Identification of autophagy-dependent secretion machinery

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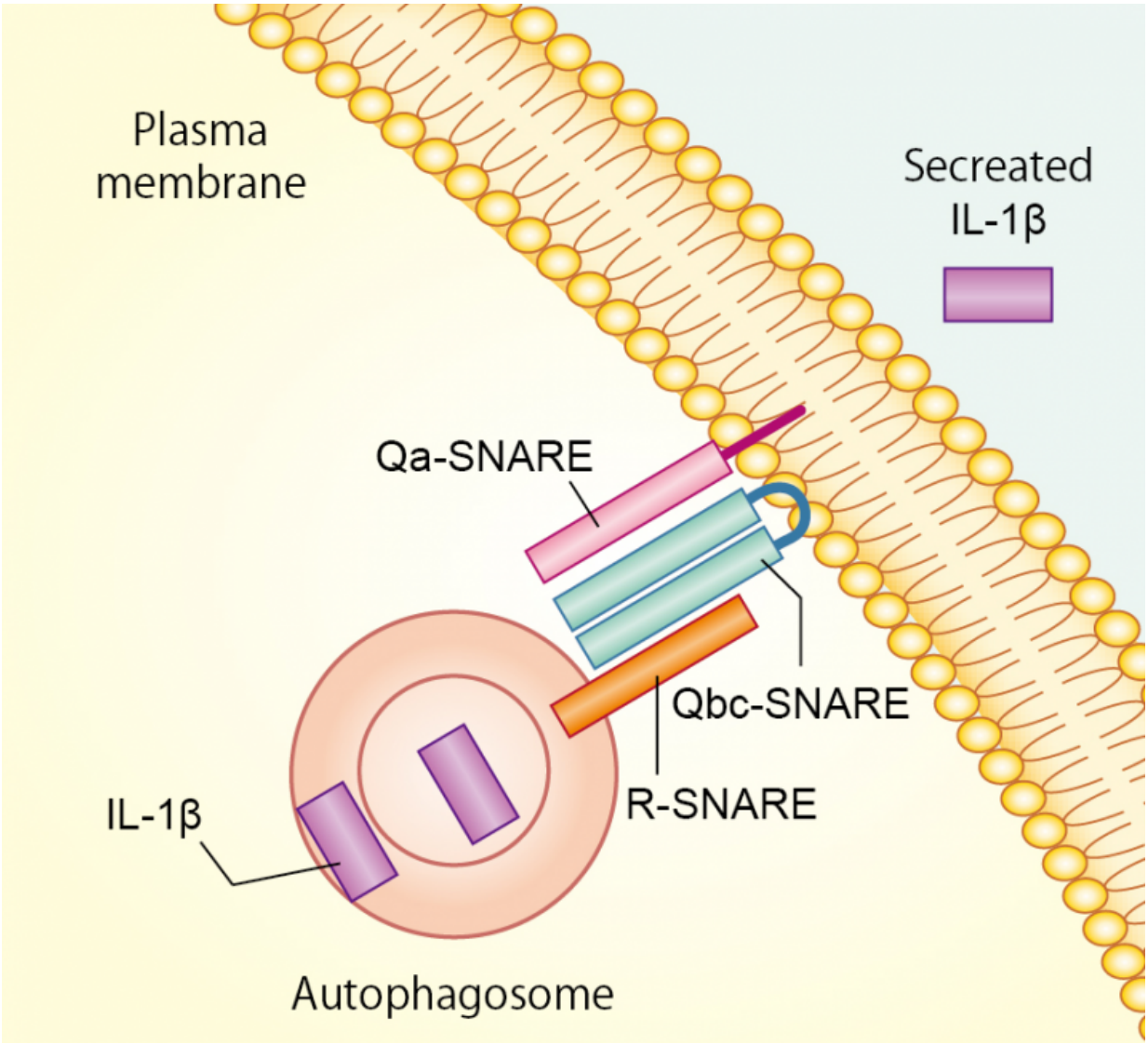

IL-1β within autophagosome is secreted from cytoplasm in corporation with SNARE proteins. Credit: Osaka University

A group of researchers identified a molecular machinery by which autophagy mediates secretion. These results underscore an important role of autophagy other than degradation, and will bring us to future translational research of medicine.

Autophagy has long been considered as a physiological process solely for degradation, but its secretory role has recently emerged. A group of researchers, including Tomonori Kimura, a researcher at the Department of Nephrology, Osaka University (the research was conducted at the University of New Mexico, USA), identified the molecular machinery by which autophagy mediates secretion of the inflammatory cytokine, interleukin-1 beta, in corporation with SNARE proteins.

In addition to interleukin-1 beta, leaderless proteins such as ferritin, whose secretory system has not been identified, are also found to be secreted based on the same autophagy machinery. Therefore, the newly-identified autophagy-dependent secretory system facilitates the secretion of leaderless proteins, and plays fundamental roles in this secretion.

"Autophagy is related with a diverse spectrum of diseases and has long been anticipated as a therapeutic option from the point of view of degradation. Our findings will open another dimension for therapeutic approaches through the secretory role of autophagy", says Tomonori Kimura.

Provided by Osaka University

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