

BIOGRAPHICAL SKETCH

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NAME: EMANUELA ZUCCARO

eRA COMMONS USER NAME (credential, e.g., agency login):

POSITION TITLE: Post-doctoral fellow

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

INSTITUTION AND LOCATION	DEGREE (if applicable)	Start Date MM/YYYY	Completion Date MM/YYYY	FIELD OF STUDY
University of Modena and Reggio Emilia	B.S.	9/2002	6/2005	Biotechnology (Pharma)
University of Salento, Lecce, Italy	M.S. (Hon)	9/2005	7/2008	Biotechnology (Pharm-Ind)
Fondazione San Raffaele (DIBIT, Milan), Italy	Research Fellow	08/2008	12/2008	Cell Adhesion
University of Genoa (Italy) (and Italian Institute of Technology, Genoa, Italy)	Ph.D.	1/2009	4/2012	Neuroscience, Robotics, Nanotechnology and Drug discovery
Stem Cell and Regenerative Biology, Harvard University, Cambridge, MA	Fellow	01/2012	04/2012	Developmental Neuroscience
Stem Cell and Regenerative Biology, Harvard University, Cambridge, MA	Postdoctoral Fellow	04/2012	10/2020	Developmental Neuroscience and Stem Cell Biology
University of Padova, Italy	Postdoctoral Fellow	11/2017	01/2020	Neuroscience
University of Padova, Italy	MSCA Fellow	2/2020	01/2022	Neuroscience
University of Padova, Italy		02/2022	present	Neuroscience

A. Personal Statement

My research focuses on understanding the molecular mechanisms that govern the establishment of neuronal diversity in the mammalian central nervous system and its impairment during neurodegenerative diseases, such as amyotrophic lateral sclerosis and spinal and bulbar muscular atrophy. In particular, I am interested in decoding what are the molecular mechanisms underlying the selective vulnerability of specific motor neuron classes in neurodegenerative diseases. In the past few years my work has mostly concentrated on populations of cortical excitatory neurons, relevant for neurodegenerative diseases. I focused on understanding what is the molecular and cellular substrate of neurodegeneration and neuropsychiatric disorders by engaging *in vivo* and hiPS-derived *in vitro* models, and assessing whether risk loci identified by genetic studies (GWAS and de novo mutations) are enriched for genes and pathways in these different neuronal populations.

B. Positions, Scientific Appointments and Honors

Honors and Awards

2021 AriSLA Pilot Grant
2019 Stars@UniPD – Supporting TAleNT in ReSearch @ University of Padua - STARS Grants
2019 H2020 - Marie Slodowka Curie Individual Fellowship – Reintegration
2019 Travel Grant for SINS National Conference
2019 Fondazione Umberto Veronesi Post-Doctoral Fellowship 2019
2018 Fondazione Umberto Veronesi Post-Doctoral Fellowship 2018

Professional experience and membership

National Conference committee and organizer:

2018 IV SBMA Italian meeting, University of Padova, Italy, 5-6 October

Membership of scientific society:

2019 – present Member of SINS (Societ Italiana di Neuroscienze)
2016 – 2017 Member of the Society for Neurosciences (SfN)
2012 – 2013 Member of the International Society for Developmental Neuroscience (ISDN)
2010 – 2011 Member of the Society for Neurosciences (SfN)

Institutional responsibilities:

2020 – present Graduate Student Advisor, Co-mentor, University of Padova, Department of Biomedical Sciences

Teaching activities:

2019 TA. Introduction to Molecular Biology. Data Science Master Degree.
2018 TA. Introduction to OMICS.

Reviewing activity:

2020 - present Editorial Board of Neurodevelopment as Review Editor for Frontiers in Neuroscience

Talk Invitations:

19/03/2021 BRAIN AWARENESS WEEK 2021 - Giovani ricercatori discutono di neuroscienze (12^a edizione) 18-19
Marzo 2021 Title: "Perché alcuni neuroni sono più vulnerabili di altri? Iniziamo dal loro identikit"
11/12/2020 DSB Talk Series, University of Padova
Title: "Neuronal diversity and disease vulnerability in the CNS"
27/11/2020 Veneto Night. Meeting Excellence
06/10/2020 CNR. Webinar. Title: "Dissecting motor neuron diversity and disease vulnerability in the spinal cord"
28/09/2019 SINS National Congress, Perugia, 26-29 September 2019
Title: "Unraveling the molecular substrate of motor neuron vulnerability to disease"
05/10/2018 University of Padova
Title: "A dive into motor neuron diversity in physiological aging and MND"
26/07/2016 University of Padua, DBS Department.
Title: "Derivation of functional, glutamatergic neurons as a model for human synaptic development and disease"
3/10/2016 Broad Institute, Cambridge, MA.
Title: "A model pyramidal neuron for human cortical development and disease"

C. Contributions to Science

SELECTED PUBLICATIONS (5)

