



# autophagy

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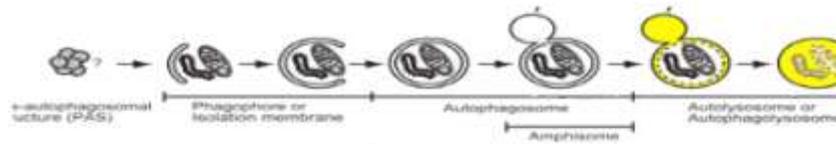
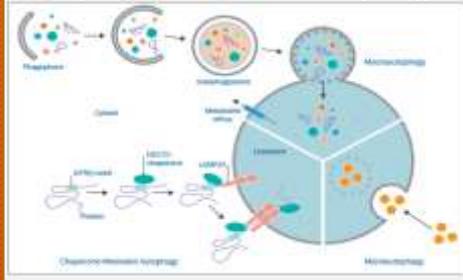


## INTRODUCTION

Autophagy is an intracellular degradation system that delivers cytoplasmic constituents to the lysosome. Despite its simplicity, recent progress has demonstrated that autophagy plays a wide variety of physiological and pathophysiological roles<sup>[1]</sup> which will be briefly discussed later.

## TYPES

- three types autophagy<sup>[1]</sup>
- 1- **macroautophag**
- 2- **Microautophagy**
- 3- **chaperone-mediated autophagy**



## PROCESS

- 1-Induction of autophagy:** lack of any type of essential nutrient and it differs depending on the tissue
- 2-Autophagosome formation:** cytoplasmic constituents, including organelles, are sequestered by a unique membrane called the phagophore, Complete sequestration by the elongating phagophore results in formation of the autophagosome
- 3-degradation :** In the next step, autophagosomes fuse with lysosomes the cytoplasm-derived materials contained in the autophagosome are then degraded by lysosomal hydrolases.
- 4-reuse:** monomeric units (e.g., amino acids) are exported to the cytosol for reuse.<sup>[2]</sup>

**Regulation:** Recent studies showed that the main regulator is the endocrine system (insulin-glucagon)<sup>[2]</sup>

**Genes:** (APG, AUT, CVT, GSA, PAG, PAZ, and PDD). Or commonly known as ATG<sup>[2]</sup>

## FUNCTIONS

Recent studies in this field showed that autophagy has a lot of functions in our bodies including:.

- 1-Nutrient starvation
- 2-Repair mechanism
- 3-Cancer
- 4-neurodegenerative diseases<sup>[2]</sup>

## CONCLUSION

Autophagy is a process in which materials are recycled in our body, and it has many functions that achieve metabolic balance

## REFERENCES

- 1-Klionsky DJ (August 2008). "Autophagy revisited: a conversation with Christian de Duve". *Autophagy*. 4 (6): 740-3. doi:10.4161/auto.6398. PMID 18567941.
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