Recruitment of clathrin coated vesicle by Ii

Garapati, P V., Neefjes, J.

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

02/05/2024

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. ↗

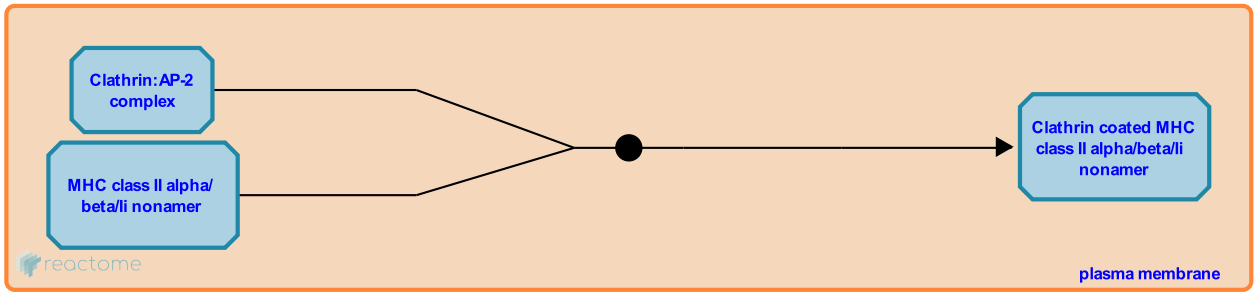
Fabregat, A., Korninger, F., Viteri, G., Sidiropoulos, K., Marin-Garcia, P., Ping, P. et al. (2018). Reactome graph database: Efficient access to complex pathway data. *PLoS computational biology, 14*, e1005968. ↗

Recruitment of clathrin coated vesicle by Ii ↗

Stable identifier: R-HSA-2130640

Type: binding

Compartments: plasma membrane



Plasma membrane-associated nonameric complexes (MHC II alpha/beta/Ii complex) are rapidly internalized and delivered to late endosomes (LEs) and lysosomes. The dileucine-based signal present in the cytoplasmic tail of Ii is required for sorting of the nonameric MHC II-Ii complex from the plasma membrane to peptide loading compartments. These signals promote rapid internalization by recognising and binding to clathrin adaptor AP-2, a scaffolding-protein complex that brings together components of the vesicle-formation machinery. AP-2 is an essential component of an endocytic clathrin coat and participates in initiation of coat assembly. The critical role of AP2 in delivering MHC II:Ii complex to antigen processing compartments came from RNA interference studies targeting clathrin and AP2. The knockout of AP2 profoundly inhibited MHC II:Ii complex internalization and resulted in the accumulation of Ii at the surface (Dugast et al. 2005, McCormick et al. 2005).

Literature references

Dousset, C., Toussaint, H., Benaroch, P., Dugast, M. (2005). AP2 clathrin adaptor complex, but not AP1, controls the access of the major histocompatibility complex (MHC) class II to endosomes. *J Biol Chem, 280*, 19656-64. ↗

Teletski, CL., Roche, PA., Long, EO., Stang, E., Bakke, O. (1993). Cell surface HLA-DR-invariant chain complexes are targeted to endosomes by rapid internalization. *Proc Natl Acad Sci U S A, 90*, 8581-5. ↗

Martina, JA., McCormick, PJ., Bonifacino, JS. (2005). Involvement of clathrin and AP-2 in the trafficking of MHC class II molecules to antigen-processing compartments. *Proc Natl Acad Sci U S A, 102*, 7910-5. ↗

Editions

2012-02-21	Authored, Edited	Garapati, P V.
2012-05-14	Reviewed	Neefjes, J.