

Inhibition of MDA5-IPS1 signaling by Atg5- Atg12 conjugate

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Introduction

Reactome is open-source, open access, manually curated and peer-reviewed pathway database. Pathway annotations are authored by expert biologists, in collaboration with Reactome editorial staff and cross-referenced to many bioinformatics databases. A system of evidence tracking ensures that all assertions are backed up by the primary literature. Reactome is used by clinicians, geneticists, genomics researchers, and molecular biologists to interpret the results of high-throughput experimental studies, by bioinformaticians seeking to develop novel algorithms for mining knowledge from genomic studies, and by systems biologists building predictive models of normal and disease variant pathways.

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Literature references

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Reactome database release: 88

This document contains 1 reaction ([see Table of Contents](#))

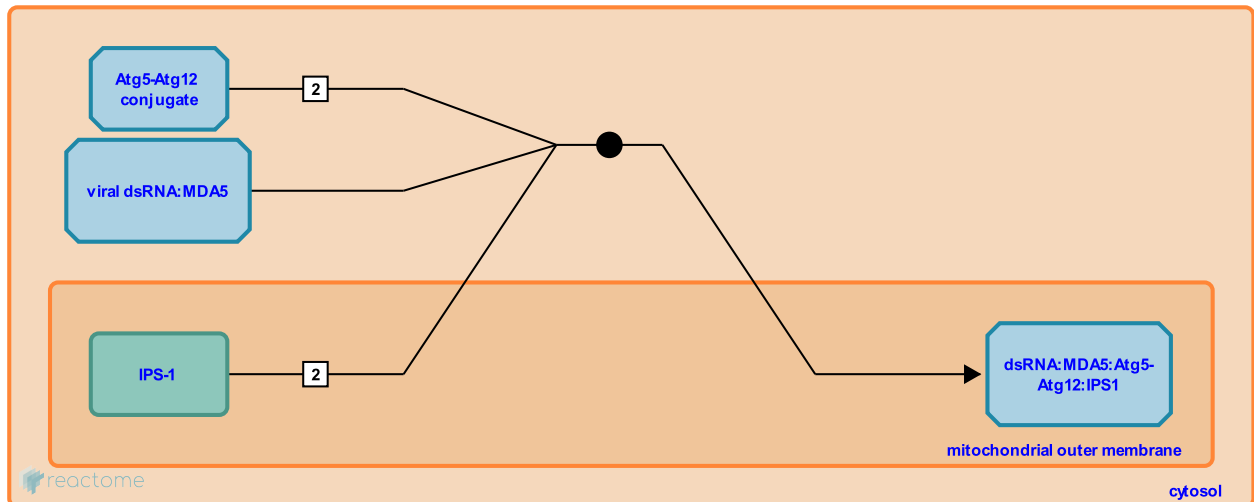
Inhibition of MDA5-IPS1 signaling by Atg5-Atg12 conjugate [↗](#)

Stable identifier: R-GGA-1227804

Type: binding

Compartments: mitochondrial outer membrane, cytosol

Inferred from: [Inhibition of Rig-I signaling by Atg5-Atg12 conjugate \(Mus musculus\)](#)



Predicted chicken autophagy protein 5 (Atg5) and autophagy-related protein 12 (Atg12) show 90 and 58% amino acid sequence identity to their human counterparts respectively. In mammals, Atg5-Atg12 conjugate negatively regulates RLR signaling pathway in both resting as well as virus-triggered cells by direct interaction with caspase recruitment domains (CARDs) of RIG-I/MDA5 and IPS-1. Thus, the ATG5-ATG12 conjugate intercalate between the CARDs of RIG-I/MDA5 and IPS-1 and inhibits signal transmission, resulting in suppression of type I IFN production and innate antiviral immune responses.

Literature references

Kawai, T., Miyawaki, A., Okuda, K., Sawano, A., Ishii, KJ., Kobiyama, K. et al. (2007). The Atg5 Atg12 conjugate associates with innate antiviral immune responses. *Proc Natl Acad Sci U S A*, 104, 14050-5. [↗](#)

Editions

2011-01-05	Authored	Shamovsky, V.
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