzman G., Parameswaran R., Riback J., **Acarón Ledesma H.E**., Barrett J., Seacrist C., Hammond A. (2014). Optogenetically Induced Habituation of mec-4 neurons in *C. elegans*. 58th Biophysical Society Meeting. San Francisco, CA. Poster Presentation.

Acarón Ledesma H.E., Zhu J., Kaufman L. (2012). Cross-linker mediated structural changes in collagen gels engineered for biomaterial applications. AMGEN Symposium, UCLA. Oral Presentation.

Ruiz R.C., Hartman M.R., **Acarón Ledesma H.E.**, Tran T.N.,Tan S.J., Luo D. (2011). Multiplexed, Enzyme-Free Pathogen Detection Using a DNA Nanobarcode Microfluidic Device. Materials Research Society Fall Meeting. Boston, MA. Oral Presentation.

Acarón Ledesma H.E., Giannopoulou, E., Elemento, O. (2011). Development of Tissue-Specific Gene Regulatory Networks in Human Endothelial Cells. Leadership Alliance National Symposium. Greenwich, CT. Poster Presentation

Acarón Ledesma H.E., Deliz, J.R., García M. (2008). Alcohol Disruption: Associative Learning Paradigm and Decision-Making Test in Drosophila melanogaster. Intel International Science & Engineering Fair. Atlanta, GA. Poster Presentation, Abstract Published & 4th Place Grand Award.

Contact References:

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