

Elena obtained her PhD in Neuroscience at the MRC Toxicology Unit in Leicester, UK, under the supervision of Professor Pierluigi Nicotera. In 2007 she moved to Sheffield (UK) at the MRC Centre for Developmental and Biomedical Genetics in the lab of Dr Alex Whitworth, where she learned fly genetics and the power of flies to model human diseases. She was awarded EMBO long-term fellowships and Marie Curie IEF to continue her studies on mitophagy-related proteins PINK1 and Parkin in mitochondrial quality control in the lab of Professor Luca Scorrano at the Faculté de médecine de Genève, University of Geneva (Switzerland). In 2015 she moved back to Italy and set up her own lab in the department of biology (DiBio) at the University of Padova, with the support of Giovani Ricercatori “Rita Levi Montalcini” & “Ricerca Finalizzata” (RF) Program (Italian Ministry of Health). Since she joined DiBio as Assistant Professor, she has secured as PI €600,000 research funding from the Italian Ministry of Health, \$1,150,000 in funding from MJFox Foundation and PD Foundation, and €200,000 from European (Marie Curie Action) and Italian foundations (AriSLA).

As an independent group leader, she investigates defective proteostasis (mitophagy in particular) in neurodegenerative conditions, and approaches to normalize it. To this aim, her group identified the deubiquitination enzymes (DUBs) USP14, USP8 and UCH-L1 that counteract Parkin activity on its mitochondrial targets, thereby promoting Parkin-independent mitochondrial ubiquitination and mitophagy. Her group showed that inhibition of these DUBs is protective in *in vivo* models of neurodegeneration (Chakraborty et al. EMBO Molecular Medicine. 2018); (von Stockum et al., Life Science Alliance, 2019); (Cerqueira et al., Redox Biology, 2020).

In parallel, her group also focuses on the mechanism and consequences of Parkin recruitment to mitochondria, and recently discovered that the Ca<sup>2+</sup>-dependent phosphatase Calcineurin is required for Parkin translocation to mitochondria and mitophagy (Marchesan et al., Cell Death and Differentiation, 2024). The group furthermore characterized that Parkin-dependent ubiquitination of Mitofusin (Mfn) on a specific Mfn2 site, modulates ER-mitochondria tethering, a functional and physical interaction that regulates key physiological processes, including mitophagy (Basso et al., Pharmacol Res., 2018).

When not busy at work, Elena loves mountaineering in the Dolomites and sailing.