

Carmen Falcone, Ph.D.

CURRICULUM VITAE

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EDUCATION

- 2012-2017 **Ph.D. in Functional and Structural Genomics**
International School of Advanced Studies (SISSA), Trieste, Italy
Thesis title: "Foxg1 and Emx2 control of cortico-cerebral astrogenesis and Emx2 as a novel tool to suppress glioblastoma multiforme"
final mark: passed cum laude
- 2010-2012 **Master's Degree in "Neuroscience"**, University of Trieste, Trieste, Italy
Thesis title: "Emx2 inhibits cortico-cerebral astroglionogenesis by downregulating EGF receptor mRNA"; final mark: 110/110 cum laude
- 2007-2010 **Bachelor's Degree in "General and applied Biology"**, curriculum "Cellular and molecular biology", University of Naples Federico II, Naples, Italy
Thesis title: "Level of di-methylation in H3K4 and H3K9 of repetitive sequences LINE1 and LINE3 in rats treated for the Cortical Spreading Depression"
final mark: 110/110 cum laude

RESEARCH POSITIONS

- 2022-present Group Leader at SISSA, Trieste, Italy
- 2018-2021 Post-doctoral scholar at UC Davis, "Shriners Hospitals for Children", Sacramento, CA, USA
(with a maternity leave from May to July 2021)
- 2017 Post-doctoral fellow in the "Laboratory of Cerebral Cortex Development", SISSA, Trieste, Italy
- 2012-2017 PhD student in Functional and Structural Genomics in the "Laboratory of Cerebral Cortex Development", SISSA, Trieste, Italy
- 2011-2012 Undergraduate student in the "Laboratory of Cerebral Cortex Development", SISSA, Trieste, Italy
- 2010-2010 Undergraduate student in the "Laboratory of Molecular Biology", Biology Department, University of Naples Federico II, Italy

PEER-REVIEWED PUBLICATIONS

- (2021) Santo M., Rigoldi L., **Falcone C.**, Tuccillo M., Calabrese M., Martínez-Cerdeño V., Mallamaci A. "Spatial control of astrogenesis progression by cortical arealization genes", accepted at Cerebral Cortex
- (2022) **Falcone C.**, Martínez-Cerdeño V. "Astrocytes evolution and human specificity", invited Perspective article, Neural Regeneration Research (Epub 2022, June)

- (2022) Vakilzadeh G., **Falcone C.**, Dufour B., Hong T., Martínez-Cerdeño V. "Decreased number and increased activation state of astrocytes in grey and white matter of the prefrontal cortex in ASD", accepted at Cerebral Cortex (Epub 2022, January)
- (2021) **Falcone C.**, McBride E. L., Hof P. R., Hopkins W. D., Manger P., Sherwood C. C., Noctor S. C., Martínez-Cerdeño V. "Redefining varicose-projection astrocytes in primates", *Glia*, Epub 2021, September
- (2021) **Falcone C.***, Mevises N. Y.*, Hong T., Dufour B., Chen X., Noctor S. C., Martínez-Cerdeño V. (* Equally contributing authors) "Neuronal and glial cell number is altered in a cortical layer-specific manner in autism", *Autism*, 25(8):2238-2253 (Epub 2021, April)
- (2021) Amina S., **Falcone C.**, Hong T., Wolf-Ochoa M., Vakilzadeh G., Allen E., Perez Castro R., Karger M., Noctor S. C., Martínez-Cerdeño V. "The number of chandelier cartridges is reduced in the prefrontal cortex in autism", *Cerebral Cortex*, 31(6):2944-2951 (Epub 2021, February)
- (2020) **Falcone C.**, Penna E., Hong T., Tarantal A.F., Hof P. R., Hopkins W. D., Sherwood C. C., Noctor S. C., Martínez-Cerdeño V. "Cortical Interlaminar Astrocytes Are Generated Prenatally, Mature Postnatally, and Express Unique Markers in Human and Nonhuman Primates", *Cerebral Cortex*, 31, 379–395 (Epub 2020, September)
- (2020) Hong T., **Falcone C.**, Dufour B., Amina S., Perez Castro R., Regalado J., Pearson W., Noctor S. C., Martínez-Cerdeño V. "GABA_Aα2 is decreased in the axon initial segment of pyramidal cells in specific areas of the prefrontal cortex in autism", *Neuroscience*, 437, 76–86 (Epub 2020, April)
- (2019) **Falcone C.**, Vakilzadeh G., Noctor S. C., Martínez-Cerdeño V. "Fundamental building blocks of cortical development are established in exencephaly", *Pediatric Research*, 87, 868–871 (Epub 2019, December)
- (2019) **Falcone C.**, Santo M., Liuzzi G., Cannizzaro N., Grudina C., Valencic E., Peruzzotti-Jametti L., Pluchino S., Mallamaci A. "Foxg1 antagonizes neocortical stem cell progression to astrogenesis" *Cerebral Cortex*, 29, 4903–4918 (Epub 2019, March 1)
- (2019) **Falcone C.**, Wolf-Ochoa M., Amina S., Hong T., Vakilzadeh G., Hopkins W. D., Hof P., Sherwood C. C., Manger P. R., Noctor S. C., Martínez-Cerdeño V. "Cortical interlaminar astrocytes across the therian mammal radiation" *Journal of Comparative Neurology*, 527, 1654–1674 (Epub 2018, December 14)
- (2016) **Falcone C.**, Daga A., Leanza G., Mallamaci A. "Emx2 as a novel tool to suppress glioblastoma" *Oncotarget* 2016, 7, 41005–41016.
- (2015) **Falcone C.** and Mallamaci A. "Tuning of neocortical astrogenesis rates by Emx2" *Neural Regeneration Research* 10, 550–551.
- (2015) **Falcone C.**, Filippis C., Granzotto M., Mallamaci A. "Emx2 expression levels in NSCs modulate astrogenesis rates by regulating Egfr and Fgf9." *Glia* 63, 412–422 (Epub 2014, Oct 18)

