Collagen type V degradation by MMP2,9,10

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03/05/2024

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

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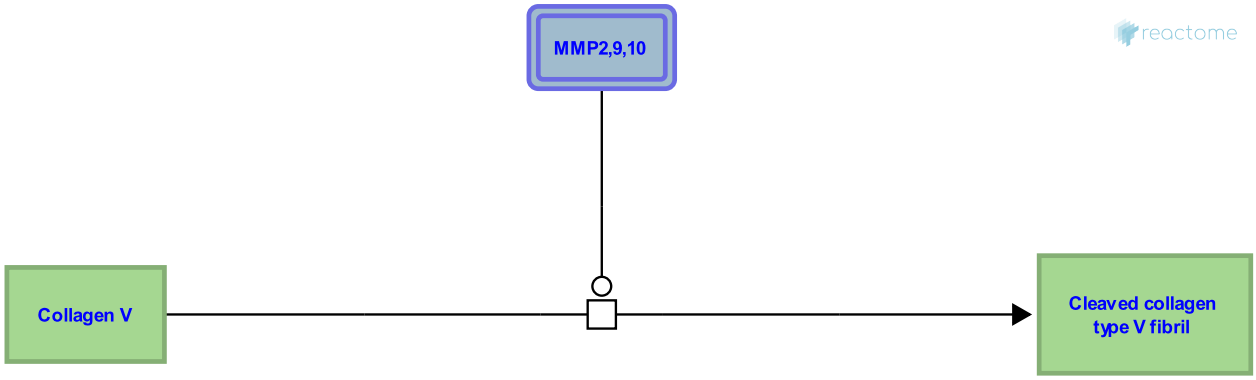
Stable identifier: R-HSA-1564164

Type: transition

Compartments: extracellular region



Type V collagen is a fibril-forming collagen forming a group with collagen types I, II, III and XI (Gelse et al. 2003). Three different alpha chains exist that can combine in three distinct trimers. Collagen V forms fibrils that are associated with type I and to a lesser extent III collagen, as a minor but critical component of bone matrix, corneal stroma and the interstitial matrix of muscle, liver, lung and placenta (Birk et al. 1988). COL5A1-/- mice have an almost complete lack of collagen fibrils reflecting a central role in fibrillogenesis (Wenstrup et al. 2004). Type V collagen mutation results in a range of connective tissue diseases including Ehlers-Danlos syndrome (EDS), which is a heterogeneous group of disorders characterized by joint hypermobility and skin hyperextensibility, thinness and fragility. These result from mutations in the COL5A1 and COL5A2 genes (Michalickova et al. 1998, Schwarze et al. 2000). Type V collagen is digested by MMP2 (Murphy et al. 1981, Veidal et al. 2011), MMP10 (Nicholson et al. 1989), and MMP9 (Murphy et al. 1982, Watanabe et al. 1993, Pourmotabbed et al. 1994, Niyibizi et al. 1994, Veidal et al. 2011).

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Editions

2011-07-12	Authored	Jupe, S.
2012-10-08	Reviewed	Sorsa, T.
2012-11-12	Edited	Jupe, S.