

CURRICULUM VITAE ET STUDIORUM
FEDERICO BRANDALISE

(updated March 2025)

PERSONAL INFORMATION:

Name: Federico

Surname: Brandalise

Gender: male

Date of birth:

Place of birth:

Citizenship: Italian

Email address: federico.brandalise@unica.it

Work address: Department of Biomedical Sciences
Division of Neuroscience and Clinical Pharmacology
University of Cagliari,
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EDUCATION:

- August 29, 2016: Ph.D. in Neuroscience, University of Zurich (Switzerland).
Thesis: “The Dendritic NMDA Spike as a Fundamental Mechanism Initiating Associative Plasticity in the CA3 Region of the Hippocampus.”
Supervisors: Fritjof Helmchen, PhD and Urs Gerber, MD.
- June 26, 2013: Master’s Degree in Neurobiology, University of Pavia (Italy).
Thesis: “Synaptic cross-talk between granule cells and Golgi cells through GABA_B mediated modulation of GABA_A-dependent neurotransmission in the cerebellum.” Marks 103/110.
Supervisor: Prof. Paola Rossi.
- September 22, 2008: Bachelor’s Degree in Human Biology and Biomedical Science, University of Pavia (Italy).
Thesis title: “The NR2A subunit of the N-methyl D-aspartate receptor is required for potentiation at the cerebellar mossy fiber to granule cell synapse and vestibulo-cerebellar motor learning.” Marks: 110/110 with honors.
Supervisor: Prof. Paola Rossi.
- Foreign languages: English (C2)

French (B2)
German (B1)

CERTIFICATES AND ABILITATIONS:

RESAL module 1 (FELASA B): Introductory course in laboratory animal science. Education and training of Persons Conducting Animal Experiments (Ordinance governing Education in Keeping and Handling Animal in Switzerland (455.109.1), September 2008, 5th; renewed in 2018)

WORK EXPERIENCE:

Dec 2024-ongoing: RTT (tenure track assistant professor), Department of Biomedical Sciences Division of Neuroscience and Clinical Pharmacology, University of Cagliari (IT).

Oct 2021-10/2024: RTDB (tenure track assistant professor), Department of Bioscience, University of Milan (IT).

Oct 2018 – Sept 2021: Post-doctoral fellow, Department of Fundamental Neuroscience (NEUFO), University of Geneva (CH). Project: “Posteromedial thalamic nucleus (POM) learning-related modulation of active S1 cortical dendrites during a texture-discrimination task”.
Supervisor: Prof. Anthony Holtmaat, PhD.

Jan 2017 – Sept 2018: Post-doctoral fellow, Center for Learning and Memory, University of Texas at Austin (TX, USA). Project: “Dynamics and plasticity of dendritic signaling in the prefrontal cortex of a Fragile X syndrome mouse model”.
Supervisor: Prof. Daniel Johnston, PhD.

Jun 2013 – Aug 2016: Doctoral candidate, Laboratory of Electrophysiology, Brain Research Institute, University of Zurich (CH).
Supervisors: Prof. Fritjof Helmchen, PhD and Prof. Urs Gerber, MD.

Feb 2013 – Jun 2013: Pre-Doctoral fellow, Laboratory of Electrophysiology, University of Pavia; Collaboration in electrophysiology and behavior with Miconet srl (start-up), University of Pavia.
Supervisors: Prof. Paola Rossi, PhD and Prof. Egidio D’Angelo, MD.

HONORS AND AWARDS:

2022: The “3Brain - Massimo Grattarola Award 2022” for Excellence in Neurophysiology. Giving by 3Brain AG. Award price of €15k

2018: Advanced Post Doc Mobility Fellowship, sponsored by the Swiss National Science Foundation.

2017: Zentrum für Neurowissenschaften (ZNZ) Best PhD Dissertation Award 2017 (University of Zurich).

2017: SSN Travel grant 2017, funded by the Swiss Society for Neuroscience.

2016: 3rd Prize “Best Poster Award” at the EMBO Conference “Dendritic Anatomy, Molecules and Function” (Crete, 06/2016).

