

CURRICULUM VITAE

Flavio R. Zolessi

Birth: 04/12/1970, Montevideo, Uruguay.

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ACADEMIC EDUCATION

1999-2003: Doctor in Biological Sciences, PEDECIBA, Uruguay.

1995-1998: Master in Biological Sciences, PEDECIBA, Uruguay.

1989-1995: Degree in Biological Sciences, Fac. Ciencias, UdelaR, Uruguay.

ACADEMIC POSITIONS

Current:

2016- : Associate Professor (G4), Biología Celular, Facultad de Ciencias, UdelaR, Uruguay.

2015- : Investigator, Grade 4, PEDECIBA, Uruguay.

2017- : Investigator, Level II, Sistema Nacional de Investigadores, Uruguay.

2019- : Associate Researcher, Institut Pasteur de Montevideo.

Previous (selected):

2014-2019: Principal Investigator, Institut Pasteur de Montevideo, Uruguay.

2009-2017: Investigator, Level I, Sistema Nacional de Investigadores, Uruguay.

2007-2016: Assistant Professor (G3), Biología Celular, Facultad de Ciencias, UdelaR, Uruguay.

2003-2006: Research Associate, Prof. W.A. Harris lab, Department of Physiology, Development and Neuroscience, University of Cambridge, UK.

Research interest

Our research is focused on the relationship between cell polarity and neural differentiation in vertebrates, concentrating on polarity transition processes, such as those found during neurulation and in neuronal differentiation. For this, we use experimental systems in vertebrates such as zebrafish and chicken. During the formation of the neural tube, neural plate cells undergo a series of morphological and molecular transitions that are different in teleosts respect to amniotes. Some basic molecular principles appear, however, to be the same, like the modulation of the actin cytoskeleton and apical cell adhesion. Once neurulation is completed, neurons will differentiate and acquire their particular polarity and orientation, while in close contact with their neuroepithelial progenitors. We are studying the molecular signals responsible for the polarization and orientation of neurons of the retina in vivo, such as retinal ganglion cells ("typical" neurons) and photoreceptors (which present at the same time features of neurons and epithelial cells).

PUBLICATIONS

Recent selected peer-reviewed international publications (*corresponding author)

Davison C, **Zolessi FR*** (2021) Slit2 is necessary for optic axon organization in the zebrafish ventral midline. *Cells Dev, Cells Dev*, 203677. doi: 10.1016/j.cdev.2021.203677. Preprint doi: 10.1101/2020.09.25.314062v3

- Lupo G*, Piper M*, **Zolessi FR*** (2021) Editorial: Context-dependent regulation of neurogenesis: common themes and unique features of the neurogenic process in different model systems. *Front. Cell Dev. Biol.* 9:678475. doi: 10.3389/fcell.2021.678475.
- Zolessi FR***, Berois N, Brauer MM, Castillo E (2021) Building the embryo of developmental biology in Uruguay. *Intl J Devl Biol* 65: 71 - 76. doi: 10.1387/ijdb.200141fz
- Aparicio G, Rodao M, Badano JL, **Zolessi FR*** (2021) Photoreceptor progenitor dynamics in the zebrafish embryo retina and its modulation by primary cilia and N-cadherin. *Intl J Devl Biol* 65: 439 - 455. doi: 10.1387/ijdb.200113fz. Preprint doi: 10.1101/2020.02.13.947663.
- Lepanto P., **Zolessi F.R.**, Badano J.L.* (2019) Studying human genetic variation in zebrafish. In: *Cellular and Animal Models in Human Genomics Research*. Eds.: Walz K., Young J. San Diego: Elsevier Inc./Academic Press. Pg. 89-117.
- Aparicio G, Arruti C, **Zolessi FR*** (2018) MARCKS phosphorylation by PKC strongly impairs cell polarity in the chick neural plate. *Genesis* 56(4): e23104. doi: 10.1002/dvg.23104.
- Paravani E.V., Simoniello M.F., Poletta G.L., **Zolessi F.R.**, Casco V.H.* (2018) Cypermethrin: Oxidative stress and genotoxicity in retinal cells of the adult zebrafish. *Mutat Res.* 826:25-32. doi: 10.1016/j.mrgentox.2017.12.010.
- Prieto D., **Zolessi F.R.*** (2017) Functional diversification of the four MARCKS family members in zebrafish neural development. *J. Exp. Zool. (Mol. Dev. Evol.)* 328(1-2):119-138. doi: 10.1002/jez.b.22691.
- Lepanto P., Badano J.L., **Zolessi F.R.*** (2016) Neuron's little helper: the role of primary cilia in neurogenesis. *Neurogenesis.* 3:1, e1253363.
- Lepanto P., Davison C., Casanova G., Badano J.L.*, **Zolessi F.R.*** (2016) Characterization of primary cilia during the differentiation of retinal ganglion cells in the zebrafish. *Neural Dev.* 11(1):10. doi: 10.1002/jez.b.22691.
- Zolessi F.R.*** (2016) Vertebrate neurogenesis: cell polarity (v. 3). *Encyclopedia of Life Sciences (Wiley)*. DOI: 10.1002/9780470015902.a0000826.pub3.
- Paolini A, Duchemin AL, Albadri S, Patzel E, Bornhorst D, González Avalos P, Lemke S, Machate A, Brand M, Sel S, Di Donato V, Del Bene F, **Zolessi F.R.**, Ramialison M, Poggi L.* (2015) Asymmetric inheritance of the apical domain and self-renewal of retinal ganglion cell progenitors depend on Anillin function. *Development* 142(5): 832-9. doi: 10.1242/dev.118612.
- Prieto D., Aparicio G., Morande P.E., **Zolessi F.R.*** (2014) A fast, low cost, and highly efficient fluorescent DNA labeling method using methyl green. *Histochem Cell Biol* 142(3):335-345. doi: 10.1007/s00418-014-1215-0.
- Tinoco L.W., Fraga J.L., Anobom C.D., **Zolessi F.R.**, Obal G., Toledo A., Pritsch O., Arruti C.* (2014) Structural characterization of a neuroblast-specific phosphorylated region of MARCKS. *Biochim Biophys Acta* 1844(4): 837-849. doi: 10.1016/j.bbapap.2014.02.016.
- Toledo A., **Zolessi F.R.**, Arruti C.* (2013) A novel effect of MARCKS phosphorylation by activated PKC: the dephosphorylation of its serine 25 in chick neuroblasts. *PLOS ONE* 8(4): e62863. doi: 10.1371/journal.pone.0062863.
- Ruiz-Perera L.M., Arruti C., **Zolessi F.R.*** (2013) Early phosphorylation of MARCKS at Ser25 in migrating precursor cells and differentiating peripheral neurons. *Neurosci. Lett.* 544: 5-9. doi: 10.1016/j.neulet.2013.02.042.
- Randlett O., Poggi L., **Zolessi F.R.**, Harris W.A.* (2011) The oriented emergence of axons from retinal ganglion cells is directed by Laminin contact in vivo. *Neuron* 70(2): 266-280. doi: 10.1016/j.neuron.2011.03.013.

