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EDUCATION

- 2010 – 2015 **PhD in Neuroscience.** University of Zurich, Switzerland.
Supervisor: Dr. Esther Stoeckli.
Thesis Title: A Wnt signaling network is required for commissural axon guidance.
- 2007 – 2009 **MSc in Biochemistry and Bioinformatics.** University of Concepcion, Chile.
Supervisor: Dr. Juan Pablo Henríquez.
Thesis Title: Role of Frizzled-9 receptor in the postsynaptic differentiation of the vertebrate neuromuscular junction.
- 2002 – 2007 **Licenciatura (5-year BSc) in Biochemistry.** University of Concepcion, Chile.

RESEARCH EXPERIENCE

- 2016 – 2023 **Postdoctoral Fellow,** Neurobiology Department, Harvard Medical School, Boston, USA.
- 2015 – 2016 **Researcher-Postdoc,** Department of Molecular Life Sciences, University of Zurich, Switzerland.

PUBLICATIONS

1. **Avilés E.C.**, Krol A., Henle S.J., Burroughs-Garcia J, Deans M.R., Goodrich L.V. (2022). Fat3 acts through independent cytoskeletal effectors to coordinate asymmetric cell behaviors during polarized circuit assembly. *Cell Rep.* 38.
2. Ualiyeva, S.*, Lemire, E.*, **Aviles, E.C.**, Wong, C., Boyd, A.A., Lai, J., Liu, T., Matsumoto, I., Barrett, N.A., Boyce, J.A., et al. (2021). Tuft cell-produced cysteinyl leukotrienes and IL-25 synergistically initiate lung type 2 inflammation. *Science Immunology.* 6. * *equal contribution.*
3. Baeriswyl, T.*, Dumoulin, A.*, Schaettin, M.*, Tsapara, G.*, Niederkofler, V., Helbling, D., **Avilés, E.**, Frei, J.A., Wilson, N.H., Gesemann, M., et al. (2021). Endoglycan plays a role in axon guidance by modulating cell adhesion. *Elife* 10. * *equal contribution.*
4. **Avilés, E.C.**, and Goodrich, L. V. (2017). Configuring a robust nervous system with Fat cadherins. *Semin. Cell Dev. Biol.* 69, 91–101.
5. Nishitani, A.M., Ohta, S., Yung, A.R., del Rio, T., Gordon, M.I., Abraira, V.E., **Avilés, E.C.**, Schoenwolf, G.C., Fekete, D.M., and Goodrich, L. V. (2017). Distinct functions for netrin 1 in chicken and murine semicircular canal morphogenesis. *Development* 144, 3349–3360.

6. **Avilés, E.C.**, and Stoeckli, E.T. (2016). Canonical wnt signaling is required for commissural axon guidance. *Dev. Neurobiol.* 76, 190–208.
7. **Avilés, E.C.***, Pinto, C.*, Hanna, P., Ojeda, J., Pérez, V., De Ferrari, G. V, Zamorano, P., Albistur, M., Sandoval, D., and Henríquez, J.P. (2014). Frizzled-9 impairs acetylcholine receptor clustering in skeletal muscle cells. *Front. Cell. Neurosci.* 8, 110. * *equal contribution*.
8. **Avilés, E.C.**, Wilson, N.H., and Stoeckli, E.T. (2013). Sonic hedgehog and Wnt: antagonists in morphogenesis but collaborators in axon guidance. *Front. Cell. Neurosci.* 7, 86.
9. Low, M., Sandoval, D., **Avilés, E.**, Pérez, F., Nualart, F., and Henríquez, J.P. (2009). The ascorbic acid transporter SVCT2 is expressed in slow-twitch skeletal muscle fibres. *Histochem. Cell Biol.* 131, 565–74.

Direct access to my publications through NCBI MyBibliography:

<http://www.ncbi.nlm.nih.gov/sites/myncbi/1rUXwTtukxpQe/bibliography/49055124/public/?sort=date&direction=ascending>.

