

Curriculum Vitae of Mario Rosario Buffelli

Affiliation and address:

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Education and positions:

- Novembre 1987: Medical Doctor, cum laude, University of Verona (Italy)
- 1990-1995: PhD in Neuroscience, University of Verona (Italy).
- 1998-2006: Researcher (tenured position), University of Verona (Italy).
- 2000-2002: Research work with Joshua Sanes and Jeff Lichtman at the Washington University Saint Louis (USA), Department of Anatomy and Neurobiology.
- Since 2006: Associate Professor, University of Verona (Italy), Department of Neurosciences, Biomedicine and Movement Sciences.
- April 2017: National Scientific Habilitation to full Professor in Physiology.

Membership in professional societies:

- Italian Physiology Society (SIF)
- Italian Neuroscience Society (SINS)
- Society for Neuroscience (SFN-USA)
- Federation of European Neuroscience Societies (FENS).

Reviewer for the following international journals:

- Journal of Neuroscience
- European Journal of Neuroscience
- Neuroscience
- Frontiers in Cellular Neuroscience
- Current Alzheimer Research
- PLoS One

Reviewer for grants:

- National Science Foundation (NSF-USA)
- Italian Multiple Sclerosis Foundation (FISM)
- Italian Minister of Education of University and Research (MIUR)
- Marie Skłodowska-Curie Actions Individual Fellowships (MSCA-IF)

Principal lines of research (in chronological order)

- role of activity in controlling skeletal muscle properties;
- mechanisms underlying the formation of excitatory synapses in the peripheral and central nervous system;
- role of activity in reducing the number of synaptic contacts after birth, a process known as synapses elimination;
- intracellular signals underlying apoptosis and survival of neurons after injury;
- intracellular mechanisms underlying axonal regeneration;
- neurogenesis in physiological and pathological conditions in the adult;
- plasticity of dendritic spines in the cerebral cortex in physiological and pathological conditions (Alzheimer's disease, autism, X fragile syndrome);
- modulation of neural plasticity by glial cells (microglia and astrocytes).

Grants:

He received grants from University of Verona (2002, 2004-2005, 2007, 2008, 2010-2014, 2017-2019), Italian Ministry of Education, University and Research (MIUR)(PRIN 2004-2005; 2007-2008; 2017-2020), and private foundations as Telethon-Italy (2003-2006), Fondazione Cariverona-Italy (2008-2010, 2012-2014, 2015-2017 and 2019-2022), Fondazione Fibrosi Cistica-Italy (2009-2010, 2011-2012 and 2013), and Alzheimer's Association-US (2018-2021).

Selected Publications (in reverse chronological order):

1. Pedrazzoli, M., Medelin, M., Marchiotto, F., Cisterna, B., Malatesta, M., **Buffelli, M.** (2021). An improved and simplified protocol to combine Golgi-Cox staining with immunofluorescence and transmission electron microscopy techniques. *Neurochem Int.* 142:104922. DOI: 10.1016/j.neuint.2020.104922.
2. Losurdo, M., Pedrazzoli, M., D'Agostino, C., Elia, C.A., Massenzio, F., Lonati, E., Mauri, M., Rizzi, L., Molteni, L., Bresciani, E., Dander, E., D'Amico, G., Bulbarelli, A., Torsello, A., Matteoli, M., **Buffelli, M.**, Coco, S., (2020). Intranasal delivery of mesenchymal stem cell-derived extracellular vesicles exerts immunomodulatory and neuroprotective effects in a 3xTg model of Alzheimer's disease. *Stem Cells Transl Med* 9:1068-1084. DOI: 10.1002/sctm.19-0327.
3. Brozzetti L, Sacchetto L, Cecchini M, Avesani A, Perra D, Bongianni M, Portioli C, Scupoli M, Ghetti B, Monaco S, **Buffelli M** and Zanusso G (2020). Neurodegeneration-Associated Proteins in Human Olfactory Neurons Collected by Nasal Brushing. *Front. Neurosci.* 14:145. DOI: 10.3389/fnins.2020.00145.
4. Cambiaghi M, **Buffelli M**, Masin L, Valtorta F, Comai S (2020) Transcranial direct current stimulation of the mouse prefrontal cortex modulates serotonergic neural activity of the dorsal raphe nucleus. *Brain Stimulation* 13:548-550. DOI:10.1016/j.brs.2020.01.012

