

# GPIIb-IX-V binds to vWF:Collagen complex

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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: 88

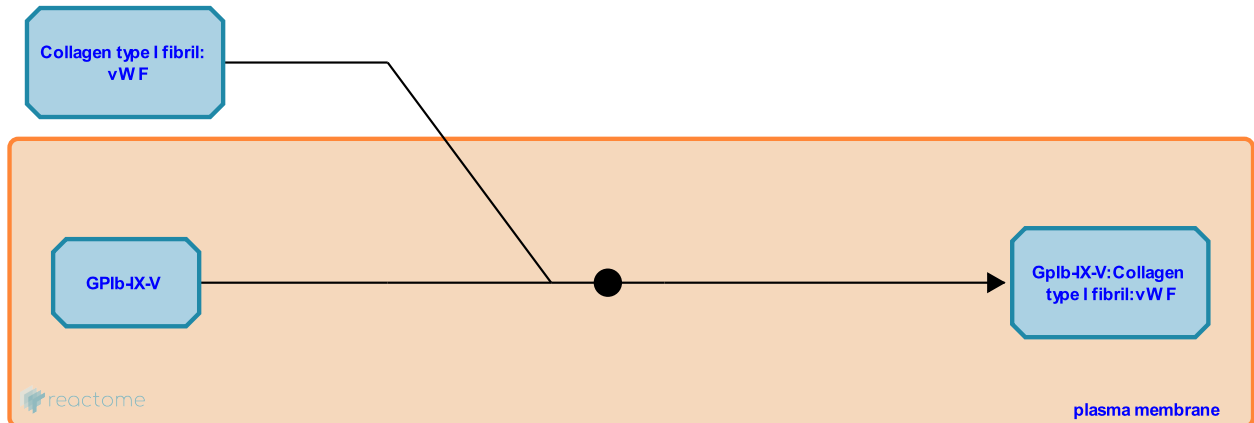
This document contains 1 reaction ([see Table of Contents](#))

## GPIb-IX-V binds to vWF:Collagen complex [↗](#)

**Stable identifier:** R-HSA-114670

**Type:** binding

**Compartments:** extracellular region, plasma membrane



The initial tethering of platelets at sites of vascular injury is mediated by a receptor complex of glycoproteins 1b, IX and V (GPIb:IX:V - frequently referred to as the GPIb receptor). The GPIb component binds to von Willebrand factor (VWF) complexed with collagen exposed in vascular epithelium following injury. In conditions of high shear stress, when a blood vessel is partially blocked, VWF can bind to GPIb:V:IX in absence of collagen, a major factor in heart attack and stroke. GPIb:IX:V interaction with VWF:collagen potentiates the binding of platelet-associated integrin  $\alpha IIb\beta 3$  to VWF and fibrinogen, triggering stable platelet adhesion and generation of further signals that lead to platelet aggregation.

### Literature references

Schafer, AI., Handin, RI., Kroll, MH., Moake, JL., Harris, TS. (1991). von Willebrand factor binding to platelet GPIb initiates signals for platelet activation. *J Clin Invest*, 88, 1568-73. [↗](#)