- 2016:** Early Post-Doc Mobility Fellowship, sponsored by the Swiss National Science Foundation.
- 2015:** 1st Prize at the Brain Research Institute PhD competition 2015 (University of Zurich).
- 2014:** F1000 Prime Article Recommendation of the article "Mossy fiber-evoked subthreshold responses induce timing-dependent plasticity at hippocampal CA3 recurrent synapses" <https://facultyopinions.com/article/718281700>
- 2014:** SSN Travel grant 2014, funded by the Swiss Society for Neuroscience.

INSTITUTIONAL RESPONSIBILITIES

Jan 2022 – Apr 2024: Member of the Infrastructure Commission, Bioscience Department, University of Milan, Italy

Jan 2022 – Apr 2024: Member of the Scientific Commission, Bioscience Department, University of Milan, Italy

2023– May 2024: Member of the Equal Opportunities Commission, Bioscience Department, University of Milan, Italy

PUBLIC OUTREACH ACTIVITIES:

Oct 2014: Invited lecture at the "nanoTalks" (a science dissemination group based at the University of Zurich). Title: "Deciphering the sense of place in the brain", to celebrate Nobel Prize winner Edvard Moser.

The link to the talk can be found here:

https://www.youtube.com/watch?v=00_nsjv17Co&t=35s

Oct 2013: Invited lecture to the seminar series "Evolution and the brain" – University of Pavia.

INVITED SPEAKER AT CONFERENCES:

Oct 2024: THE NEUROSCIENCE OF CANCER MEETING (BOLOGNA, IT). "Investigating the role of voltage-gated sodium channels in glioblastoma stem cells: implications for therapeutic targeting".

Feb 2024: "Kick-off meeting for the Excellence Program" Department of Biosciences, Università degli studi di Milano.

Sept 2021: GIESSBACH NEUROSCIENCE MEETING (CH). "Cell type and input selective non-linear dendritic responses in layer 2/3 pyramidal cells of the somatosensory cortex".

Jan 2020: SWISSKERS MEETING (Bern – CH). "Dendritic integration of long-range inputs by barrel cortex pyramidal cells".

May 2016: EMBO Conference "Dendritic Anatomy, Molecules and Function" – Crete (EL). "Dendritic NMDA spikes are necessary for timing-dependent associative plasticity at recurrent synapses of CA3 hippocampal pyramidal cells".

Mar 2015: Gordon Research Conference “Dendrites: Molecules, Structure & Function” (Ventura – CA). “The NMDA-spike as a fundamental mechanism in timing-dependent plasticity at hippocampal CA3 recurrent synapses”.

Mar 2014: GIESSBACH NEUROSCIENCE MEETING (CH). “The NMDA-spike as a fundamental mechanism in timing-dependent plasticity at hippocampal CA3 recurrent synapses”.

INVITED SPEAKER FOR LECTURES:

Jul 2024: University of Milan, invited lecture for the summer school: “Neurons: how to explore the functional complexity”, in the context of the PhD program in Molecular and Cellular Biology.

Jul 2024: University of Genova, invited lecture for the summer school: “Unraveling the Voltage-Gated Sodium Channels' Impact on Glioma Progression”, in the context of the PhD program in Neuroscience.

Mar 2024: CNR PISA, invited lecture for IN Pisa Talks: “Enhancing chemotherapy sensitivity in Glioblastoma Cancer Stem Cells through Voltage-Gated Sodium Channel modulation to promote differentiation”, in the context of the monthly seminars organized by the Neuroscience Department of the CNR in Pisa.

Jan 2024: San Raffaele University, invited lecture for the NeuroClub: “Cell type and input selective non-linear dendritic responses in layer 2/3 pyramidal neurons of the somatosensory cortex.”

Nov 2019: University of Padova, invited lecture hosted by Prof. Daniela Pietrobon. “Fragile X Mental Retardation Protein bidirectionally controls dendritic Ih in a cell-type specific manner between mouse hippocampus and prefrontal cortex”.

May 2016: EMBO Conference “Dendritic Anatomy, Molecules and Function” – Crete (EL). “Dendritic NMDA spikes are necessary for timing-dependent associative plasticity at recurrent synapses of CA3 hippocampal pyramidal cells”.

Oct 2014: University of Zurich. “Decoding the brain’s sense of place”.

Oct 2013: University of Pavia. “Evolution and the brain”.