PREPRINTS

- (2022) Mayrhofer F., Hanson A. M., **Falcone C.**, Xiang Y. K., Navedo M. F., Deng W., Chechneva O. "Oligodendrocytes are a lifelong source of nuclear and ribosomal material for neurons in the mouse brain", preprint at Biorxiv

MANUSCRIPTS IN PREPARATION

(2021) Hong T., McBride E. L., **Falcone C.**, Thuy Doan M. T., Martínez-Cerdeño V. "The number of cartridge synaptic boutons in chandelier cells is not affected in autism", under review at Neuroscience

(2021) **Falcone C.** (corresponding author) "Evolution of Astrocytes", submitted, invited review for the special issue "Cell Biology of Brain Development and Evolution" in Frontiers in Cell and Developmental Biology

AWARDS AND FELLOWSHIPS

2021 Human Technopole Early Career Fellowship – **1,000,000 €** for 5 years
2019 Best Poster award at UC Davis Postdoctoral Research Symposium – **600 \$**
2018 Winner of UC Davis Health Science Communication Fellowship – **100 \$**
2016-2017 Winner of SISSA Postdoctoral Research Fellowship at SISSA, Trieste, Italy – **21,600 €** for 1 year
2016 Travel award for "ISDN 2016: From stem cells to behaviour in the normal and diseased nervous system, May 11-14, Antibes Juan les Pins, France" – **400 €**
2016-2017 Co-operation Scholarship in Functional and Structural Genomics at SISSA, Trieste, Italy – **1,545 €**
2015-2016 Co-operation Scholarship in Functional and Structural Genomics at SISSA, Trieste, Italy – **1,545 €**
2016 Fellowship for "JCom masterclass: Facilitating the debate on the scientific and technological progress", Jan 11-15, 2016, Trieste, Italy
2014 Travel award for "ISDN 2014: Development, functions and disorders of the nervous system, Jul 19-24, 2014, Montréal, Canada" – **400 €**
2014 Co-operation Scholarship in Functional and Structural Genomics at SISSA, Trieste, Italy – **1,545 €**
2012 Winner of SISSA Undergraduate Fellowship at SISSA, Trieste, Italy – **3,000 €**

TEACHING & MENTORSHIP

2019-present Visiting professor at University of Trieste (Italy), Master Degree in Neuroscience, full course (3 credits): "Vertebrate brain evolution"
2015-present Mentorship to 13 undergraduate students, 2 postgraduate students and 2 graduate students
2016 Teaching assistant for "Cortical astrogenesis" and "Cortical oligodendrogenesis" classes within Neuroembryology II course, AY 2016-2017, Neuroscience Master Degree, University of Trieste
2015 Teaching assistant for "Cortical astrogenesis" and "Cortical oligodendrogenesis" classes within Neuroembryology II course, AY 2015-2016, Neuroscience Master Degree, University of Trieste
2014 Teaching assistant for "Cortical astrogenesis" class within Neuroembryology II course, AY 2014-2015, Neuroscience Master Degree, University of Trieste

