TNC binds Integrin alphaVbeta3, alphaVbeta6, alpha2beta1, alpha7beta1, alpha8beta1, alpha9beta1, alphaXbeta1

Jupe, S., Ricard-Blum, S., Venkatesan, N.

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

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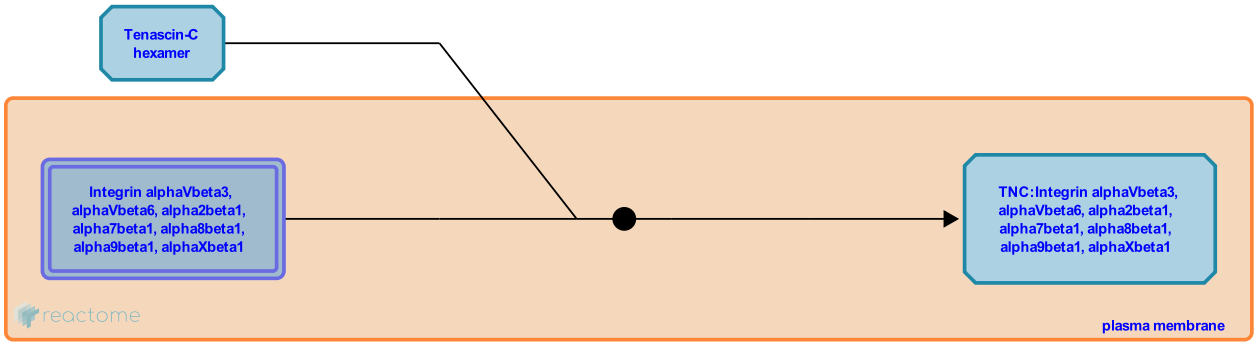
Stable identifier: R-HSA-2681667

Type: binding

Compartments: plasma membrane, extracellular region



Tenascins are a family of 4 oligomeric extracellular glycoproteins, tenascin (TN) C, R, X, and W. In rotary shadowing images TNC is seen as a symmetrical structure called a hexabrachion (Erickson & Iglesias 1984). This hexamer is formed from initial trimers (Kammerer et al. 1988). All members of the family are believed able to form trimers but only C, R and W have the extra cysteine required for form hexamers. All have amino-terminal heptad repeats, epidermal growth factor (EGF)-like repeats, fibronectin type III domain repeats, and a carboxyl-terminal fibrinogen-like globular domain (Hsia & Schwartzbauer 2005). TNC was the first family member to be discovered and is the best characterised (Midwood et al. 2011). Its subunits vary greatly in size (between 190 and 330 kDa of the tenascin-C monomer) due to glycosylation and splicing isoforms (Joester & Faissner 1999). During embryonic development TNC is expressed in neural, skeletal, and vascular tissues. In adults it is detectable only in tendon and tissues undergoing remodeling processes such as wound repair and neovascularization, or in pathological processes such as inflammation and tumorigenesis (Midwood & Orend, 2009).

TNC binds several integrins including alpha2beta1 (Sriramararo et al. 1993), alphaVbeta6 (Yokosaki et al. 1996), alphaVbeta3 (Sriramararo et al. 1993, Yokosaki et al. 1996), alpha9beta1 (Yokosaki et al. 1996), alphaXbeta1 (Probstmeier & Peshva 1999), alpha8beta1 (Schnapp 1995) and alpha7beta1 (Mercado et al. 2004).

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