LAMP2

Lysosome-associated membrane protein 2, also known as CD107b and Mac-3, is a human gene. Its protein, LAMP2, is one of the lysosome-associated membrane glycoproteins. The protein encoded by this gene is a member of a family of membrane glycoproteins. This glycoprotein provides selectins with carbohydrate ligands.

In a study, Zhu et al. found that chaperone-mediated autophagy (CMA) directly degrades Kelch-like ECH-associated protein 1 (Keap1), an adaptor of the E3 ligase complex that promotes the degradation of nuclear factor erythroid 2-related factor 2 (Nrf2), which is a master transcriptional regulator in antioxidative response. Activated CMA induced by prolonged oxidative stress led to an increase in Nrf2 level by effectively degrading Keap1, contributing to Nrf2 nuclear translocation and the expression of multiple downstream antioxidative genes. Meanwhile, together with a previous study showing that Nrf2 can also transcriptionally regulate LAMP2A, the rate-limiting factor of the CMA process, we reveal a feed-forward loop between CMA and Nrf2. The study identifies CMA as a previously unrecognized regulator of the Keap1-Nrf2 pathway and reinforces the antioxidative role of chaperone-mediated autophagy (CMA) [1].

1)
Zhu L, He S, Huang L, Ren D, Nie T, Tao K, Xia L, Lu F, Mao Z, Yang Q. Chaperone-mediated autophagy degrades Keap1 and promotes Nrf2-mediated antioxidative response. Aging Cell. 2022 May 10:e13616. doi: 10.1111/acel.13616. Epub ahead of print. PMID: 35535673.