

trans-Golgi Network Derived Vesicle Un- coating

Gillespie, ME., Simpson, JC.

European Bioinformatics Institute, New York University Langone Medical Center, Ontario Institute for Cancer Research, Oregon Health and Science University.

The contents of this document may be freely copied and distributed in any media, provided the authors, plus the institutions, are credited, as stated under the terms of [Creative Commons Attribution 4.0 International \(CC BY 4.0\) License](#). For more information see our [license](#).

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.

The development of Reactome is supported by grants from the US National Institutes of Health (P41 HG003751), University of Toronto (CFREF Medicine by Design), European Union (EU STRP, EMI-CD), and the European Molecular Biology Laboratory (EBI Industry program).

Literature references

- Fabregat, A., Sidiropoulos, K., Viteri, G., Forner, O., Marin-Garcia, P., Arnau, V. et al. (2017). Reactome pathway analysis: a high-performance in-memory approach. *BMC bioinformatics*, 18, 142. [↗](#)
- Sidiropoulos, K., Viteri, G., Sevilla, C., Jupe, S., Webber, M., Orlic-Milacic, M. et al. (2017). Reactome enhanced pathway visualization. *Bioinformatics*, 33, 3461-3467. [↗](#)
- Fabregat, A., Jupe, S., Matthews, L., Sidiropoulos, K., Gillespie, M., Garapati, P. et al. (2018). The Reactome Pathway Knowledgebase. *Nucleic Acids Res*, 46, D649-D655. [↗](#)
- Fabregat, A., Korninger, F., Viteri, G., Sidiropoulos, K., Marin-Garcia, P., Ping, P. et al. (2018). Reactome graph database: Efficient access to complex pathway data. *PLoS computational biology*, 14, e1005968. [↗](#)

Reactome database release: 74

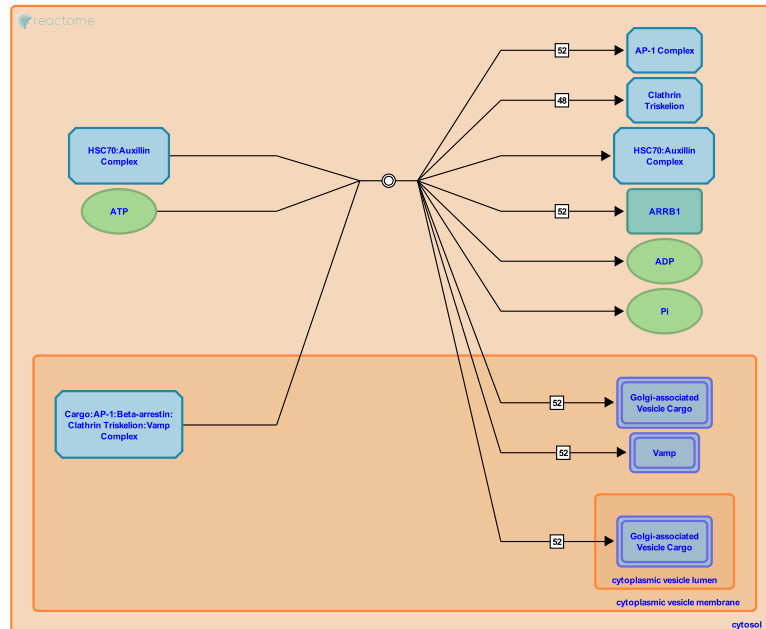
This document contains 1 reaction ([see Table of Contents](#))

trans-Golgi Network Derived Vesicle Uncoating ↗

Stable identifier: R-HSA-421836

Type: dissociation

Compartments: cytosol



The heat shock protein Hsc70 and auxilin, a J-domain containing protein, are responsible for clathrin disassembly through an ATP-dependent reaction. This uncoating step may be a point in the pathway subject to regulation. This final step releases the vesicle from the clathrin cage. The vesicle still contains a specific Vamp molecule, part of the targeting and fusion mechanism that delivers the vesicle to its ultimate destination. This vesicle also contains its cargo, membrane proteins embedded in the Golgi-associated vesicle membrane.

Literature references

- Borner, GH., Harbour, M., Hester, S., Lilley, KS., Robinson, MS. (2006). Comparative proteomics of clathrin-coated vesicles. *J Cell Biol*, 175, 571-8. ↗
- Ungewickell, E., Ungewickell, H., Holstein, SE., Lindner, R., Prasad, K., Barouch, W. et al. (1995). Role of auxilin in uncoating clathrin-coated vesicles. *Nature*, 378, 632-5. ↗
- Lee, DW., Zhao, X., Zhang, F., Eisenberg, E., Greene, LE. (2005). Depletion of GAK/auxilin 2 inhibits receptor-mediated endocytosis and recruitment of both clathrin and clathrin adaptors. *J Cell Sci*, 118, 4311-21. ↗
- Acton, SL., Wong, DH., Parham, P., Brodsky, FM., Jackson, AP. (1993). Alteration of clathrin light chain expression by transfection and gene disruption. *Mol Biol Cell*, 4, 647-60. ↗
- Bryant, NJ., Govers, R., James, DE. (2002). Regulated transport of the glucose transporter GLUT4. *Nat Rev Mol Cell Biol*, 3, 267-77. ↗

Editions

2008-05-22	Edited	Gillespie, ME.
2009-08-27	Authored	Gillespie, ME.
2009-08-28	Reviewed	Simpson, JC.