

Nematode Derived Cystatin Inhibits Allergic Airway Responses and Inflammation



HARTMANN, Susanne; SCHNÖLLER, Corinna; HAMELMANN, Eckard
Charité – University Medicine Berlin

Technology

A conceptually new biopharmaceutical candidate for the therapy of allergic and inflammatory diseases is offered. A parasitic nematode derived cystatin (Av17) suppresses allergic airway responsiveness in a murine model of ovalbumin-induced allergy. This was combined with an overall down-regulation of effectors of allergic reactions such as IgE, eosinophils and IL-4.

Furthermore, the filarial cystatin reduced inflammatory infiltrations and epithelial damage in a murine model of DSS-induced colitis.

Commercial Opportunity

- Potentially more specific than classical inflammation inhibitors
- First insights in the mechanism of action
- *in vivo* and *in vitro* tests were carried out

Applications

Asthma reduction

The new approach uses recombinant cystatin from parasitic nematodes, especially the filaria *Acanthocheilonema viteae*.

Reduction of airway hyperreactivity and lung inflammation could be demonstrated by cell number counts, histological analysis and ELISA in a mouse model of ovalbumin (OVA) induced allergic airway hyperresponsiveness. In detail, application of rAv17 to asthmatic mice reduced the total cell numbers and eosinophils in the lung tissue and bronchoalveolar fluid. Besides this, reduced serum levels of IgE and IL-4 and decreased airway hyperreactivity measured by a methacholine challenge test as well as reduced mucus production were observed.

Reduction of colitis

Filarial cystatin inhibits acute and chronic colitis in a Th1-mediated murine model of inflammation. Acute colitis was induced by DSS- treatment during 7 days. Administration of 4 doses of recombinant Av17 revealed a significant reduction of the inflammatory score .

Similar reduction of the inflammation (63%) could be observed in a chronic colitis model, where animals were treated with DSS over a longer time (4 cycles). rAv17 was applied 4 times during each cycle (starting in the 2nd).

Patent Situation

EP 06016356.5 (August 4th, 2006), US 60/910,118 (April 3rd, 2007) and PCT application (August 3rd 2007) were filed.

The logo for ipal consists of the word "ipal" in a bold, lowercase, sans-serif font, preceded by a stylized graphic of three blue and green diagonal lines. To the right of the logo, the text "Innovationen Patente Lizenzen" is stacked vertically.

Ansprechpartner:
ipal GmbH
Dr. Petra Düx
petra.duex@ipal.de
Tel.: +49 30 2125 4828