POSTERS AT CONFERENCES:

2024: SIF (Societa’ Italiana di Farmacologia) Monothematic congress “Evolution of Cancer Pharmacology” – Salerno (IT). “Modulating Voltage-Gated Sodium Channels to Enhance Differentiation and Sensitize Glioblastoma Cells to Chemotherapy”

2023: European Association of Neuro-Oncology (EANO) Meeting – Rotterdam (NL). “Regulation of glioblastoma cancer stem cells and proliferation through voltage gated sodium channel”.

2023: Cancer Neuroscience Meeting 2023 – Heidelberg (DE). “Voltage-gated-sodium channel as a gate for stemness in human glioblastoma cancer stem cells”.

2023: European Association for Cancer Research (EACR) 2023 – Turin (IT). “Voltage-gated-sodium channel and its role in human glioblastoma cancer stem cells”.

2020: Swiss Neuroscience annual meeting – Bern (CH). “Input specific dendritic integration by barrel cortex supragranular pyramidal cells”.

- 2019:** Synapse meeting – Lausanne (CH). “FMRP regulation of dendritic HCN channels between in mouse hippocampus and prefrontal cortex”.
- 2019:** Swiss Neuroscience annual meeting – Geneva (CH). “FMRP bidirectionally controls differentially regulates dendritic HCN in a cell-type specific manner between in mouse hippocampus and prefrontal cortex”.
- 2017:** Society for Neuroscience Meeting (SFN) – Washington (DC). “Cell-type specific regulation of ion channel function by fragile x mental retardation protein”.
- 2016:** Neuroscience meeting – San Diego (CA). “From full-blow spikes to graded boosting NMDA dendritic supralinearities: what causes the switch?”.
- 2016:** EMBO Conference “Dendritic Anatomy, Molecules and Function” – Crete (EL). “Dendritic NMDA spikes are necessary for timing-dependent associative plasticity at recurrent synapses of CA3 hippocampal pyramidal cells”.
- 2016:** Swiss Neuroscience annual meeting – Lausanne (CH). “Dendritic spike generation at CA3 pyramidal cells triggers LTP at recurrent synapses”.
- 2015:** Society for Neuroscience Meeting (SFN) – Chicago (IL). “The NMDA-spike as a fundamental mechanism in timing-dependent plasticity at hippocampal CA3 recurrent synapses”.
- 2015:** Gordon Research Conference “Dendrites: Molecules, Structure & Function” – Ventura (CA). “The NMDA-spike as a fundamental mechanism in timing-dependent plasticity at hippocampal CA3 recurrent synapses”.
- 2014:** Society for Neuroscience Meeting (SFN)–Washington (DC). “Distinct developmental expression of G-protein coupled inwardly rectifying potassium (GIRK) channels in cerebellar granule cells in the hemispheres as compared to the vermis”.
- 2014:** FENS Meeting – Milan (IT). “Cerebellar granule cells exhibit distinct developmental expression of voltage-dependent channels in the hemispheres as compared to the vermis”.
- 2012:** 8th IBRO World congress of Neuroscience – Florence. “Synaptic activation of GABAB receptors in granule cells reduces GABAA receptor-mediated responses at the Golgi cell–granule cell synapse in rat cerebellum”.
- 2011:** Society for Neuroscience Meeting (SFN) – Washington (DC). “Subthreshold mossy fiber input can trigger synaptic plasticity between CA3 pyramidal cells”.

RESEARCH PROJECTS:

- 2023-2025:** Cancer cells go neuronal: role of Voltage-Gated Sodium Channels in mediating Glioblastoma-to-Neuron communication and Tumor Proliferation. PRIN: PROGETTI DI RICERCA DI RILEVANTE INTERESSE NAZIONALE – Bando 2022 (**Co-PI**).
- 2023-2024:** Voltage-gated-sodium channel and its role in stemness regulation in human glioblastoma cells – Linea 2 Grant 2023, University of Milan (**PI**).
- 2018 (Jul-Sept):** Fragile X Mental Retardation Protein (FMRP) modulates the functional membrane expression of HCN channel via protein-protein interaction: characterization of a novel regulatory mechanism – Swiss National Science Foundation (**PI**).
- Jan 2017- Jun 2018:** Dynamics and Plasticity of Dendritic Signaling in the Prefrontal Cortex of a Fragile X Syndrome Mouse Model – Swiss National Science Foundation (**PI**).
- 2015-2017:** Dynamics and Plasticity of Dendritic Signaling in Hippocampal CA3 Pyramidal Cells (**team member**).
- 2012-2015:** Dynamics and Plasticity of Synaptic Signaling at Identified Synapses in Hippocampus – Swiss National Science Foundation (**team member**).

