Anti-Human ATG7 Antibody [PSH26-95] - BSA and Azide free (Detector)

HA725494

Product Type:	Recombinant Rabbit monoclonal IgG, primary antibodies
Species reactivity:	Human
Applications:	ELISA(Det)
Clone number:	PSH26-95

Description: Autophagy related 7 is a protein in humans encoded by ATG7 gene. Related to GSA7; APG7L; APG7-LIKE. ATG 7, present in both plant and animal genomes, acts as an essential protein for cell degradation and its recycling. The sequence associates with the ubiquitin-proteasome system, UPS, required for the unique development of an autophagosomal membrane and fusion within cells. ATG7 was identified based on homology to yeast cells Pichia pastoris GSA7 and Saccharomyces cerevisiae APG7. The protein appears to be required for fusion of peroxisomal and vacuolar membranes. Autophagy is an important cellular process that helps in maintaining homeostasis. It goes through destroying and recycling the cytoplasmic organelles and macromolecules. During the initiation of autophagy, ATG7 acts like an E-1 enzyme for ubiquitin-like proteins (UBL) such as ATG12 and ATG8. ATG7 helps these UBL proteins in targeting their molecule by binding to them and activating their transfer to an E-2 enzyme. ATG7's role in both of these autophagy-specific UBL systems makes it an essential regulator of autophagosome assembly. Homologous to the ATP-binding and catalytic sites of E1 activator proteins, ATG7 uses its cysteine residue to create a thiol-ester bond with free Ubiquitin molecules. Through UPS, Ubiquitin will continue to bind to other autophagy-related proteins, E2 conjugation proteins and E3 protein ligases, to attach Ubiquitins to a target substrate to induce autophagy. ATG 7 is often associated with ATG12/ ATG5 sequenced ubiquitination cascade. As well in presence of p53 cell cycle pathways during stressed and nutrient poor environments.

Immunogen: Recombinant protein within Human ATG7 aa 323-703 (HA211607).

Positive control: Recombinant Human ATG7 protein (HA211607).

Subcellular location: Cytoplasm.

Database links: SwissProt: O95352 Human

Recommended Dilutions:

ELISA(Det) Use at an assay dependent concentration. Can be paired for Sandwich ELISA with Rabbit monoclonal [PSH26-94] to Human ATG7 (Capture) (HA725493) and Recombinant Human ATG7 protein (HA211607) as the standard. The reference range value is 31.3-16,000 pg/mL.

Storage Buffer: 1*PBS (pH7.4).

Storage Instruction: Store at 2-8℃. Avoid freeze.

Purity: Protein A affinity purified.

Images

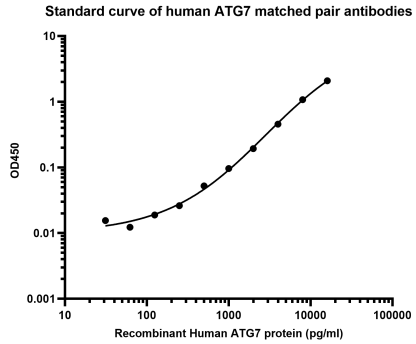

Fig1: Sandwich ELISA analysis of Human ATG7 matched pair antibodies

Capture: HA725493, Human ATG7 Rabbit mAb [PSH26-94]
Detector: HA725494, Human ATG7 Rabbit mAb [PSH26-95]

Elisa assay was performed by coating wells of a 96-well plate with 100 µl per well of capture antibody (HA725493) diluted in carbonate/bicarbonate buffer, at a concentration of 2 µg/mL overnight at 4℃. Wells of the plate were washed, blocked with 150 µl 0.05% tween-20 1% BSA blocking buffer, and incubated with serial diluted Recombinant Human ATG7 protein (HA211607) starting from 16,000 pg/mL to 0 pg/mL and detect antibody (HA725494, Biotin, 0.2 µg/mL) for 1 hour at 30℃ with shaking. Then the plate was washed and incubated with 100 µl per well of SA-HRP for 0.5 hour at 30℃ with shaking. Detection was performed using an Ultra TMB Substrate for 10 minutes at room temperature in the dark. The reaction was stopped with sulfuric acid and absorbances were read on a spectrophotometer at 450 nm.

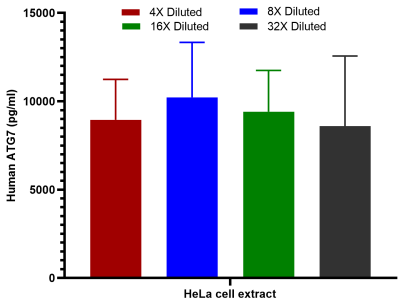

Fig2: Interpolated concentrations of native ATG7 in HeLa extract samples.

Capture: HA725493, Human ATG7 Rabbit mAb [PSH26-94]
Detector: HA725494, Human ATG7 Rabbit mAb [PSH26-95]

The concentrations of ATG7 were measured in duplicates, interpolated from the ATG7 standard curve and corrected for sample dilution. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean ATG7 concentration was determined to be 9,296 pg/mL in HeLa extract.

Background References

1. Xu Y et al. Deacetylation of ATG7 drives the induction of macroautophagy and LC3-associated microautophagy. Autophagy. 2024 May
2. Yao H et al. Ablation of endothelial Atg7 inhibits ischemia-induced angiogenesis by upregulating Stat1 that suppresses Hif1a expression. Autophagy. 2023 May