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Complement protein with anti-inflammatory activity

A complement split product confers anti-inflammatory activity via cell surface receptors, thus providing the basis for the development of novel therapeutic concepts for the treatment of e.g. autoimmune diseases, transplantation or allergy.

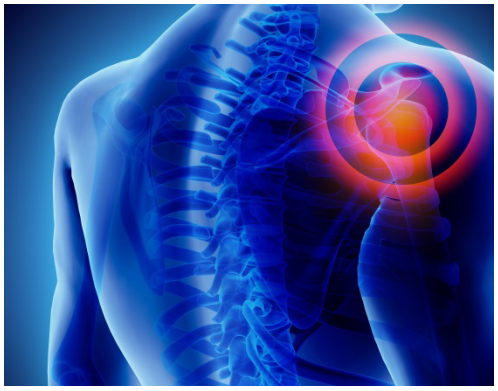
BACKGROUND

The human complement system is, as part of the innate immune system, responsible for the defence against invading pathogens. Complement activation is tightly regulated, leading to the generation of a series of complement split products (such as C4d) from inactive precursor molecules that ultimately lead to the destruction of invading pathogens and their clearance from the body.
Split product C4d itself has been orphan ligand with no known attributed function *per se*. However, in some studies it was associated with the autoimmune syndrome *systemic lupus erythematosus*, and presence of C4d in renal allografts is an established marker of antibody-mediated graft rejection.

TECHNOLOGY

Complement split product C4d was found to be capable of triggering an anti-inflammatory response or down-regulate a pro-inflammatory response, respectively, in an in vitro model of an inflammatory disease.
C4d decreases production of the pro-inflammatory factors TNF-α and IL-6. Moreover, C4d inhibits the activation of dendritic cells (DC), key effector cells in the pathogenesis of inflammatory diseases. In autoimmune diseases, such as psoriasis and rheumatoid arthritis, the activation level and the number of DC were observed to be increased.

Taken together, the therapeutic use of C4d is promising to be beneficial in the treatment of an inflammatory condition, such as graft rejection, graft versus host disease, an autoimmune disease, or atopy.



ADVANTAGES

- C4d is a natural protein occurring normally in humans
- Novel concept
- Extensive immunological expertise available for collaborations
- Therapeutic potential for a broad range of diseases
- Known mechanism of action
- Several model systems available

REFERENCE:
348.11

AVAILABLE FOR:
R&D collaboration
License Agreement
Assignment

KEYWORDS:
- biological therapeutic
- autoimmune diseases
- graft rejection
  rheumatoid arthritis

DEVELOPMENT STATUS:
Scientific in vitro data

APPLICATIONS:
Treatment of autoimmune diseases, graft rejection, graft versus host disease

PATENTS:
EP2866821 B1
US10358468 B2
US9944685 B2
AU2013285537 B2

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