

## Scientific Curriculum

Dr Alessandro Magini research activity has been mainly focused on: i) generation of TSC1 knock-out neural stem/progenitor cells (NSPCs) as a model of CNS-restricted Tuberous Sclerosis Complex to elucidate the molecular mechanisms leading to the development of Subependymal Giant Cell Astrocytoma; ii) intracerebroventricular administration of mTOR inhibitors for the treatment of neurodegenerative, neuroinflammatory, and neuro-oncological diseases; iii) expression, targeting, and biological role of glycohydrolases involved in glycosphingolipid metabolism; iv) the role of the autophagy–lysosome pathway in lysosomal storage disorders and Alzheimer’s disease; v) biomedical applications of nanostructured materials.

### Selected Publications in international peer-reviewed scientific journals

1. Gianessi L, **Magini A**, Dominici R, Giovagnoli S, Dolcetta D. A Stable Micellar Formulation of RAD001 for Intracerebroventricular Delivery and the Treatment of Alzheimer's Disease and Other Neurological Disorders. *Int J Mol Sci.* 2023 Dec 14;24(24):17478. doi: 10.3390/ijms242417478.
2. Chiaradia E, Miller I, Renzone G, Tognoloni A, Polchi A, De Marco F, Tancini B, Scaloni A, **Magini A**. Proteomic analysis of murine Tsc1-deficient neural stem progenitor cells. *Journal Proteomics* 2023, 283–284, 15 July 2023. doi.org/10.1016/j.jprot.2023.104928.
3. **Magini A**, Polchi A, Di Meo D, Buratta S, Chiaradia E, Germani R, Emiliani C, Tancini B. Curcumin Analogue C1 Promotes Hex and Gal Recruitment to the Plasma Membrane via mTORC1-Independent TFEB Activation. *Int J Mol Sci.* 2019 20(6). pii: E1363. doi: 10.3390/ijms20061363.
4. Cassano T, **Magini A**, Giovagnoli S, Polchi A, Calcagnini S, Pace L, Lavecchia MA, Scuderi C, Bronzuoli MR, Ruggeri L, Gentileschi MP, Romano A, Gaetani S, De Marco F, Emiliani C, Dolcetta D. Early intrathecal infusion of everolimus restores cognitive function and mood in a murine model of Alzheimer's disease. *Exp Neurol.* 2019, 311:88-105. doi: 10.1016/j.expneurol.2018.09.011.
5. Polchi A, **Magini A**, Di Meo D, Tancini B, Emiliani, C. mTOR Signaling and Neural Stem Cells: The Tuberous Sclerosis Complex Model. *Int J Mol Sci.* 2018,19(5). pii: E1474. Doi: 10.3390/ijms19051474.
6. **Magini A**, Polchi A, Di Meo D, Mariucci G, Sagini K, De Marco F, Cassano T, Giovagnoli S, Dolcetta D. and Emiliani C. TFEB activation restores migration ability to Tsc1-deficient adult neural stem/progenitor cells. *Hum Mol Genet.* 2017, 26(17), 3303-3312. Doi: 10.1093/hmg/ddx214.
7. Polchi A, **Magini A**, Mazuryk J, Tancini B, Gapiński J, Patkowski A, Giovagnoli S and Emiliani C. Rapamycin Loaded Solid Lipid Nanoparticles as a New Tool to Deliver mTOR Inhibitors: Formulation and in Vitro Characterization *Nanomaterials* 2016, 6(5), 87. Doi:10.3390/nano6050087.
8. Giovagnoli S, Cassano T, Pace L, **Magini A**, Polchi A, Tancini B, Perluigi M, De Marco F, Emiliani, C, Dolcetta D. Evaluation of a LC-MS method for everolimus preclinical determination in brain by using [13C2D4]RAD001 internal standard. *J Chromatogr B Analyt Technol Biomed Life Sci.* (2015) 3;985C:155-163. Doi: 10.1016/j.jchromb.2015.01.035.
9. **Magini A**, Polchi A, Tozzi A, Tancini B, Tantucci M, Urbanelli L, Borsello T, Calabresi P, Emiliani C. Abnormal cortical lysosomal  $\beta$ -hexosaminidase and  $\beta$ -galactosidase activity at post-synaptic sites during Alzheimer's disease progression. *Int J Biochem Cell Biol.* (2015) 58:62-70. Doi: 10.1016/j.biocel.2014.11.001.

10. **Magini A**, Polchi A, Tancini B, Urbanelli L, Di Cristina M, Mannucci R, Nicoletti I and Emiliani C. Methods to discriminate the distribution of acidic glycohydrolases between the endosomal-lysosomal systems and the plasma membrane. (2014) *Methods Enzymol.* 534:25-45. Doi: 10.1016/B978-0-12-397926-1.00002-0.
11. **Magini A**, Polchi A, Urbanelli L, Cesselli D, Beltrami A, Tancini B, Emiliani C. TFEB activation promotes the recruitment of lysosomal glycohydrolases  $\beta$ -hexosaminidase and  $\beta$ -galactosidase to the plasma membrane (2013) *Biochem Biophys Res Commun.* 440(2):251-7. Doi: 10.1016/j.bbrc.2013.09.060.
12. Aldrich C, **Magini A**, Emiliani C, Dottorini T, Bistoni F, Crisanti A, Spaccapelo R. Roles of the Amino Terminal Region and Repeat Region of the Plasmodium berghei Circumsporozoite Protein in Parasite Infectivity (2012) *PLoS One* 7, e32524. Doi: 10.1371/journal.pone.0032524
13. **Magini A**, Polchi A, Tancini B, Urbanelli L, Hasilik A. and Emiliani C. Glycohydrolases  $\beta$ -hexosaminidase and  $\beta$ -galactosidase are associated with lipid microdomains of Jurkat T-lymphocytes. (2012) *Biochimie* 94, 684-94. Doi: 10.1016/j.biochi.2011.09.021.
14. **Magini A**, Urbanelli L, Ciccarone V, Tancini B, Polidoro M, Timperio AM, Zolla L, Tedde A, Sorbi S, Emiliani C. Fibroblasts from PS1 mutated pre-symptomatic subjects and Alzheimer's disease patients share a unique protein levels profile. (2010) *J Alzheimers Dis* 21, 431-44. Doi: 10.3233/JAD-2010-091522.
15. **Magini A**, Mencarelli S, Tancini B, Ciccarone V, Urbanelli L, Hasilik A., Emiliani C. Identification and characterization of mature  $\beta$ -hexosaminidases associated to human placenta lysosomal membrane (2008) *Biosci Rep.* 28, 229-37. Doi:10.1042/BSR20080075