5. Pedrazzoli, M, Losurdo M, Paolone G, Medelin M, Jaupaj L, Cisterna B, Slanzi A, Malatesta M, Coco S, **Buffelli M** (2019) Glucocorticoid receptors modulate dendritic spine plasticity and microglia activity in an animal model of Alzheimer's disease. *Neurobiol Dis* 132: 104568. DOI:10.1016/j.nbd.2019.104568.
6. Capaldi S, Suku E, Antolini M, Di Giacobbe M, Giorgetti A, **Buffelli M** (2018) Allosteric sodium binding cavity in GPR3: a novel player in modulation of A β production. *Scientific Reports* 8:11102. DOI : 10.1038/s41598-018-29475-7.
7. Borin M, Saraceno C, Catania M, Lorenzetto E, Pontelli V, Paterlini A, Fostinelli S, Avesani A, Di Fede G, Zanusso G, Benussi L, Binetti G, Zorzan S, Ghidoni R, **Buffelli M**, Bolognin S (2018) Rac1 activation links tau hyperphosphorylation and A β dysmetabolism in Alzheimer's disease. *Acta Neuropathol Commun.* Jul 13;6(1):61. DOI: 10.1186/s40478-018-0567-4.
8. Bertero A, Liska A, Pagani M, Parolisi R, Masferrer ME, Gritti M, Pedrazzoli M, Galbusera A, Sarica A, Cerasa A, **Buffelli M**, Tonini R, Buffo A, Gross C, Pasqualetti M, Gozzi A (2018) Autism-associated 16p11.2 microdeletion impairs prefrontal functional connectivity in mouse and human. *Brain* Jul 1;141(7):2055-2065. DOI: 10.1093/brain/awy111.
9. Asteriti S, Dal Cortivo G, Pontelli V, Cangiano L, **Buffelli M**, Dell'Orco D (2015) Effective delivery of recombinant proteins to rod photoreceptors via lipid nanovesicles. *Biochemical and biophysical research communications* 461:665-670. DOI:10.1016/j.bbrc.2015.04.088
10. Bolognin S, Lorenzetto E, Diana G, **Buffelli M** (2014) The Potential Role of Rho GTPases in Alzheimer's Disease Pathogenesis. *Mol Neurobiol* 50:406-22. DOI:10.1007/s12035-014-8637-5.
11. Bolognin S, **Buffelli M**, Puolivali J, Iqbal K (2014) Rescue of cognitive- aging by administration of a neurogenic and/or neurotrophic compound. *Neurobiology of Aging* 35:2134-2146. DOI:10.1016/j.neurobiolaging.2014.02.017.
12. Lorenzetto E, Moratti E, Vezzalini M, Harroch S, Sorio C, **Buffelli M** (2014) Distribution of different isoforms of receptor protein tyrosine phosphatase gamma (Ptp γ -RPTP gamma) in adult mouse brain: upregulation during neuroinflammation. *Brain Structure & Function* 219:875-890. DOI:10.1007/s00429-013-0541-7.
13. Lorenzetto E., Ettore M., Pontelli V., Bolomini-Vittori M., Bolognin S., Zorzan S., Laudanna C., **Buffelli M**. (2013) "Rac1 selective activation improves retina ganglion cell survival and regeneration". *PLoS ONE* 8(5): e64350. DOI:10.1371/journal.pone.0064350.
14. Martino A, Ettore M, Musilli M, Lorenzetto E, **Buffelli M** and Diana G (2013). Rho GTPase-dependent plasticity of dendritic spines in the adult brain. *Frontiers in Cellular Neuroscience* 7:62. DOI: 10.3389/fncel. 2013.00062.

15. Bolognin S, Zatta P, Lorenzetto E, Valenti MT, **Buffelli M**, (2013) beta- Amyloid-aluminum complex alters cytoskeletal stability and increases ROS production in cortical neurons. *Neurochemistry International* 62, 566-574. DOI:10.1016/j.neuint.2013.02.008.
16. Laperchia C, Allegra Mascaro AL, Sacconi L, Andrioli A, Matte A, De Franceschi L, Grassi-Zucconi G, Bentivoglio M, **Buffelli M**, Pavone FS (2013) Two-Photon Microscopy Imaging of thy1GFP-M Transgenic Mice: A Novel Animal Model to Investigate Brain Dendritic Cell Subsets In Vivo. *PLoS One* 8:e56144. DOI:10.1371/journal.pone.0056144.
17. Ettore M, Lorenzetto E, Laperchia C, Baiguera C, Benarese M, Branca M, Spano PF., Pizzi M, **Buffelli M** (2012) Glutamatergic neurons induce expression of functional glutamatergic synapses in primary myotubes. *PLoS One* 7, e31451. DOI:10.1371/journal.pone.0031451.
18. Francolini M, Brunelli G, Cambianica I, Barlati S, Barbon A, La Via L, Guarneri B, Boroni F, Lanzillotta AM, Baiguera C, Ettore M, **Buffelli M**, Spano PF, Clementi F, Pizzi M (2009). Glutamatergic reinnervation and assembly of glutamatergic synapses in adult rat skeletal muscle occurs at cholinergic endplates. *Journal of Neuropathology and Experimental Neurology* 68:1103-1115. DOI:10.1097/NEN.0b013e3181b7bfc8.
19. Lorenzetto E, Caselli L, Feng G, Yuan W, Nerbonne JM, Sanes JR, **Buffelli M** (2009). Genetic perturbation of postsynaptic activity regulates synapse elimination in developing cerebellum. *Proceedings of the National Academy of Sciences of the United States of America* 106:16475-16480. DOI:10.1073/pnas.0907298106.
20. Bidoia C, Misgeld T, Weinzierl E, **Buffelli M**, Feng G, Cangiano A, Lichtman JW, Sanes JR (2004). Comment on: "Reelin promotes peripheral synapse elimination and maturation." *Science, Technical Comment*, 303: 1977. DOI:10.1126/science.1094146.
21. **Buffelli M**, Busetto G, Bidoia C, Favero M, Cangiano A (2004). Activity-dependent synaptic competition at mammalian neuromuscular junctions. *News In Physiological Sciences*, 19: 85-91. DOI:10.1152/nips.01464.2003.
22. **Buffelli M**, Burgess RW, Feng G, Lobe CG, Lichtman JW, Sanes JR (2003). Genetic evidence that relative synaptic efficacy biases the outcome of synaptic competition. *Nature* 424:430-434. DOI:10.1038/nature01844
23. **Buffelli M**, Busetto G, Cangiano L, Cangiano A (2002). Perinatal switch from synchronous to asynchronous activity of motoneurons: link with synapse elimination. *Proceedings of the National Academy of Sciences of the United States of America* 99:13200-13205. DOI:10.1073/pnas.202471199.
24. Busetto G, **Buffelli M**, Tognana E, Bellico F, Cangiano A (2000). Hebbian mechanisms revealed by electrical stimulation at developing rat neuromuscular junctions. *Journal of Neuroscience* 20:685-695. DOI:10.1523/jneurosci.20-02-00685.2000.