



Complement activation is linked to Alzheimer's disease

Human C5a ELISA

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Human C5a

- ~11 kDa polypeptide consisting of 74 amino acids
- Derived from the N-terminus of the complement C5 α -chain
- Short-lived in serum, but rapidly converted to the more stable C5a-desArg
- Potent anaphylatoxin causing smooth muscle contraction, vasodilatation, increased vascular permeability, basophil and mast cell degranulation and lysosomal enzyme release
- Potent chemotactic factor for eosinophils, basophils and monocytes
- Binds to C5aR (CD88) and C5L2 (G-protein coupled receptor 77)

Human C5a and disease

- C5a circulates in higher concentrations during exacerbations of SLE patients
- C5a is involved in the pathology of inflammatory bowel disease
- C5a is involved in the pathogenesis of COPD and asthma
- C5a is involved in inflammatory reactions seen in gram-negative bacterial sepsis, trauma, ischemic heart disease, post-dialysis syndrome and a variety of autoimmune diseases
- C5a can have a dual role in neurodegenerative disorders like Alzheimer's disease: protection as well degeneration
- C5a is a marker in urine for predicting the onset of acute graft rejection after kidney transplantation
- C5a is closely associated with the capillary leak syndrome in leukemic children after bone marrow transplantation

Human C5a ELISA performance

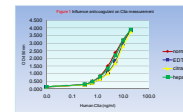
Recovery

- Concentrations of 2.5 and 10 ng/ml of human C5a(dA) were spiked into different matrices (Table 1)
- Percentage recovery was calculated as the percentage of measured/expected C5a
- Recovery in serum, plasma, BAL and urine is between 80-120 %
- The human C5a ELISA is not useful for detection in sputum

C5a in different matrices.	recovery (%)	
	10 ng/ml	2.5 ng/ml
Human serum	102	89
Human activated serum	108	99
Human plasma	113	100
Sputum	27	nd
BAL	110	106
Urine	103	100

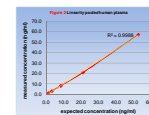
Anticoagulant

- Influence of anticoagulants EDTA and citrate on C5a measurement
- Heparin-plasma is preferred



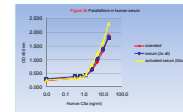
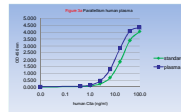
Linearity

- Correlation of 0.9988 in pooled human plasma



Parallelism

- Plasma and serum samples were compared to the C5a standard
- Plasma and normal serum needs to be diluted 4x, whereas activated serum should be diluted at least 100x



Human C5a is upregulated in CSF of Alzheimer patients

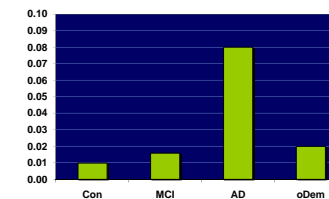


Figure 4 Human C5a is linked to Alzheimer's disease. Human C5a ELISA was used to measure the concentration in CSF. Con=control (n=...), MCI=mild cognitive impaired (n=...), AD=Alzheimer's disease (n=...), oDem=other dementia (n=...)

Hallmarks of human C5a ELISA (Cat# HK349)

- Detection limit: 0.31 ng/ml
- Detection range: 0.31 - 20 ng/ml
- Useful for serum, plasma, urine, BAL and CSF
- No cross reactivity with:
 - Human C3a
- Detection of C5a as well as C5a-desArg
- No interference by C5 due to neo-epitope detection
- Not useful for reliable measurement of recombinant C5a

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