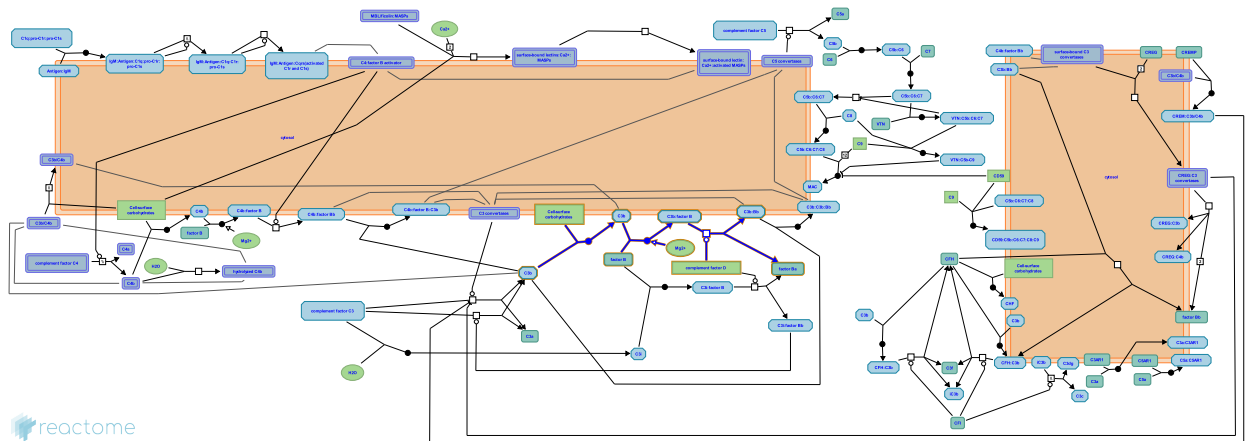


Formation of membrane-bound conver- tase C3



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This is just an excerpt of a full-length report for this pathway. To access the complete report, please download it at the [Reactome Textbook](https://reactome.org/textbook/).

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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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Reactome database release: 88

This document contains 1 pathway and 3 reactions ([see Table of Contents](#))

C3b fragment binds to the target cell surface [↗](#)

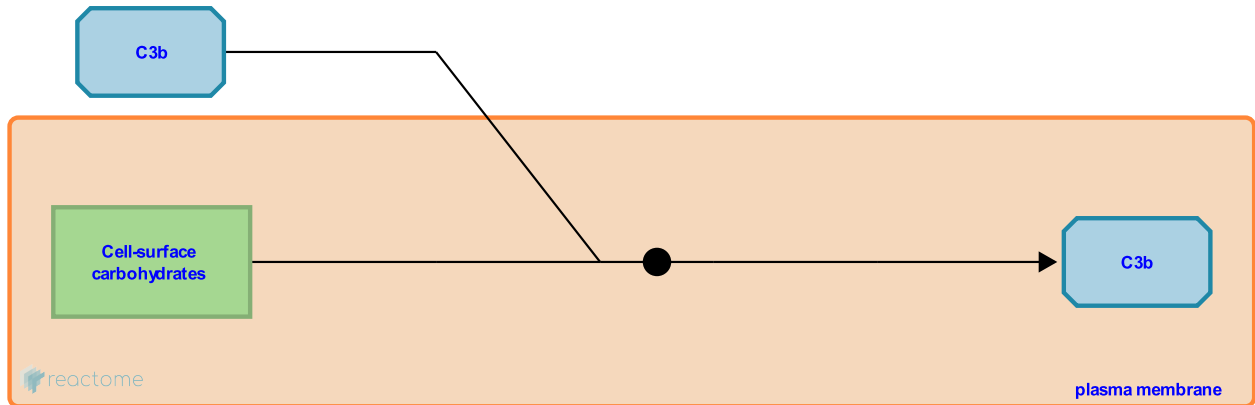
Location: [Formation of membrane-bound convertase C3](#)

Stable identifier: R-GGA-2132210

Type: binding

Compartments: plasma membrane, extracellular region

Inferred from: [C3b binds to cell surface \(Homo sapiens\)](#)



C3b molecules are continuously deposited onto target surfaces. Deposition occurs through a covalent linkage between a thioester that is exposed upon C3 cleavage, and a hydroxyl or other nucleophilic group of glycoproteins on the target cell surface [Smiley ML & Friedman HA 1985; Lewis LA et al. 2008].

