Autophagy in major human diseases

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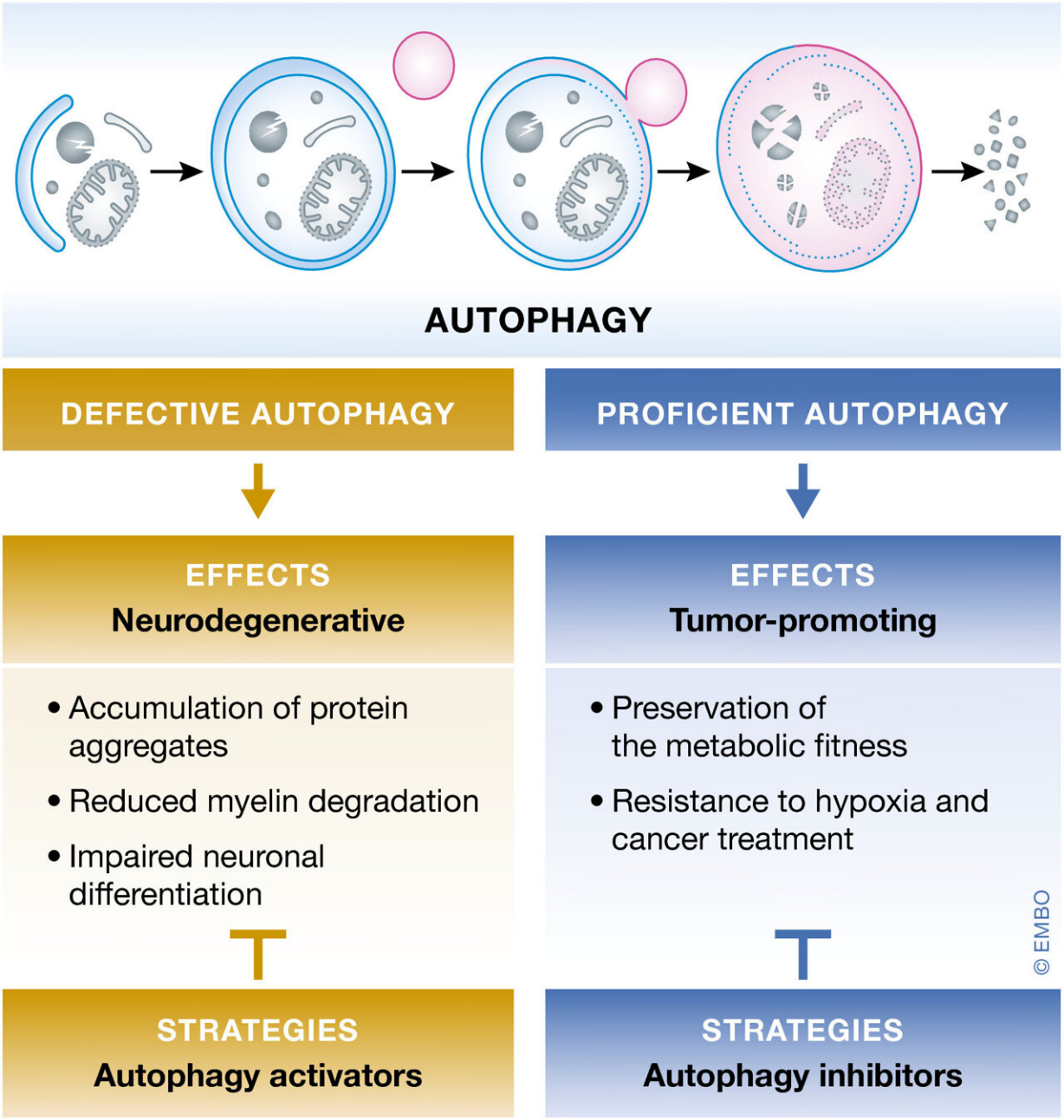

Basic principles of autophagy modulation as a therapeutic strategy for human disease In multiple settings including various neurodegenerative conditions, autophagy defects contribute to disease onset and progression, suggesting that autophagy activators may mediate beneficial effects. Conversely, proficient autophagic responses support tumor progression and resistance to therapy, pointing to autophagy inhibition as an appropriate therapeutic approach. In both scenarios, the effect of autophagy modulation on non-diseased cells must be carefully considered to enable safety and superior therapeutic efficacy. Credit: DOI: 10.15252/embj.2021108863

In a consensus article, Federico Pietrocola, at the Department of Biosciences and Nutrition, KI, and colleagues explore the pathophysiological relevance of autophagy in human illnesses, while highlighting the therapeutic potential of autophagy-centered strategies in the clinic. This article represents a remarkable collective effort by the international autophagy community, serving a guide for basic and clinical scientists to get more insights on this fascinating process.

Autophagy refers to molecular pathways for the preservation of cellular and organismal homeostasis and up to now three major forms have been described.

In the article, published in the *The EMBO Journal*, Federico Pietrocola, at the Department of Biosciences and Nutrition, and his team review and discuss preclinical data and link autophagy dysfunction to the pathogenesis of major human disorders, including cancer, as well as cardiovascular, neurodegenerative, metabolic, pulmonary, renal, infectious, musculoskeletal, and ocular disorders.

They conclude with suggesting ideas for future studies and highlighting a few general concepts that emerged, like that modulation of autophagy for therapeutic purposes remains a promising strategy for the

management of multiple human disorders.

More information: Daniel J Klionsky et al, Autophagy in major human diseases, *The EMBO Journal* (2021). DOI: 10.15252/embj.2021108863

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