

Munich researchers discover key allergy gene

August 22 2008

Together with colleagues from the Department of Dermatology and Allergy and the Center for Allergy and Environment of the Technische Universität München, scientists at the Helmholtz Zentrum München have pinpointed a major gene for allergic diseases. The gene was localized using cutting edge technologies for examining the whole human genome at the Helmholtz Zentrum München.

The newly discovered FCER1A gene encodes the alpha chain of high affinity IgE receptor, which plays a major role in controlling allergic responses. The team of scientists led by Dr. Stephan Weidinger from the Technische Universität München and Dr. Thomas Illig from the Helmholtz Zentrum München found that certain variations of the FCER1A gene decisively influence the production of immunoglobulin E (IgE) antibodies. IgE antibodies are a particular type of antibody that is normally used to protect against parasites. In Western lifestyle countries with less contact, however, elevated IgE levels are associated with allergic disorders.

In genetically susceptible individuals the immune system becomes biased and produces IgE antibodies against harmless agents such as pollen, dust mites or animal hair. These IgE antibodies then work in conjunction with certain cells to get rid of the allergens, a process that gives rise to the symptoms of allergy such as allergic rhinitis (hay fever), atopic dermatitis or asthma.

"Most people with allergies are atopic - meaning they have a genetic tendency to develop allergies. To detect the genetic factors we examined

the genomes of more than 10,000 adults and children from the whole of Germany" explained Stephan Weidinger.

Most of the persons examined for the study come from the population studies of the KORA (co-operative health research in the Augsburg region) research platform, which is led by Prof. Dr. H.-Erich Wichmann, the Director of the Institute of Epidemiology at the Helmholtz Zentrum München. The allergological examinations were carried by the Department for Dermatology and Allergy of the Technische Universität München headed by Prof. Dr. Dr. Johannes Ring.

Although in its early stages, the new knowledge on the regulation of IgE production does have the potential to guide the development of new drugs.

Source: Helmholtz Zentrum München - German Research Center for Environmental Health

Citation: Munich researchers discover key allergy gene (2008, August 22) retrieved 25 April 2024 from <https://medicalxpress.com/news/2008-08-munich-key-allergy-gene.html>

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