Web of Science ResearcherID: AAA-5420-2022

WORK IN PREPARATION FOR PUBLICATION

1. Ualiyeva, S., Lemire, E., Boyd, A., Wong, C., **Avilés, E.C.**, Maxfield, A., Roditi, R., Matsumoto, I., Barrett, N.A., Buchheit, K.M., et al. (2022). Olfactory microvillar tuft cells direct neurogenesis during allergic inflammation. *bioRxiv*, 2022.09.26.509561. *In revision*
2. **Avilés, E.C.**, Wang, S.K., Patel, S., Kefalov, V., Goodrich, L.V., Cepko, C.L., Xue, Y. (2023) High temporal frequency light transmission in the retina is mediated by ON and OFF bipolar cells and requires FAT3 signaling. *In revision*
3. **Avilés, E.C.**, DeLoughery, Z., Yung, A., Patel, S., Meijers, R., Wang, J.H., Goodrich, L.V. (2023) Distinct DCC domains are required differentially for Netrin-1-mediated axon guidance in the mouse spinal cord.

TECHNICAL EXPERTISE

Mouse work: generation of mutant mouse lines through CRISPR/Cas9 technology, mouse husbandry.

in vivo studies: gene perturbation in chicken embryos, *in ovo* RNAi, *in ovo* electroporation, retinal injections and electroporation in neonatal mice.

Histology: dissection of retinas, cochlea (organ of Corti), spinal cords and brain from mouse and chicken. Cryosectioning, vibratome sectioning, immunohistochemistry.

in situ hybridization: chromogenic *in situ* hybridization. RNAscope, Basescope and HCR technology.

Cell biology: primary and cell line culture, transfection and immunocytochemistry.

Molecular Biology: RNA/DNA extraction, RT-PCR, molecular cloning, Gibson assembly, generation of miRNAs and CRISPR RNAs.

Protein Biochemistry: SDS-PAGE, Western blot, GST pulldowns, co-immunoprecipitation, luciferase reporter assays.

Microscopy: confocal and wide-field fluorescent microscopy.

Data processing: MS office, MetaMorph, CorelDraw, Photoshop, ImageJ/Fiji, GraphPad Prism, Adobe Illustrator, Imaris.

TEACHING AND MENTORING EXPERIENCE

- 2018-2020 **Undergrad Thesis supervisor.** Harvard Medical School.
- 2016-2022 **Laboratory research supervisor.** Harvard Medical School.
- 2011-2016 **Laboratory research supervisor.** Department of Molecular Life Sciences, University of Zurich.
- 2009 **Instructor (lead teacher).** University of the Americas, Chile.
- 2008 **Teaching Assistant.** University of Concepcion, Chile.

LEADERSHIP AND VOLUNTEER EXPERIENCE

Founding member of the Association of Chilean Researchers in Switzerland (ICES). 2014 – 2016.

SELECTED AWARDS AND GRANTS

IBRO Rising Stars Award. 2022.
ARO (Association for Research in Otolaryngology) MidWinter Meeting 2023 Travel Award. 2022.
Harvard Brain Initiative (HBI) Postdoc Pioneers Grant. 2022.
WISTfund Grant. 2020.
Postdoctoral Fellowship Alice and Joseph Brooks Fund. 2019.
Postdoctoral Fellowship, Becas Chile. 2017.
Postdoctoral Fellowship Goldenson Fund. 2016.
International travel grant (AXON2015, Austria). 2015
International travel grant (Neuroscience Center Zurich, ZNZ). 2013
Bicentennial Becas-Chile Scholarship for PhD program (CONICYT, Chile). 2009 – 2014.
Graduate School Stipend Fellowship (University of Concepcion). 2008.
Graduate School Fellowship for Master's program (University of Concepcion). 2007 – 2008.
Juan Gómez Millas Fellowship for Bachelor studies (Chilean Government). 2002 – 2006.
Best Student of the High School Class. 2001.

