Dr. Niki Chondrogianni and her group have published a pioneer study in the peer reviewed scientific journal *Redox Biology* that reveals for the first time that the proteasome system is subjected to cell non-autonomous regulation.

Institute of Chemical Biology (ICB/NHRF)

Dr Niki Chondrogianni (Research Director, ICB/NHRF) and her group, Ms Eleni Panagiotidou, PhD candidate and Dr. Anna Gioran, post-doctoral fellow, have published a pioneer study in the peer reviewed scientific journal *Redox Biology* (Panagiotidou et al., Redox Biol. 2023 Sep; 65 :102817, doi: 10.1016/j.redox.2023.102817). In this study, it is revealed for the first time that the proteasome system is subjected to cell non-autonomous regulation.

More specifically, in this study, it is shown that proteasome activation in the nervous system can enhance the proteasome activity in the muscle of *Caenorhabditis elegans*. Mechanistically, this communication depends on Small Clear Vesicles, with glutamate as one of the neurotransmitters required for the distal regulation. More importantly, it is demonstrated that this cell non-autonomous proteasome activation is translated into efficient prevention of amyloid-beta (Aβ)-mediated proteotoxic effects in the muscle of *C. elegans* but notably not to resistance against oxidative stress. The *in vivo* data establish a mechanistic link between neuronal proteasome reinforcement and decreased Aβ proteotoxicity in the muscle. The identified distal communication may have serious implications in the design of therapeutic strategies based on tissue-specific proteasome manipulation.