1. **Emanuela Zuccaro**, Vanessa Murek, Kwanho Kim, Hsu-Hsin Chen, Sara Mancinelli, Paul Oyler-Castrillo, Laura T. Jiménez-Barrón, Chiara Gerhardinger, Juliana R. Brown, Andrea Byrnes, Benjamin M. Neale, Joshua Z. Levin, Michael J. Ziller, Simona Lodato, Paola Arlotta. Human-specific enrichment of schizophrenia risk-genes in callosal neurons of the developing neocortex. *BioRxiv*, 2021 <https://doi.org/10.1101/2021.09.10.459747>
2. Ryoji Amamoto*, **Emanuela Zuccaro***, Nathan C. Curry, Sonia Khurana, Hsu-Hsin Chen, Constance L. Cepko, Paola Arlotta. FIN-Seq: Transcriptional profiling of specific cell types in frozen archived tissue from the human central nervous system. 2019 *Apr. Nucleic Acids Research* 2020, 48(1), 31728515 (* equally contributed to this work)

3. Ralda Nehme*, **Emanuela Zuccaro***, Sulagna Dia Ghosh, Chenchen Li, John Sherwood, Olli Pietilainen, Lindy E. Barrett, Kathleen A. Worringer, Sravya Kommineni, Ying Zang, Davide Cacchiarelli, Alex Meissner, Rolf Adolfsson, Stephen Haggarty, Jon Madison, Matthias Muller, Paola Arlotta, Zhanyan Fu, Guoping Feng and Kevin Eggan. Small molecule patterning combined with NGN2 reprogramming generates human excitatory neurons with NMDAR-mediated synaptic transmission. *Cell Reports*. 2018 May 22. (*equally contributed to this work)
4. **Emanuela Zuccaro***, Matteo Bergami*, Beatrice Vignoli*, Guillaume Bony, Spartaco Santi, Laura Cancedda and Marco Canossa. Neurotrophin-induced Polarized Expression of p75NTR Specifies Axons During Development and Adult Neurogenesis. *Cell Reports*. 2014 Apr 10.
5. **Emanuela Zuccaro** and Paola Arlotta. The quest for myelin in the adult brain. *Nature Cell Biology*. 2013 Jun 15.

PUBLICATION WITHOUT PHD SUPERVISOR

6. **Zuccaro E**, Piol D, Basso M, and Pennuto M. Motor Neuron Diseases and Neuroprotective Peptides: A Closer Look to Neurons. *Front Aging Neurosci*. 2021; 13: 723871.
7. Chivet M, Marchioretti C, Pirazzini M, Piol D, Scaramuzzino C, Polanco MJ, Romanello V, **Zuccaro E**, Parodi S, D'Antonio M, Rinaldi C, Sambataro F, Pegoraro E, Soraru G, Pandey UB, Sandri M, Basso M, Pennuto M. Polyglutamine-Expanded Androgen Receptor Alteration of Skeletal Muscle Homeostasis and Myonuclear Aggregation Are Affected by Sex, Age and Muscle Metabolism. *Cells*, 2020 Jan 30;9(2):325. doi: 10.3390/cells9020325
8. Casci I, Krishnamurthy K, Kour S, Tripathy V, Ramesh N, Anderson EN, Marrone L, Grant RA, Oliver S, Gochenaur L, Patel K, Sternecker J, Gleixner AM, Donnelly CJ, Ruepp MD, Sini AM, **Zuccaro E**, Pennuto M, Pasinelli P, Pandey UB. Muscleblind acts as a modifier of FUS toxicity by modulating stress granule dynamics and SMN localization. *Nature Communication* 2019 Dec 6;10(1):5583. doi: 10.1038/s41467-019-13383-z.
9. Manzano R, Sorarú G, Grunseich C, Fratta P, **Zuccaro E**, Pennuto M, Rinaldi C. Beyond motor neurons: expanding the clinical spectrum in Kennedy's disease. *J Neurol Neurosurg Psychiatry*. 2018.
10. Simona Lodato, Bradley J. Molyneaux, **Emanuela Zuccaro**, Alyssa Meleski, Emi Takahashi, Shaun Mahony, David K. Gifford and Paola Arlotta. Gene co-regulation by Fezf2 selects neurotransmitter identity and connectivity of corticospinal neurons. *Nature Neuroscience*. 2014 Aug.

PUBLICATION WITH PHD SUPERVISOR (Prof. Marco Canossa)

11. Matteo Bergami, Beatrice Vignoli, Elisa Motori, Simone Pifferi, **Emanuela Zuccaro**, Anna Menini and Marco Canossa. TrkB Signaling Directs the Incorporation of Newly Generated Periglomerular Cells in the Adult Olfactory Bulb. *J. Neurosci*. 2013 Jul 10.
12. Verderio C, Cagnoli C, Bergami M, Francolini M, Schenk U, Colombo A, Riganti L, Frassoni C, **Zuccaro E**, Danglot L, Wilhelm C, Galli T, Canossa M, Matteoli M. TI-VAMP/VAMP7 is the SNARE of secretory lysosomes contributing to ATP secretion from astrocytes. *Biol Cell*. Epub 2012 Jan 11.

D. Scholastic Performance

Teaching assistant

YEAR	COURSE TITLE	GRADE
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2019	Introduction to Molecular Biology. Data Science Master Degree.	
2018	Introduction to OMICS. Data Science Master Degree	

YEAR	COURSE TITLE	GRADE
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