LEADERSHIP, COMMUNITY SERVICE & OUTREACH

2021 Scientific peer reviewer for ERC Consolidator Grant
2020-present Scientific peer reviewer for the journals: Science Advances, Pediatric Research (NPS)
2020-present Member of Leadership in Research Team
2020-present Founder and organizer of BioRoom, a virtual seminar series during COVID19 pandemic
2020-present Webinar organizer for the association "SISSA Alumni"
2019-2021 Founder and organizer of "IPRM Postdoc Seminar Series" at Shriners Hospital for Children, UCD

- 2018-2021 Team leader of scientific outreach activities to K-12 school students, volunteer for the Ventricular Foundation, Sacramento, CA, USA
- 2018 Science communication educator at “Meet a Scientist” day at Powerhouse Science Center, Sacramento, CA, USA
- 2016 Vice-present at the SISSA club student association, Trieste, Italy
- 2013-2017 Scientific outreach to elementary, middle and high school students, in collaboration with SISSA Medialab, Trieste, Italy

ADVOCACY

- 2021 Co-author to a Correspondence on Nature: “Call to update US re-entry rules for international researchers” to advocate for the rights of international researchers in the US
- 2020-present Founder and administrator of “International Scholars in the US” Slack group: a community of over 1,400 international scholars
- 2020-present Advocacy for International Scholars and Immigrants, volunteering at the Union for Postdoc & Academic Workers - International Scholar Working Group
- 2020-present Writer for UC Davis Seminar for Outreach and Minority Advocacy (SOMA)
- 2018-present Advocacy for education for minority groups in the Sacramento area with the Ventricular Foundation

CONFERENCE PRESENTATIONS & INVITED TALKS

- 2022 “Becoming a PI- The stories of 3 Young Successful PIs”- invited panel for MAPTA Seminar Series, virtual
- 2022 Moderator for the session “Glia-Neuron Interaction”, at SIBS conference, April 8, virtual
- 2021 “Redefining varicose-projection astrocytes in primates”, talk at J.B. Johnston Club for Evolutionary Neuroscience meeting, Nov 11-12, virtual
- 2021 “Evolution and development of a special type of astrocytes in mammals: Interlaminar Astrocytes” – invited talk for “Promising Scientist Seminar – Iowa University”, Sept 24, virtual
- 2021 “Evolution and development of interlaminar astrocytes in mammals” – invited talk at Taraballi Lab Journal Club – Houston Methodist, Sept 8, virtual
- 2021 Organizer, Speaker and Chair of the Symposium “Where do glia come from? Evolution and diversification of CNS glia” at the XV European Meeting on Glial Cells in Health and Disease, virtual
- 2021 “Cortical interlaminar astrocyte evolution and comparative development in mammals”, talk at the XV European Meeting on Glial Cells in Health and Disease, virtual
- 2021 Moderator for the session “Glial control of behavior” at Virtual Glia Trainee Symposium, Mar 12-13, virtual
- 2021 “Development of interlaminar astrocytes in the primate cerebral cortex”, poster at the Virtual Glia Trainee Symposium, Mar 12-13, virtual
- 2021 “Interlaminar astrocytes development and evolution”, talk at the MetaBio Seminar Series, Mar 1, virtual
- 2021 “Varicose-projection astrocytes across evolution”, talk at IPRM Postdoc Seminar Series, Feb 4, virtual
- 2021 “Interlaminar astrocytes have unique developmental trajectory and molecular markers in primates” Society for Neuroscience- Global Connectome, Jan 11-13, virtual
- 2020 “Cortical interlaminar astrocytes are generated prenatally, mature postnatally, and express unique markers in human and nonhuman primates”, talk at 3rd Symposium on Physiology and Pathology of Neuroglia, Universidad Nacional Autónoma de México, virtual

