Brief Curriculum Vitae

(María) Elena Avale.

INGEBI-CONICET
Vuelta de Obligado 2490
ADN1428, CABA
Facultad de Ciencias Exactas y Naturales, UBA.
e-mail: elena.avale@conicet.gov.ar
ORCID: 0000-0002-0251-0093

Positions:

-2013-Independent Investigator (Permanent) of the Argentina National Scientific and Technical Research Council (CONICET)

-2021-Associate Professor, University of Buenos Aires, Facultad de Ciencias Exactas y Naturales.

Degrees

-BSc in Biological Sciences; 2000. University of Buenos Aires (UBA), Argentina. (Mark: 9.5 /10)

-PhD in Biological Sciences; 2004 University of Buenos Aires (UBA), Argentina. Thesis field: Molecular neuroscience. (Mark: Outstanding; Mentor: Prof.Marcelo Rubinstein).

-**Postgraduate Certificate in Academic Practice** (**PGCAP**); King's Learning Institute, King's College London. December 2012. (Pass with Merit).

Previous Positions:

-2009-2012*: **Research Associate** at MRC Centre for Neurodegeneration Research, Institute of Psychiatry, King's College London. **Research Field: Alzheimer's disease and tauopathies**.

-2005-2008*: **Research fellow** at Institut Pasteur, Paris, France. Department of Neurosciences, Research Unit*: « Neurobiologie Intégrative des systèmes cholinergiques* ». **Field : Nicotinic receptors & behaviour** (Mentor : Prof. Jean-Pierre Changeux)

**Career breaks: August 2007-March 2008 / August 2011-April 2012: Maternity leave*

Academic appointments:

-2022-2024: Member of Scientific Advisory Board (Biochemistry and Molecular Biology) of the Argentina National Scientific and Technical Research Council (CONICET).

-2022-present: Member of Executive Board Argentina Consortium for Research in tauopathies (https://ingebi-conicet.gov.ar/caitaup/)

-2017-present: Member of Advisory Committee for PhD Students & Tutor of MSc students (molecular biology). University of Buenos Aires, Facultad de Ciencias Exactas y Naturales
-2015-present: Chair member of IACUC (INGEBI-CONICET)
-2013- present:Fellow member of the British Higher Education Academy (UK)

Languages: (fully fluent): Spanish- Italian- English -French-

Honors:

2022- ALBA Elsevier Award Lecture on Brain Science – (FENS)
2021-IBRO Award FENS Brain Conference "RNA Mechanisms and Brain Disease",
2018- IBRO-LARC Award for emerging laboratories
2017-Junior Faculty Award, Alzheimer's Disease and Parkinson's Disease (AD/PD).
2015-Young investigator award International Society Neurochemistry (ISN)
2013-International Brain Research Organization, "Return Home award".

Research projects

Ongoing:

2023-2027: Gene expression and RNA processing in human disease – Funded by Argentina Ministry of Science "Redes de Alto Impacto". Role: PI

2024-2026: GWAS analysis in Argentinean patients with atypical parkinsonism. Funded by Michael J Fox Foundation (GP2 program) MJFF-026252. Role: PI

2025-2028:, "Tackling TAU under the light of selective vulnerability." – Funded by Alzheimer's Association 25AARG-1414032. Role: PI

Finished:

-2013-2014: International Brain Research Organization (IBRO)-Return Home Grant. Project: "Development of Gene Therapy strategies for neurodegenerative diseases" (PI)
-2014-2016: International Society for Neurochemistry (ISN)-CAEN grant "Optimizing molecular strategies with potential therapeutical application in neurodegenerative diseases". (PI)
-2014-2016: Michael J. Fox Foundation for Parkinson's Research-Target Validation Grant 2014." The kinase Fyn as a candidate mediating abnormal postsynaptic reorganization in Levodopa induced dyskinesias". (Co-PI).

-2019-2023: Dissecting neuronal dysfunction under 3R:4R tau isoforms imbalance. Funded by CurePSP Venture grants. Role: PI

-2020-2022: “Detection of early phenotypes and gene therapy approaches in models of tauopathies”. Funded by Argentina National Research Agency (ANPCYT-PICT 2018). Role: PI

-2023-2024: Ataxia UK pilot grant (Co-PI)

Supervision of MSc and PhD students / postdocs:

Ongoing: supervisor of 5 PhD students / co-supervisor of 3 PhD students

Finished: 8 MSc Students /2 PhD students / 3 postdoctoral fellows

Presentations at International Conferences & courses (last 5 years)

-Invited lecturer Maestría en Neurociencias, Universidad Favaloro.
-Invited lecturer postgraduate course "Envejecimiento: Bases moleculares y celulares", Universidad Autónoma de México, Maestría en Ciencias Bioquímicas
-Tau 2024 Toronto Canada, October 2024
-Panamerican Congress of Movement disorders , Cartagena Colombia , Feb 15 2024
-EUROTAU 2023, Lille, April 26-27 2023.
-Tau 2022 International Conference, Washington DC. March, 2022
-CurePSP symposium New York October 2022
-FENS Forum 2022, Paris, France. Special Lecture ALBA-ELSEVIER prize
-EUROTAU 2021, Lille, October 25-26 2021.
-FENS BRAIN CONFERENCE- RNA Mechanisms and Brain Disease- Denmark, October 20-24 2021.
-FEDERATION OF LATIN AMERICAN NEUROSCIENCE SOCIETIES (FALAN), 2021
-Tau 2020 International Conference, Washington DC. Feb, 2020
- EMBO workshop « The neuronal cytoskeleton », Villarica, Chili.April 2019
-IBRO 2019 WORLD CONGRESS, Daegu, Korea Aug 2019

