Scientists discover cells that control inflammation in chronic disease

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Th22 cells can go out of control, making symptoms worse in diseases like psoriasis

(PhysOrg.com) -- A new type of immune cell that can be out of control in certain chronic inflammatory diseases, worsening the symptoms of conditions like psoriasis and asthma, is described for the first time this week in the *Journal of Clinical Investigation*.

The authors of the study, from Imperial College London, the Istituto Dermopatico dell'Immacolata in Rome and the Center of Allergy and Environment (ZAUM) in Munich, hope their discovery could lead to new treatments for these diseases that would bring the cells under control.

The new cell described in the study, called a Th22 cell, is a kind of T-

helper cell. These cells are white blood cells that help to activate other immune cells when the body is infected by a pathogen, such as a virus or bacterium. They also control inflammation in the body to help fight off infection.

According to the new study, Th22 cells play a special role in overseeing and coordinating immune cells that cause inflammation. In chronic and allergic inflammatory diseases like psoriasis and allergic eczema, Th22 cells appear to be malfunctioning, leading to excessive inflammation, which can worsen symptoms.

The researchers hope that it may ultimately be possible to treat chronic skin and possibly also airway diseases by targeting Th22 cells with new drugs.

Dr Carsten Schmidt-Weber, one of the lead authors of the study from the National Heart and Lung Institute at Imperial College London, said: "We are seeing an increase in chronic diseases like skin and airway disease because of changes in people's lifestyles. These diseases can have a big impact on people's lives and patients can face a constant battle to keep their symptoms at bay. We are very excited about discovering this new subset of T-helper cells, as we believe it could provide a new target for the treatment of chronic inflammatory diseases in the future."

The researchers discovered Th22 cells by looking at skin samples from people with psoriasis, atopic eczema and allergic contact dermatitis. They analysed the samples and found a completely new type of cell. The researchers examined the molecules the cells made and found that one of them was a signalling molecule called interleukin-22 (IL-22). This signalling molecule warns tissues that inflammation or infection is going to occur, so the tissues can get ready to recognise and attack pathogens or protect themselves against inflammation. The effect of this can be either protective or detrimental - for example, IL-22 molecules and

Th22 cells can cause skin cells to grow too quickly, resulting in painful, flaking skin.

The authors of the new study hope that their new discovery will provide scientists developing treatments for inflammatory disorders with a new cellular drug target. The researchers are now investigating the role of these cells in greater detail and exploring their role in disease progression. In addition, Dr Schmidt-Weber and his colleagues want to know how the cells are generated in the body and whether there is any way to control these cells before they cause unwanted damage.

Source: Imperial College London (news : web)