AWARDS AND HONORARY POSITIONS

2008: Luz y Verdad Award. Fund. Clara y Víctor Soriano, B'Nai B'Rith Uruguay.

2006: BioMed Central Award in Biology, UK.

2004-2005: Research Associate, Clare College, University of Cambridge, UK.

ORGANIZATION OF CONGRESSES AND SYMPOSIA (selected)

2014: XV Jornadas de la Sociedad Uruguaya de Biociencias (SUB). President. 05-07/09. Argentino Hotel, Piriápolis, Uruguay.

2012: VI International Meeting of the Latin American Society for Developmental Biology (LASDB). Radisson Victoria Plaza Hotel, Montevideo.

2010/2014: II and IV Symposium Development and Plasticity of the Nervous System. Montevideo.

2010: I Meeting of the Latin American Zebrafish Network (LAZEN). Montevideo.

GRADUATE TEACHING ACTIVITY AND THESIS SUPERVISION

Thesis supervision, current: Lucía Veloz (Master, 2018-), Gonzalo Aparicio (Doc, 2016-), Magela Rodao (Master, 2016-), Camila Davison (Doc, 2014-).

Thesis supervision, previous: Ileana Sosa (Master, 2019), Paola Lepanto (Doc, 2017), Gonzalo Aparicio (Master, 2015), Daniel Prieto (Master 2012), Soledad Astrada, (Master, 2011).

Graduate courses organization (selected):

2016: Course on Processing and Analysis of Fluorescence Microscopy Images. With F. Lecumberry and P. Aguilar. Institut Pasteur de Montevideo. Uruguay.

2014: Development and Plasticity of the Nervous System IV. With Brauer M. and Rossi F.M. IIBCE, IPMon and Facultad de Ciencias-UdelaR, Montevideo.

2012: NSF PASI: A Systems Biology Approach to Organismal Evolution. With N. Berois, I. Chow and M. Levine. LASDB/SDB. IPMon and F. Ciencias-UdelaR, Montevideo.

Participation in international graduate courses (selected):

2018: V LAZEN Course. UNAM, Cuernavaca, Mexico.

2016: IV LAZEN Course. PUCR, Porto Alegre, Brasil.

2014: III LAZEN Course. CINV, Universidad de Valparaíso, Chile.

2009: III Workshop Microscopía de Fluorescencia 3D, U. Nacional de Entre Ríos, Argentina.

OTHER ACTIVITY

Participation in committees

2010-2014/2018-present: LAZEN (Latin American Zebrafish Network) Coordinating committee.

2011-present: Board, Latin American Society for Developmental biology (LASDB). Current pro-secretary.

2013-2015: President, Sociedad Uruguaya de Biociencias.