- 2020 "Cortical interlaminar astrocytes are generated prenatally, mature postnatally, and express unique markers in human and nonhuman primates", talk at J.B. Johnston Club for Evolutionary Neuroscience, Oct 23
- 2020 "Cortical interlaminar astrocyte evolution and development", talk at IPRM Seminar Series, Sep 4
- 2020 "Cortical interlaminar astrocytes: development and evolution", poster at CSHL Glia in Health and Disease, July 16-19
- 2020 "Evolution and development of astrocytes in mammals", talk at BioRoom 2020, Apr 21, virtual
- 2019 "Interlaminar astrocytes: evolution and development", invited talk at Neural Repair & Glial Biology Seminar, Dec 13, UCLA, Los Angeles, USA
- 2019 "Cortical interlaminar astrocytes in mammalian evolution and development", talk at Society for Neuroscience 2019, Oct 19-23, Chicago, USA
- 2019 "Development of cortical interlaminar astrocytes across evolution", talk at J.B. Johnston Club for Evolutionary Neuroscience meeting, Oct 18, Chicago, USA
- 2019 "Interlaminar astrocytes: evolution and development in mammals", talk at IPRM Annual Research Symposium, Sep 27, Sacramento, USA
- 2019 "Cortical interlaminar astrocytes in mammalian evolution and development", poster at XIII European Meeting on Glial Cells in Health and Disease, Jul 10-13, Porto, Portugal
- 2019 "Fundamental building blocks of cortical development are established in exencephaly: a case report", poster at Pathology Retreat, May 7, Sacramento, USA
- 2019 "Interlaminar astrocytes in mammalian evolution", poster at UC Davis Postdoctoral Research Symposium, Apr 15, Davis, USA
- 2018 "Cortical interlaminar astrocytes in mammalian evolution", talk at Society for Neuroscience 2018, Nov 3-7, San Diego, USA
- 2018 "Interlaminar astrocytes in mammalian evolution", poster at IPRM Annual Research Symposium, Oct 10
- 2018 "A new type of astrocyte: Cortical interlaminar astrocytes in mammalian development and evolution" poster at Cortical Evolution 2018, Jun 3-6, Gran Canaria, Spain
- 2018 "Astrocytes in mammalian evolution", UC Davis Postdoc Symposium, Apr 23, Davis, USA; poster
- 2017 "Foxg1 expression levels in NSCs modulate astrogenesis rates", poster at XIII European Meeting on Glial Cells in Health and Disease, Jul 8-11, Edinburgh, UK
- 2016 "Emx2 role in corticocerebral astrogenesis and glioblastoma multiforme tumors", poster at "ISDN: From stem cells to behaviour in the normal and diseased nervous system", May 11-14 (21st Biennial Meeting of ISDN), Antibes Juan les Pins, France
- 2015 "Emx2 role in corticocerebral astrogenesis and glioblastoma multiforme tumors", talk at The XVI Congress for the Italian Society for Neuroscience (SINS), Oct 8-11, Cagliari, Italy
- 2015 "Emx2 role in corticocerebral astrogenesis and glioblastoma multiforme tumors", poster at The Biennial Congress of the Italian Association of Cell Biology and Differentiation, Sep 17-19, Bologna, Italy
- 2015 "Emx2 expression levels in nSCs modulate astrogenesis rates by regulating Egfr and Fgf9" poster at XII European Meeting on Glial Cells in Health and Disease, Jul 15-18, Bilbao, Spain; poster
- 2015 "Emx2 expression levels in NSCs modulate astrogenesis rates by regulating Egfr and Fgf9", poster at Cortical Evolution 2015, May 18-21, Toledo, Spain
- 2014 "Emx2 expression levels in NSCs modulate astrogenesis", poster at "ISDN: Development, functions and disorders of nervous system" (20th Biennial Meeting of ISDN), Jul 19-24, Montréal, Canada

- 2014 "Emx2 expression levels in NSCs modulate astrogenesis rates by regulating EgfR", talk at Students' workshop on research activities of ICGEB, SISSA, UniTS, UniUD, Jan 23, Trieste, Italy
- 2013 "Emx2 modulates astrogenesis in NSCs", talk at 1st FVG PhD symposium, Oct 7-9, Grado, Italy

PROFESSIONAL NETWORKS

SfN (Society for Neuroscience); FENS (Federation of European Neuroscience Societies); SINS (Italian Society for Neuroscience); J. B. Johnston Club for Evolutionary Neuroscience; Cancer Epigenetic Society; SISSA Alumni; AIRI (International Association of Italian Researchers)