MEMBERSHIP:

European Association of NeuroOncology (EANO)
European Association for Cancer Research (EACR)
Italian Society of Pharmacology (SIF)

AD HOC REVIEWER:

Ad hoc reviewer for the following International Scientific Journals:

- Frontiers in Physiology
- Current Biology
- Plos One
- Cell Communication and Signaling
- Biomedicines
- International Journal of Molecular Sciences
- Cancers

EDITORIAL DUTIES

Sept 2022 – ongoing: Review editor for Frontiers in Oncology (section of Molecular and Cellular Oncology).

<https://www.frontiersin.org/search/journal/oncology/section/molecular-and-cellular-oncology?query=brandalise&tab=topresults&origin=https%3A%2F%2Fwww.frontiersin.org%2Fjournals%2Foncology%2Fsections%2Fmolecular-and-cellular-oncology>

CITATIONS:

Scopus: 505; **h- index** 14

Google Scholar: 787; **h-index** 16; **i10-index** 18

PEER REVIEWED PUBLICATIONS (all in English):

Venuti MT, Roda E, Brandalise F, Sarkar M, Cappelletti M, Speciani AF, Soffientini I, Priori EC, Giammello F, Ratto D, Locatelli CA. A pathophysiological intersection between metabolic biomarkers and memory: a longitudinal study in the STZ-induced diabetic mouse model. Frontiers in Physiology. 2025 Mar 12;16:1455434.

1. Venuti, M.T., Roda, E., Brandalise, F., Sarkar, M., Cappelletti, M., Speciani, A.F., Soffientini, I., Priori, E.C., Giammello, F., Ratto, D. and Locatelli, C.A., 2025. A pathophysiological intersection between metabolic biomarkers and memory: a longitudinal study in the STZ-induced diabetic mouse model. *Frontiers in Physiology*, 16, p.1455434.
2. Giammello, F., Biella, C., Priori, E. C., Filippo, M. A. D. S., Leone, R., D'Ambrosio, F., ... & **Brandalise, F.** (2024). Modulating voltage-gated sodium channels to enhance differentiation and sensitize glioblastoma cells to chemotherapy. *Cell Communication and Signaling*, 22(1), 434.
3. Porro, A., Armano, E., **Brandalise, F.**, Appiani, R., Beltrame, M., Saponaro, A., Dallanocce, C., Nakajo, K., Ryu, K., Leone, R. and Thiel, G., 2024. A Photoactivatable Version of Ivabradine Enables Light-Induced Block of HCN Current In Vivo. *Journal of Medicinal Chemistry*, 67(18), pp.16209-16221.
4. Doldi V, Tortoreto M, Colecchia M, Maffezzini M, Percio S, Giammello F, **Brandalise F**, Gandellini P, Zaffaroni N (2024). Repositioning of antiarrhythmics for prostate cancer treatment: a novel strategy to reprogram cancer-associated fibroblasts towards a tumor-suppressive phenotype. *J Exp Clin Cancer Res*, 43(1):161. doi: 10.1186/s13046-024-03081-0. IF: 12.6.
5. Gazzola A, Ratto D, Perrucci F, Occhinegro A, Leone R, Giammello F, Balestrieri A, Pellitteri-Rosa D, Rossi P, **Brandalise F** (2024). Predation cues induce predator specific changes in olfactory neurons encoding defensive responses in agile frog tadpoles. *Plos one*, 19(5):e0302728. DOI: 10.1371/journal.pone.0302728. IF: 3.7.
6. Priori EC, Ratto D, De Luca F, Sandionigi A, Savino E, Giammello F, Romeo M, **Brandalise F**, Roda E, Rossi P (2023). Hericium erinaceus Extract Exerts Beneficial Effects on Gut–Neuroinflammation–Cognitive Axis in Elderly Mice. *Biology*, 13(1):18. DOI: 10.3390/biology13010018. IF: 4.4.
7. **Brandalise F**, Ramieri M, Pastorelli E, Priori EC, Ratto D, Venuti MT, Roda E, Talpo F, Rossi P (2023). Role of Na⁺/Ca²⁺ Exchanger (NCX) in Glioblastoma Cell Migration (In Vitro). *Int J Mol Sci* 24(16):12673. DOI: 10.3390/ijms241612673. IF: 5.6.
8. **Brandalise F**, Roda E, Ratto D, Goppa L, Gargano ML, Cirlincione F, Priori EC, Venuti MT, Pastorelli E, Savino E, Rossi P (2023). Hericium erinaceus in Neurodegenerative Diseases: From Bench to Bedside and Beyond, How Far from the Shoreline? *J Fungi* 9(5):551. DOI: 10.3390/jof9050551. IF: 5.2.
9. **Brandalise F**, Kalmbach BE, Cook EP, Brager DH (2023). Impaired dendritic spike generation in the Fragile X prefrontal cortex is due to loss of dendritic sodium channels. *J Physiol* 601(4):831-845. DOI: 10.1113/JP283311. IF 5.5.
10. Georgiou C, Kehayas V, Lee KS, **Brandalise F**, Sahlender DA, Blanc J, Knott G, Holtmaat A (2022). A subpopulation of cortical VIP-expressing interneurons with highly dynamic spines. *Commun Biol* 5, 352. DOI: 10.1038/s42003-022-03278-z. IF: 5.9.