Followed by: [Complement factor B binds to surface-bound C3b fragment](#)

Literature references

Friedman, HM., Smiley, ML. (1985). Binding of complement component C3b to glycoprotein C is modulated by sialic acid on herpes simplex virus type 1-infected cells. *J. Virol.*, 55, 857-61. [↗](#)

Mavroidis, M., Lambris, JD., Sunyer, JO. (1995). Isolation, primary structure, and evolution of the third component of chicken complement and evidence for a new member of the alpha 2-macroglobulin family. *J Immunol*, 154, 2164-74. [↗](#)

Getzlaff, S., Vogel, U., Blom, AM., Lewis, LA., Rice, PA., Prasad, A. et al. (2008). Defining targets for complement components C4b and C3b on the pathogenic neisseriae. *Infect. Immun.*, 76, 339-50. [↗](#)

Editions

2012-11-07	Reviewed	D'Eustachio, P.
2012-12-20	Authored	Shamovsky, V.
2013-01-31	Reviewed	Jupe, S.
2013-11-20	Edited	Shamovsky, V.

Complement factor B binds to surface-bound C3b fragment [↗](#)

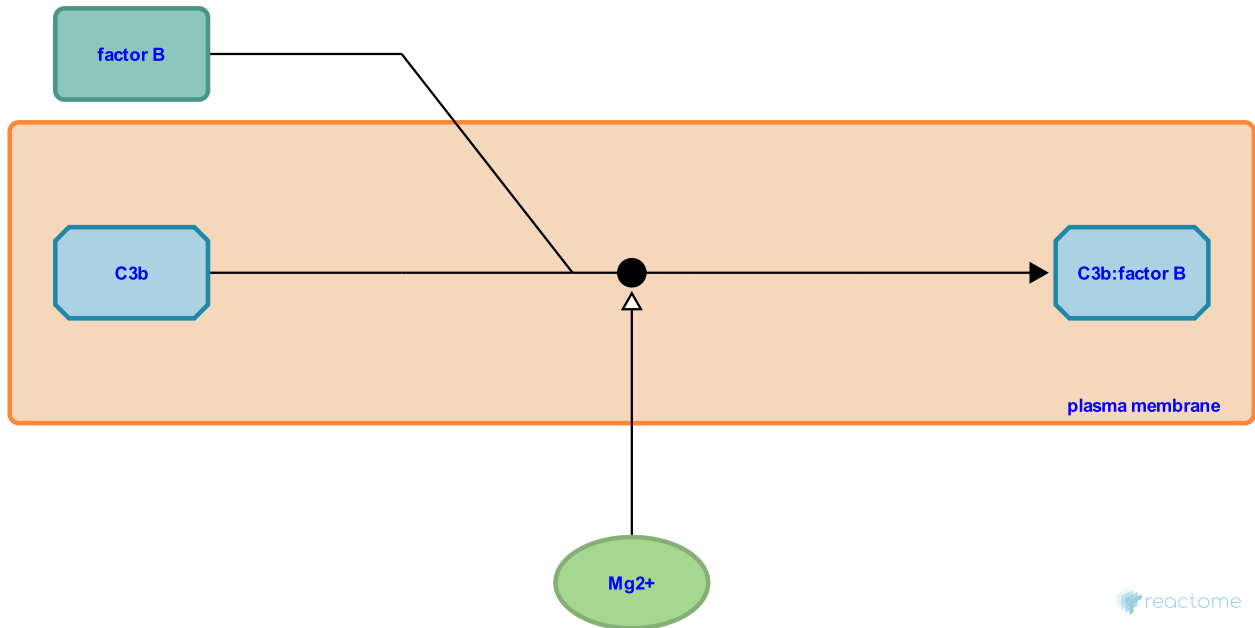
Location: [Formation of membrane-bound convertase C3](#)

Stable identifier: R-GGA-2132061

Type: binding

Compartments: plasma membrane, extracellular region

Inferred from: [Factor B binds to surface-associated C3b \(Homo sapiens\)](#)



Surface-bound C3b interacts with factor B which in turn is cleaved into two fragments, Ba and Bb. Ba is released, whereas Bb remains bound to C3b, forming a C3 convertase.

