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AUTOPHAGY, A BIG CLEANING

Summary

Autophagy is a physiological process found in eukariotes (plants, fungi, and animals) in which different cellular constituents identified as damaged or obsolete are degraded. In principle, every process of trafficking cell components into the lysosomes should be regarded as autophagy. In the progressive and controlled autodestruction the lysosomes represent waste disposal and recycling centre. Truthfully, autophagy could be considered a "housekeeper" with recycling capability. Alhough autophagy is known from early sixties of the last century, individual forms of autophagy (micro-, makro-, and chaperone-mediated autophagy, CMA) as well as precise course was not described in details unless molecular biology techniques were applied, for which Yoshinori Ohsumi was honoured with Nobel Prize in Physiology or Medicine in 2016. Nowadays, it is widely accepted that autophagy controls important physiological functions where cellular components need to be degraded and recycled, and it is even more important in stress conditions, when cells undergo damage. Such situations come up in diseases, moreover a great deal of observations obtained from sick individuals as well as experimental data confirm abnormal autophagy as a cause of disease.

Key words: autofagy, degradation, disease, Nobel Prize 2016, recycling