11. **Brandalise F**, Carta S, Leone R, Helmchen F, Holtmaat A, Gerber U (2022). Dendritic branch-constrained NMDA spikes drive synaptic plasticity in hippocampal CA3 pyramidal cells. *Neuroscience* 489:57-68. DOI: 10.1016/j.neuroscience.2021.10.002. IF: 3.3.
12. Ferrari B, Roda E, Priori EC, De Luca F, Facoetti A, Ravera M, **Brandalise F**, Locatelli CA, Rossi P, Bottone MG (2021). A New Platinum-Based Prodrug Candidate for Chemotherapy and Its Synergistic Effect with Hadrontherapy: Novel Strategy to Treat Glioblastoma. *Front Neurosci* 15:589906. DOI: 10.3389/fnins.2021.589906. IF: 4.3.
13. **Brandalise F**, Ratto D, Leone R, Olivero F, Roda E, Locatelli CA, Bottone MG, Rossi P (2020). Deeper and Deeper on the Role of BK and Kir4.1 Channels in Glioblastoma Invasiveness: A Novel Summative Mechanism? *Front Neurosci* 14:595664. DOI: 10.3389/fnins.2020.595664. IF: 4.3.
14. **Brandalise F***, Kalmbach BE*, Mehta P, Thornton O, Johnston D, Zemelmann BV, Brager DH (2020). Fragile X Mental Retardation Protein Bidirectionally Controls Dendritic Ih in a Cell Type-Specific Manner between Mouse Hippocampus and Prefrontal Cortex. *J Neurosci* 40(27):5327-5340. DOI: 10.1523/JNEUROSCI.1670-19.2020. IF: 5.3.
15. Ratto D, Ferrari B, Roda E, **Brandalise F**, Siciliani S, De Luca F, Priori EC, Di Iorio C, Cobelli F, Veneroni P, Bottone MG, Rossi P (2019). Squaring the Circle: A New Study of Inward and Outward-Rectifying Potassium Currents in U251 GBM Cells. *Cell Mol Neurobiol* 40(5):813-828. DOI: 10.1007/s10571-019-00776-3. IF: 4.3.
16. Soldado-Magraner S*, **Brandalise F***, Honnuraiah S, Pfeiffer M, Moulinier M, Gerber U, Douglas R (2019). Conditioning by subthreshold synaptic input changes the intrinsic firing pattern of CA3 hippocampal neurons. *J Neurophysiol* 123(1):90-106. DOI: 10.1152/jn.00506.2019. IF: 2.7.
17. Vigna L, Morelli F, Agnelli GM, Napolitano F, Ratto D, Occhinegro A, Di Iorio C, Savino E, Girometta C, **Brandalise F**, Rossi P (2019). Hericium erinaceus Improves Mood and Sleep Disorders in Patients Affected by Overweight or Obesity: Could Circulating Pro-BDNF and BDNF Be Potential Biomarkers? *Evid Based Complement Alternat Med* 2019:7861297. DOI: 10.1155/2019/7861297. IF: 2.1.
18. Rossi P, Cesaroni V, **Brandalise F**, Occhinegro A, Ratto D, Perrucci F, Lanaia V, Girometta C, Orrù G, Savino E (2018). Dietary Supplementation of Lion's Mane Medicinal Mushroom, *Hericium erinaceus* (Agaricomycetes), and Spatial Memory in Wild-Type Mice. *Int J Med Mushrooms* 20(5):485-494. DOI: 10.1615/IntJMedMushrooms.2018026241. IF: 1.2.
19. **Brandalise F**, Carta S, Helmchen F, Lisman J, Gerber U (2016). Dendritic NMDA spikes are necessary for timing-dependent associative plasticity at synapses between hippocampal pyramidal cells. *Nat Commun* 7:13480. DOI: 10.1038/ncomms13480. IF: 16.6.
20. **Brandalise F**, Cesaroni V, Gregori A, Repetti M, Romano C, Orrù G, Botta L, Girometta C, Guglielminetti ML, Savino E, Rossi P (2017). Dietary supplementation of *Hericium erinaceus*