Lectures at Research Centres

-Maurice Wohl Clinical Neuroscience Institute, Institute of Psychiatry, London, Oct 6, 2023
-Lovely Profesional University, Punjab India. Oct 12, 2023
-Lund University- MultiPark Multidisciplinary Centre on Parkinson´s disease, Oct 18 2021
-Universidad Veracruzana, Mexico, Oct 2019.
-Institut Pasteur, Paris. July 2022.
-International Research Centre FNUSA-ICRC, Brno, Czech Republic April 2019
-Irish Institute of Clinical Neuroscience, Dublin, Ireland. July 21, 2017
-Universidad de Tiradentis, Brazil. Febrero 22 2017.
-Queensland Brain Institute, University of Queensland, Brisbaine Australia, August 2015

Patents & knowledge transfer :

MICRORNAS DESIGNED AGAINST THE MICROTUBULEASSOCIATED PROTEIN TAU FOR THE TREATMENT OF TAUOPATHIES “ **Patent Cooperation Treaty WO 2025/027577.**

Selected Publications :

(Full list : https://pubmed.ncbi.nlm.nih.gov/?term=AVALE+ME&sort=date)

-Progressive supranuclear palsy with neuropathological confirmation and SQSTM1p.Pro392Leu variant causing autophagy dysfunction: a case report. Indiana Paez-Paz 1 , Mariana Houliebec 2 , Nahuel Fonseca 1 , Mónica Mezmezian 3 , Gustavo Sevlever 3 , Blas Couto 4 , Gabriel Mizraji 5 , Tomas Falzone 2 and **M. Elena Avale (CA)**. **2025**. (*submitted*).

-FACAL CL, Clerici-Delville R, Paez Paz I, Soiza-Reilly M and **Avale ME**. **2025** Targeted Tau Reduction with designed microRNAs into vulnerable brain nuclei rescues tauopathy phenotypes in a preclinical mouse model. (*Under revision*)

-Facal C, Fernandez Bessone I, Muñiz JA, Pereyra AE, Pedroncini O, Clerici-Delville R, Arnaiz C, Urrutia L, Falasco G, Marin Burgin A, Falzone T and **Avale ME^{CA}**. Tau reduction prevents neuronal hyperactivity and rescues cognitive impairment in mice with tauopathy, ***Molecular Therapy 2024***

-Casey E, **Avale ME**, Kravitz A, Rubinstein M. Dopaminergic innervation at the central nucleus of the amygdala reveals distinct topographically segregated regions. ***Brain Struct Funct. 2023*** Feb 3. doi: 10.1007/s00429-023-02614-1.

- Muñiz J, Facal CL, Urrutia L, Delville RC, Damianich A, Ferrario JE, Falasco G and **Avale ME^{CA}** SMaRT modulation of tau isoforms rescues cognitive and motor impairments in a preclinical model of tauopathy. ***Front. Bioengeneering and Biotechnology.2022*** 10:951384. doi: 10.3389/fbioe.2022.951384

-Damianich A, Facal CL, Muñiz JA, Mininni C, Soiza-Reilly M, Ponce De León M, Urrutia L, Falasco G, Ferrario JE, **Avale ME^{CA}**. Tau mis-splicing correlates with motor impairments and striatal dysfunction in a model of tauopathy. ***Brain* 2021.** 144(8):2302-2309. doi: 10.1093/brain/awab130.

-Espindola S, Damianich A, Sartor M, Alvarez R., Belforte J.E., Ferrario J.E., Gallo J.M., **Avale M.E^{CA}**. Modulation of tau isoforms imbalance precludes tau pathology and cognitive decline in a mouse model of tauopathy. ***Cell Reports* 2018 (Q1-FI:9.8)**. 23(3):709-715. doi: 10.1016/j.

-Lacovich V., Espindola S.L., Alloatti M., Pozo Devoto V., Cromberg L, Čarná M, Forte G, Gallo J.M., Bruno L., Stokin G., **Avale M.E^{CA}**. Falzone T.L***.** Tau isoforms imbalance impairs the axonal transport of the amyloid precursor protein (APP) in human neurons ***Journal of Neuroscience*. 2017**.. 37:58-69 .(*co-corresponding authors).

-Avale M.E., Rodríguez-Martín T., Gallo, J.M.. *Trans*-splicing correction of tau isoform imbalance in a mouse model of tau mis-splicing***. Human Molecular Genetics.* 2013** 22: 2603-11.

-Avale M.E., Chabout J., Pons S., De Chaumont F., Olivo-Marin J.C., Maskos U., Changeux J.P and Granon S. Prefrontal nicotinic receptors control novel social interaction between mice. ***FASEB J*. 2011** 25:2145-55.

-Avale M.E., Faure P., Pons S., Granon S., Deltheil T., David D., Gardier A., Changeux J.P., Maskos U. 2008. Interplay of Beta2*nicotinic receptors and dopaminergic pathways in the control of locomotion. ***Proc Natl Acad Sci* USA.** 105:15991-6.

-Avale M.E., Falzone T., Gelman D., Low M., Grandy D., Rubinstein M. The dopamine D4 receptor is essential for hyperactivity and impaired behavioral inhibition in a mouse model of attention deficit/hyperactivity disorder. ***Molecular Psychiatry* 2004.** 9:718-26.