Anaphylatoxins initiate inflammatory responses

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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**


Reactome database release: 72

This document contains 1 pathway and 2 reactions (see Table of Contents)
Anaphylatoxins initiate inflammatory responses

Stable identifier: R-GGA-2173345

Anaphylatoxic peptides C3a and C5a function as mediators of host inflammatory response in mammals. These molecules are generated during complement activation and bind to their specific G protein coupled receptors (GPCR), which are expressed on granulocytes, monocytes, mast cells and activated lymphocytes (Peng Q et al. 2009; Haas PJ and van Strijp J 2007). Expression of both C3 and C5 as well as C3aR and C5aR was detected in chicken liver and eye tissues (Haynes T et al. 2013). Moreover, chicken C3a was shown to stimulate chick retina regeneration through MAPK-STAT3 activation in a C3aR-dependent manner (Haynes T et al. 2013). In addition, functionally active anaphylatoxins and their receptors were found in teleost fish and Xenopus (Rottland J et al. 2004; Boshra H et al. 2004; Holland MC and Lambris JD 2004; Boshra H et al. 2005; Carmona-Fontaine C et al. 2011). The studies in those species suggested that the basic structure and function of anaphylatoxins and their receptors have been conserved for more than 300 million years (Sunyer JO et al. 2005). Taken together, the observations above suggest that the chicken complement signaling may release active fragments C3a and C5a, which associate with C3a and C5a receptors respectively.

Literature references


Editions

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C3a anaphylatoxin binds C3a receptor

**Location:** Anaphylatoxins initiate inflammatory responses

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