- increases mossy fiber-CA3 hippocampal neurotransmission and recognition memory in wild-type mice. *Evid Based Complement Alternat Med.* 2017:3864340. DOI: 10.1155/2017/3864340. IF: 2.1.
21. **Brandalise F**, Lujan R, Leone R, Lodola F, Cesaroni V, Romano C, Gerber U, Rossi P (2016). Distinct expression patterns of inwardly rectifying potassium currents in developing cerebellar granule cells of the hemispheres and the vermis. *Eur J Neurosci* 43(11):1460-73. DOI: 10.1111/ejn.13219. IF: 3.4.
 22. Gazzola A*, **Brandalise F***, Rubolini D, Rossi P, Galeotti P (2015). Fear is the mother of invention: anuran embryos exposed to predator cues alter life-history traits, post-hatching behaviour and neuronal activity patterns. *J Exp Biol* 218(Pt 24):3919-30. DOI: 10.1242/jeb.126334. IF: 2.8.
 23. Mirante O, **Brandalise F**, Bohacek J, Mansuy I (2014). Distinct molecular components for thalamic-and cortical-dependent plasticity in the lateral amygdala. *Front Mol Neurosci* 3;7:62. DOI: 10.3389/fnmol.2014.00062. IF: 4.8.
 24. Rossi P, Buonocore D, Altobelli E, **Brandalise F**, Cesaroni V, Iozzi D, Savino E, Marzatico F (2014). Improving training condition assessment in endurance cyclists: effects of *Ganoderma lucidum* and *ophiocordyceps sinensis* dietary supplementation. *Evid Based Complement Alternat Med* 2014:979613. DOI: 10.1155/2014/979613. IF: 2.1.
 25. **Brandalise F**, Gerber U (2014). Mossy fiber-evoked subthreshold responses induce timing-dependent plasticity at hippocampal CA3 recurrent synapses. *Proc Natl Acad Sci U S A* 111(11):4303-8. DOI: 10.1073/pnas.1317667111. IF: 11.1.
 26. **Brandalise F**, Gerber U, and Rossi P (2012). Golgi cell-mediated activation of postsynaptic GABAB receptors induces disinhibition of the Golgi cell– granule cell synapse in rat cerebellum. *PLoS One* 7(8):e43417. DOI: 10.1371/journal.pone.0043417. IF: 3.7.
 27. Corno D, Pala M, Cominelli M, Cipelletti B, Leto K, Croci L, Barili V, **Brandalise F**, Melzi R, Di Gregorio A, Sergi LS, Politi LS, Piemonti L, Bulfone A, Rossi P, Rossi F, Consalez GG, Poliani PL, Galli R (2012). Gene signatures associated with mouse postnatal hindbrain neural stem cells and medulloblastoma cancer stem cells identify novel molecular mediators and predict human medulloblastoma molecular classification. *Cancer Discov.* 2(6):554-68. DOI: 10.1158/2159-8290.CD-11-0199. IF: 29.1.
 28. Andreescu CE, Prestori F, **Brandalise F**, D'Errico A, De Jeu MT, Rossi P, Botta L, Kohr G, Perin P, D'Angelo E, De Zeeuw CI (2011). NR2A subunit of the N-methyl D-aspartate receptors are required for potentiation at the mossy fiber to granule cell synapse and vestibulo-cerebellar motor learning. *Neuroscience.* 176:274-83. DOI: 10.1016/j.neuroscience.2010.12.024. IF: 3.3.