SELECTED ORAL PRESENTATIONS

1. Developmental Neurobiology Seminar. Harvard Medical School. Boston, USA. 2023.
2. Neurobiology Departmental Seminar. Harvard Medical School. Boston, USA. 2022.
3. Developmental Neurobiology Seminar. Harvard Medical School. Boston, USA. 2021.
4. EYES2021, Virtual conference (invited speaker), USA. 2021.
5. SciTalk, Ciencia Conecta, virtual (invited speaker), Chile. 2020.
6. Neurobiology Departmental Seminar. Harvard Medical School. Boston, USA. 2020.
7. Special Seminar (invited speaker). Institute of Molecular Life Sciences, University of Zurich, Zurich, Switzerland. 2018.
8. Neurobiology Departmental Seminar. Harvard Medical School. Boston, USA. 2018
9. Molecular Life Sciences Departmental Seminar. University of Zurich, Zurich, Switzerland. 2012.
10. Annual meeting of the Chilean Society for Cell Biology. Pucón, Chile. 2008.

SELECTED POSTER PRESENTATIONS

1. ARO (Association for Research in Otolaryngology) MidWinter Meeting 2023, Orlando, Florida, USA. 2023.
2. Molecular Mechanisms of Neuronal Connectivity, Cold Spring Harbor Laboratories, USA. 2022.
3. Gordon Research Conference, Visual System Development. Massachusetts, USA. 2022.
4. Annual meeting of the Society for Neuroscience (virtual). USA. 2021.
5. Molecular Mechanisms of Neuronal Connectivity (virtual), Cold Spring Harbor Laboratories, USA. 2020.
6. Neurobiology Retreat Conference. Brewster, MA, USA. 2019.
7. Gordon Research Conference, Visual System Development. Lucca, Italy. 2018.
8. Gordon Research Seminar, Visual System Development. Lucca, Italy. 2018.
9. Annual meeting of the Swiss Society for Neuroscience. Lausanne, Switzerland. 2016.
10. European Conference on Axon Guidance, Circuit Development and Regeneration (AXON2015), Klosterneuburg, Austria. 2015.
11. Annual meeting of the Swiss Society for Neuroscience. Fribourg, Switzerland. 2015.
12. Neuroscience Center Zurich (ZNZ) Symposium. Zurich, Switzerland. 2014.
13. Annual meeting of the Swiss Society for Neuroscience. Bern, Switzerland. 2014.
14. Annual meeting of the Society for Neuroscience. San Diego, CA, USA. 2013.
15. Neuroscience Center Zurich (ZNZ) Symposium. Zurich, Switzerland. 2013.
16. Federation of European Neuroscience Society (FENS) Forum. Barcelona, Spain. 2012.
17. Annual meeting of the Swiss Society for Neuroscience. Zurich, Switzerland. 2012.
18. Annual meeting of the Chilean Society for Cell Biology, Chile. 2009
19. Congress IBRO/LARC of Neuroscience for Latin America, Caribbean and Iberian Peninsula. Buzios, Brasil. 2008
20. Annual meeting of the Chilean Society for Cell Biology. Pucón, Chile. 2006.

ADDITIONAL PRACTICAL COURSES

2019	Harvard University, Faculty of Arts and Sciences. Boston, USA Science Education, Undergraduate Mentoring Workshop.
2018/2019	Center for Bioethics, Harvard Medical School, Boston, USA. Responsible Conduct of Research.
2017	Harvard Catalyst Education Program, Boston, USA. Effectively Communicating Research.
2016	Harvard Medical School, hfp Consulting, Boston, USA. Leadership and Management Skills Training.
2012/01	Center for microscopy and image analysis, University of Zurich, Switzerland Advanced microscopy.
2011/08	Neuroscience Center Zurich, University of Zurich/ETH, Switzerland Scientific writing for neuroscientists.
2009/08	Faculty of Biological Sciences, University of Concepcion, Chile Topics in developmental biology.
2008/01	Faculty of Biological Sciences, University of Concepcion, Chile

Recent progress in central nervous system receptors: function and application.

2006/07-12 **Faculty of Engineering, University of Concepcion, Chile**
Bioinformatics. Introduction to programming using MATLAB.

OTHER INFORMATION

Languages: Spanish (native)
English (proficient)
German (elementary, CEFR level A2)

Nationality: Chilean