Preceded by: [C3b fragment binds to the target cell surface](#)

Followed by: [Cleavage of surface-bound factor B](#)

Literature references

Schreiber, RD., Pangburn, MK., Muller-Eberhard, HJ., Lesavre, PH. (1978). Initiation of the alternative pathway of complement: recognition of activators by bound C3b and assembly of the entire pathway from six isolated proteins. *Proc Natl Acad Sci U S A*, 75, 3948-52. [↗](#)

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Mavroidis, M., Lambris, JD., Sunyer, JO. (1995). Isolation, primary structure, and evolution of the third component of chicken complement and evidence for a new member of the alpha 2-macroglobulin family. *J Immunol*, 154, 2164-74. [↗](#)

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Cleavage of surface-bound factor B ↗

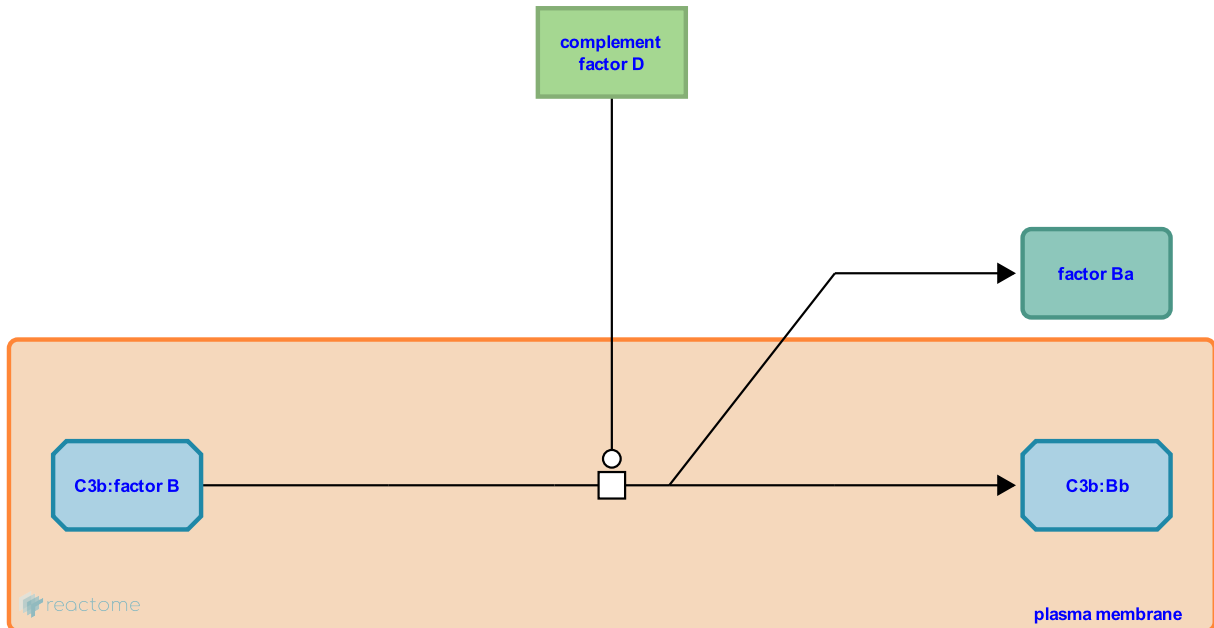
Location: [Formation of membrane-bound convertase C3](#)

Stable identifier: R-GGA-2132074

Type: transition

Compartments: plasma membrane, extracellular region

Inferred from: [Factor D cleaves C3b-bound Factor B \(Homo sapiens\)](#)



Human factor B is cleaved by factor D yielding a small fragment Ba and a surface-bound C3 convertase (C3b:Bb). Although an orthologue of human factor D is not identified in the chicken genome, published data demonstrates the presence of alternative complement pathway (ACP) activity in chicken [Otha H et al. 1983; Otha H et al. 1984; Laursen I & Koch C 1989; Mavroidis M et al. 1995; Koch C 1986]. This Reactome project annotates a hypothetical chicken factor D and describes cleavage of a factor B-like protease into an N-terminal Ba fragment of 37 kDa and a C-terminal Bb fragment of 60 kDa. These two fragments of chicken factor B-like protease were purified and characterized [Kjalke M et al. 1993].

Preceded by: [Complement factor B binds to surface-bound C3b fragment](#)

Literature references

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