TECHNICAL EXPERIENCE:

- Electrophysiology:** *Ex vivo* patch clamp recording techniques from rat and mouse brain acute slices and organotypic cultures: whole-cell, inside out, outside out, configurations; multiple cells simultaneous recording; dendritic recording; double soma-dendritic recording; extracellular evoked field potentials recordings from rat and mouse brain slices. *Ex vivo* optogenetics. *Ex vivo* two photon (2P) calcium imaging. *In vitro* patch clamp recording in neuronal cultures, stem cells, glioblastoma 2D and 3D cultures (organoids).
- Animal surgery:** Stereotaxic intracranial injections of viral constructs; cranial windows implant for *in-vivo* 2P-calcium imaging on mice and rats' brain.
- Behavioral tests:** Delayed eye-blink conditioning; Y maze; radial maze; water maze; emerging test; open field. *In-vivo* 2P-calcium imaging on mice and rats' brain.
- Molecular Biology:** Basic techniques for DNA manipulation (isolation of cDNA clones, southern blotting, colony hybridization, electrophoresis gel, real time PCR, end-point PCR).
- Cellular Biology:** Cell culture techniques and glioblastoma organoids production; SDS-PAGE, immunoprecipitation, western blot.
- Microscopy:** Brightfield and fluorescence microscopy, *in vivo*, *in vitro* and *ex vivo* 2-photon calcium imaging, confocal acquisition, time lapse acquisition on living cell cultures.
- Digital competences:** Office, Corel Draw, Illustrator, Igor Pro, Prism, Clampfit, Clampex, Origin, ImageJ, HelioScan software, Matlab, BioRender.

TEACHING DUTIES

- A.Y. 2024/25:** “Psychopharmacology” (2CFU), Master’s Degree Program: CLINICAL, HEALTH, LEGAL AND FORENSIC PSYCHOLOGY
Track: CURRICULUM "A" – CLINICAL PSYCHOLOGY ACROSS THE LIFE SPAN
- A.Y. 2023/24:** “Cell Biophysics” (3CFU), within the master’s degree in Quantitative Biology; “Membrane biophysics and signal transduction” (3CFU), within the master’s degree in Applied Biology to Biomedical Research, University of Milan.
- A.Y. 2022/23:** “Cell Biophysics” (3CFU), within the master’s degree in Quantitative Biology; “Membrane biophysics and signal transduction” (3CFU), within the master’s degree in Applied Biology to Biomedical Research, University of Milan.
Thesis supervisor for the master students: Matilde Amat Di San Filippo, master’s degree in Applied Biology to Biomedical Research; Francesca Giammello, master’s degree in Molecular Biology of the Cell; Martina Tranchina, master’s degree in Applied Biology to Biomedical Research.
- A.Y. 2021/22:** “Cellular and molecular physiology” (3CFU), “Membrane biophysics and signal transduction” (3CFU), within the master’s degree in Applied Biology to Biomedical Research, University of Milan.
Thesis supervisor for the master students: Chiara Biella, master’s degree in Molecular Biotechnology and Bioinformatics; Emanuela Pastorelli, master’s degree in Applied Biology to Biomedical Research.
- A.Y. 2020/21:** “The application of non-stationary fluctuation analysis to determine single channel’s properties”, seminar lesson as part of the course “Cell Biophysics”, within the master’s

degree in Quantitative Biology, University of Milan.

2013-2015: “BIO 434: Electrophysiological Recording Techniques”, practical course for the ZNZ Neuroscience PhD program, University of Zurich.

In compliance with the UE General Data Protection Regulation, n. 2016/679 and the Italian Legislative Decree no. 196 dated 30/06/2003, I hereby authorize you to use and process my personal details contained in this document.

Confirmed and signed

The Declarant

Quartucciu (CA), li 30/03/25
