

VALENTINA CERRATO

Born in Turin, 21.07.1988 – Italian

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Education

2018. PhD in Neuroscience cum laude, University of Turin, Italy

2012. Master's Degree in Medical Biotechnology (summa cum laude and honorable mention), University of Turin, Italy

2010. Bachelor Degree in Biotechnology (summa cum laude), University of Turin, Italy

Current position

Young Post-doc fellow

Previous positions

2018 - up to now. Young Post-doc Fellow, Department of Neuroscience Rita Levi Montalcini and Neuroscience Institute Cavalieri Ottolenghi (NICO), University of Turin, Italy. PI: Prof. Annalisa Buffo

February 2015. Visiting Scholar in the laboratory of Prof. Laura López-Mascaraque, Instituto Cajal, Madrid.

2014-2017. PhD student, Department of Neuroscience, University of Turin, Italy. PI: Prof. Annalisa Buffo

2013. Post-lauream apprentice at the Neuroscience Institute Cavalieri Ottolenghi (NICO), Department of Neuroscience Rita Levi Montalcini, University of Turin, PI: Prof. Ferdinando Rossi.

2007–2012. Undergraduate student, Department of Clinical and Biological Sciences, University of Turin, Italy. PI: Prof. David Lembo.

Grants, Fellowships and Awards

2020. Veronesi fellowship to spend six months in the laboratory of Prof. Ludovic Telley, Lausanne.

2020. IBRO-PERC in Europe Short Stay Grant, to spend three months in the laboratory of Prof. Ludovic Telley, Lausanne.

2019. IBRO-PERC Grant, to organize the Workshop “Glial Cells – Neuron Crosstalk in CNS Health and Disease”

2019. SINS Travel Grant Award to attend the XVIII Congress of the Italian Society for Neuroscience (SINS), granted by the SINS society

2019. Scientific Meeting Grant, to organize the Symposium “Astrocytes heterogeneity: from development to functional implications” in the frame of the XVIII Congress of the Italian Society for Neuroscience (SINS), granted by The Company of Biologists, Cambridge, UK

2019. EBBS Sponsored International Lecturer Grant, for the participation of an international lecturer to the symposium “Astrocytes heterogeneity: from development to functional implications” in the frame of the XVIII Congress of the Italian Society for Neuroscience (SINS), granted by the EBBS Society.

2019. “Elena Benaduce” price awarded as best research project dedicated to the quality of life, in the frame of the 8th edition of the national science communication price “GiovedìScienza”

2019. Awarded IBRO stipend to attend the XIV European Meeting on Glial Cells in Health and Disease, Porto, July 10-13, 2019.

2018-2019. Post-doc fellowship, Dept. of Neuroscience, University of Turin. PI: Dr. Annalisa Buffo

2017. COST Fellowship to attend the International Training School “Reactive gliosis from mechanobiology and signal transduction to molecular targets and disease pathogenesis”, University of Gothenburg, Aspenäs Herrgård, Gothenburg, Sweden.

2016. Price awarded as one of the best young oral presentations at the XXVI Congress G.I.S.N. , Verona, November 24-25, 2016.

2016. Price awarded for best poster presentation among the PhD Students in Neuroscience at D-Day 2016, organized by the Doctoral School in Life and Health Sciences, University of Turin.

2015. IBRO stipend for Introductory Course - Glia Meeting 2015, Bilbao.

2014. NENS Exchange Grant to visit the laboratory of Prof. Laura López-Mascaraque, Instituto Cajal, Madrid

2014-2017. PhD fellowship granted by the University of Turin, Dept of Neuroscience, University of Turin. PI: Prof Annalisa Buffo.

Personal skills and expertise

In the past ten years of research activity in both the virology and neuroscience field, I acquired basic abilities in molecular biology (DNA and RNA isolation, PCR, qRT PCR, bacterial transformation, plasmids purification, lentiviral vector production) and culture of both immortalized and primary lines of different CNS cell types (mainly astrocytes and neurospheres of neural stem cells). Moreover, I gained a deep expertise in the technique of *in utero* and postnatal electroporation in the mouse brain and a good dexterity in other *in vivo* surgical procedures in mice, like injection of lentiviral vectors *in utero* (in the lateral and fourth ventricles), early postnatally, and in adult animals, cell transplantation experiments, perfusion and brain tissue collection. I also acquired extensive ability in behavioral tests to assess both motor and anxiety-like behaviors in distinct mutant mouse lines. Moreover, I gained expertise in histological and cytological procedures as well as in the use of bright-field, fluorescence and confocal microscopy. Beside that, I took advantage of novel *in vivo* clonal analysis techniques to investigate the fate potency of single precursor cells and trace their progenies in the CNS.

