Interaction of integrin alphaEbeta7 with Cadherin-1

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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

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. ↗

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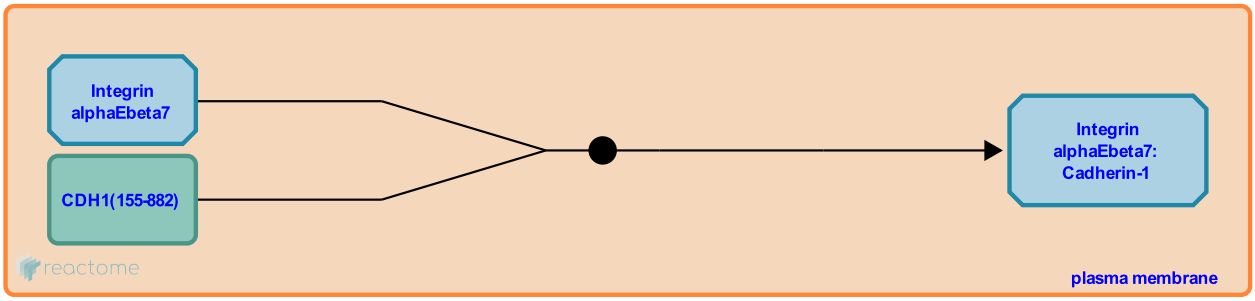
Stable identifier: R-HSA-265422

Type: binding

Compartments: plasma membrane



E-cadherin, memeber of the cadherin superfamily is a calcium-dependent cell adhesion protein expressed on the epithelial cells. The integrin alphaEbeta7 is selectively expressed on intestinal intraepithelial T lymphocytes and CD8+ T lymphocytes in inflammatory lesions near epithelial cells. E-cadherin undergoes both homophilic and heterophilic interactions. It is the only binding partner for alphaEbeta7. This interaction plays a key role in the proliferation of intrathymic T cell populations, T lymphocyte development and damage of target epithelia.

Literature references

Petrie, HT., Prockop, SE. (2004). Functional assessment of alphaEbeta7/E-cadherin interactions in the steady state postnatal thymus. *Clin Dev Immunol, 11*, 135-41. ↗

Tsuzaka, K., Abe, T., Nozaki, K., Yoshimoto, K., Kumazawa, C., Tsubota, K. et al. (2005). Critical role of the fifth domain of E-cadherin for heterophilic adhesion with alpha E beta 7, but not for homophilic adhesion. *J Immunol, 175*, 1014-21. ↗

Editions

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