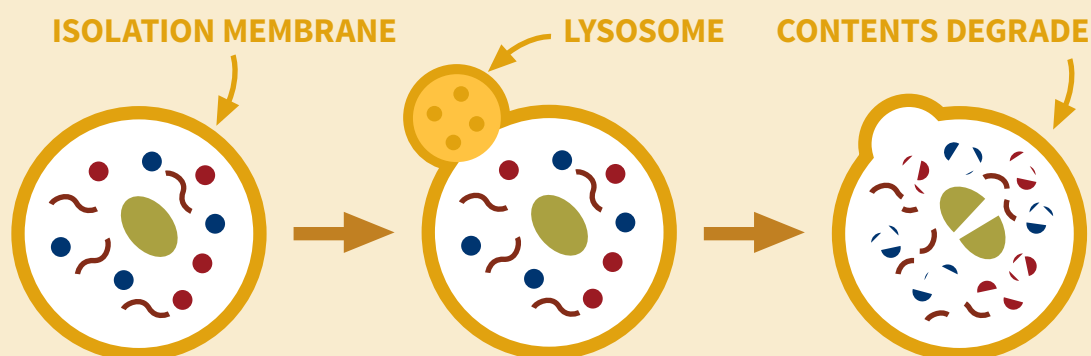


# 2016 NOBEL PRIZE IN PHYSIOLOGY OR MEDICINE



The Nobel Prize in Physiology or Medicine 2016 was awarded to **Yoshinori Ohsumi** for establishing the mechanisms of autophagy – the process by which cells degrade and recycle their components.

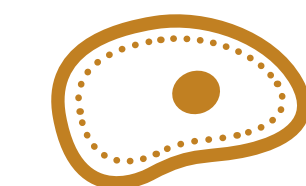
## AUTOPHAGY: WHAT IT IS AND HOW IT WORKS



'Autophagy' originates from Greek and means 'self-eating'. It refers to a process where cells disassemble unnecessary or malfunctioning cell components.

The components to be degraded are encapsulated in membranes, then transported to the lysosome, the part of the cell which degrades them.

Yoshinori Ohsumi used yeast cells to investigate autophagy. He proved that autophagy occurs in yeast cells, and identified the genes essential for the process. He eventually identified the proteins that control autophagy.

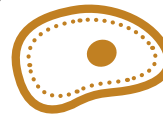


1992

IDENTIFIES AUTOPHAGY  
IN YEAST CELLS



APG1



1993

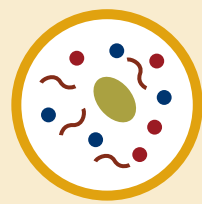
IDENTIFIES GENES  
INVOLVED IN AUTOPHAGY



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1998

IDENTIFIES  
CONTROL PROTEINS



AUTOPHAGY

CREATES ENERGY FOR CELLS

HELPS ELIMINATE BACTERIA/VIRUSES

CONTRIBUTES TO EMBRYO DEVELOPMENT

ELIMINATES DAMAGED CELL COMPONENTS

DISTURBANCES LINKED TO DISEASE

## WHY DOES THIS RESEARCH MATTER?

Autophagy provides energy and building materials for cellular components. It also removes damaged cell components, important for combating the aging process. Parkinson's, diabetes, and cancer have all been linked to disruptions in the autophagy process.

Nobel Prize in Medicine or Physiology Press release: [https://www.nobelprize.org/nobel\\_prizes/medicine/laureates/2016/press.html](https://www.nobelprize.org/nobel_prizes/medicine/laureates/2016/press.html)