

# Laminin-111 binds collagen type IV

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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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Reactome database release: 83

This document contains 1 reaction ([see Table of Contents](#))

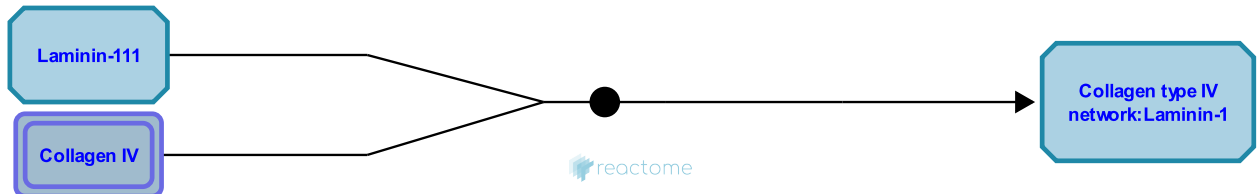
## Laminin-111 binds collagen type IV [↗](#)

**Stable identifier:** R-HSA-2328145

**Type:** binding

**Compartments:** extracellular region

**Inferred from:** [Collagen type IV binds laminin-111 \(Mus musculus\)](#)



Type IV collagen (Yurchenco & Furthmayr 1984) and laminin (Yurchenco et al. 1985,1992, Cheng et al. 1997) can self-assemble in vitro, forming lattice-like polymeric networks which resemble laminin-collagen matrices observed in vivo (Timpl & Brown 1996). Purified laminins are the only basement membrane component able to assemble on cell surfaces in the absence of other components (McKee et al. 2007). Laminin knockouts prevent basement membrane assembly, arresting development at a much earlier stage than knockouts of other ECM components such as collagen IV, nidogens (entactin), perlecan or agrin (Yurchenko et al. 2004). This suggests a regulatory function for the laminin network. Laminin molecules bind to each other in a three-way interaction involving the LN domains located at the end of the three short arms. Each interaction involves one each of alpha, beta and gamma laminin subunits (Yurchenko & Cheng 1993, McKee et al. 2007) forming a polygonal structure (Yurchenko et al. 1992).

In the basement membrane collagen type IV and laminin are found in an approximately 1:1 molar ratio (Kleinman et al. 1986). Binding between laminin and collagen type IV is primarily facilitated by nidogen (Aumailley et al. 1989, Fox et al. 1991), but direct binding has been observed (Charonis et al. 1985, Rao et al. 1985). Laminin-111 (laminin-1) binds to type IV collagen through its short arms (Laurie et al. 1986).

### Editions

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