DMBT1 binds SFTPD 12mer, SFTPAs

D'Eustachio, P., Jassal, B.

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

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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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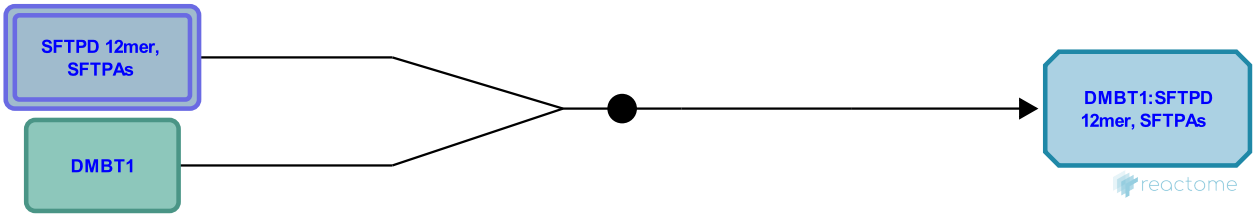
Stable identifier: R-HSA-5687284

Type: binding

Compartments: extracellular region



Deleted in malignant brain tumors 1 protein (DMBT1 aka Gp-340, Hensin, salivary agglutinin) is a binding protein that could play a role in mucosal innate immunity. It is secreted into the broncho-alveolar surface lining fluid and in saliva. DMTB1 can bind surfactant proteins SFTPA and D in macrophage tissues, the resulting complex being able to interact with and agglutinate several Gram-negative and Gram-positive bacteria (Holmskov et al. 1999, Ligtenberg et al. 2001; reviews - Lightenberg et al. 2007, Madsen et al. 2010). DMBT1 has been proposed as a tumor suppressor gene candidate in human brain tumors. Two mutations, one of which resulted in an amino acid change (Q420H), occurred in glioblastomas (Mueller et al. 2002).

Literature references

Mollenhauer, J., Madsen, J., Holmskov, U. (2010). Review: Gp-340/DMBT1 in mucosal innate immunity. *Innate Immun, 16*, 160-7.

Madsen, J., Poustka, A., Kliem, A., Reid, KB., Mollenhauer, J., Holmskov, U. et al. (1999). Cloning of gp-340, a putative opsonin receptor for lung surfactant protein D. *Proc. Natl. Acad. Sci. U.S.A., 96*, 10794-9.

Groenink, J., Ligtenberg, TJ., Holmskov, U., Bikker, FJ., Nieuw Amerongen, AV., Leth-Larsen, R. et al. (2001). Human salivary agglutinin binds to lung surfactant protein-D and is identical with scavenger receptor protein gp-340. *Biochem. J., 359*, 243-8.

Mollenhauer, J., Ligtenberg, AJ., Nieuw Amerongen, AV., Veerman, EC. (2007). Salivary agglutinin/glycoprotein-340/DMBT1: a single molecule with variable composition and with different functions in infection, inflammation and cancer. *Biol. Chem., 388*, 1275-89.

Mollenhauer, J., Stockhammer, F., Poustka, A., von Deimling, A., Mueller, W. (2002). Rare mutations of the DMBT1 gene in human astrocytic gliomas. *Oncogene, 21*, 5956-9.

Editions

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