Invited seminars and oral communications

- "The ontogenesis of astrocytes diversity: a remarkably orderly process necessary for the correct cerebellar development and functioning". BraYn - 2nd Brainstorming Research Assembly for YOUNG Neuroscientists - Milan, 14-16 November 2019
- "The ontogenesis of astrocytes diversity: a remarkably orderly process necessary for the correct cerebellar development and functioning". XVIII National Congress of the Italian Society for Neuroscience, Perugia 26-29 2019.
- "In vivo clonal analyses to study the ontogenesis of cerebellar astrocytes: from confocal microscopy, to automatic segmentation and 3D reconstruction tools", 8th Workshop of advanced microscopy techniques for research and clinics, University of Turin, Orbassano (TO), May 24th, 2019.
- "Astrocytes physiology and pathophysiology", teaching course of Physiology within the MD program in Medicine and Surgery, University of Turin, Orbassano (TO), October 16th, 2018.
- "Generation of astroglial diversity in the cerebellum", teaching course of Developmental Biology at the Master's degree in Molecular and Cellular Biology, University of Turin, Turin, April 11th, 2017.
- "Astroglial heterogeneity in the cerebellum results from distinct embryonic and postnatal progenitors with different proliferative behaviors", XXVI Congress G.I.S.N., Verona, November 24-25 2016.
- "Origin and development of astroglial heterogeneity in the cerebellum" 46th SfN annual meeting, San Diego (USA), 12-16 November 2016.
- "Generation of astroglial diversity in the CNS", teaching course of Developmental Biology at the Master's degree in Molecular and Cellular Biology, University of Turin, Turin, April 27th, 2016.
- "Cerebellar astroglial heterogeneity and role of Bergmann Glia during cerebellar foliation", Instituto Cajal, Madrid, February 25th, 2015.

Teaching

2018 – present. Didactic assistant (cultore della materia) in Physiological basis of human body Course - MedInTO Medicine and Surgery Faculty, University of Turin.

2017 – present. Didactic assistant (didattica integrativa) in Functioning of the human body Course - Physiology, Faculty of Nursing, University of Turin.

2017 – present. Didactic assistant (didattica integrativa) in Human Anatomy Course, Faculty of Nursing, University of Turin.

2017 – 2019. Tutor in Human Anatomy Course, Faculty of Scienze delle Attività Motorie e Sportive, University of Turin.

2014 – present. Currently mentor of Linda Petrucci (Master Student in Neurobiology, UniTo) Maddalena Derosa (Master Student in Biotechnology, UniPg,) and Sara Rossi (Master Student in Medical Biotechnology, UniTo). Past students: Chiara Ossola (Master Student in Neurobiology, UniTo) Sara Lucisano (Bachelor student in Biology, UPO), Alessia Andrea Ricci, Erika Calati, Chiara Ossola, Alessia Zotta (Bachelor Students in Biotechnology, UniTo) and Gabriele Liuzzi (Master student in Biology, UniTo).

Organization of symposia, conferences and seminar series

2020. Chairperson and proponent of the Workshop “Glial cells-neuron crosstalk in CNS health and disease”, February 27-29th 2020, Turin, Italy.

2019. Chairperson and proponent of the symposium: “Astrocytes heterogeneity: from development to functional implications” in the frame of the XVIII Congress of the Italian Society for Neuroscience (SINS), 27 September 2019, Perugia, Italy

Editorial duties

Ad hoc reviewer for International Journal of Developmental Neuroscience and Neurochemical Research.

Scientific Societies

Italian Society of Neuroscience (SINS)
European Brain and Behaviour Society (EBBS)

PUBLICATION LIST

Articles on peer reviewed journals

Massimo Salvi, Valentina Cerrato, Annalisa Buffo, and Filippo Molinari. **Automated segmentation of brain cells for clonal analyses in fluorescence microscopy images.** *Journal of Neuroscience Methods*. J Neurosci Methods. 2019 Jul 5. S0165-0270(19)30150-5. doi: 10.1016/j.jneumeth.2019.108348.

Valentina Cerrato*, Elena Parmigiani*, Maria Figueres-Oñate, Marion Betizeau, Jessica Aprato, Ishira Nanavat, Paola Berchiolla, Federico Luzzati, Claudio de'Sperati, Laura Lopez-Mascaraque, Annalisa Buffo. **Multiple origins and modularity in the spatiotemporal emergence of cerebellar astrocyte heterogeneity.** *PLOS Biology*. 2018 Sep 27;16(9):e2005513. doi: 10.1371/journal.pbio.2005513

Valentina Cerrato*, Sara Mercurio*, Ketty Leto*, Elisa Fucà, Eriola Hoxha, Sara Bottes, Miriam Pagin, Marco Milanese, Chew-Yee Ngan, Giulia Concina, Sergio Ottolenghi, Chia-Lin Wei, Giambattista Bonanno, Giulio Pavesi, Filippo Tempia, Annalisa Buffo and Silvia K. Nicolis. **Sox2 conditional mutation in mouse causes ataxic symptoms, cerebellar vermis hypoplasia, and postnatal defects of Bergmann glia.** *Glia*. 2018 May 6. doi: 10.1002/glia.23448

Annarita De Luca*, Valentina Cerrato*, Elisa Fucà, Elena Parmigiani, Annalisa Buffo, Ketty Leto. **Sonic hedgehog patterning during cerebellar development** (2016). *Cellular And Molecular Life Sciences*. 2016 Jan;73(2):291-303. doi: 10.1007/s00018-015-2065-1. Epub 2015 Oct 24

(*co-first authors).

BOOK CHAPTERS

Valentina Cerrato and Annalisa Buffo, **Gliogenesis**. In: Gruol D, Koibuchi N, Manto M, Schmähmann JD, Sillitoe RV, editors. *Handbook of the Cerebellum and Cerebellar Disorders* (2019). Springer, Cham. doi: 10.1007/978-3-319-97911-3_108-1