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Discovery of new immune cells offers hope of asthma treatment

Wednesday 3 March 2010

Researchers at the Medical Research Council (MRC) have discovered a new type of immune cell which could eventually lead to new preventative treatments for asthma.

These newly-discovered cells, called 'nuocytes', have been found to be responsible for producing a chemical, known as Interleukin 13 (IL-13), designed to help the immune system fight against certain parasites.

Researchers have identified that too much IL-13 may trigger a reaction in asthma patients, causing the airways to become narrower and irritated, making it difficult to breathe.

It is hoped that by stopping nuocytes producing this chemical, these symptoms could be reduced. Until now, there has been a missing link in scientists' understanding of what happens in our immune systems at the beginning of an asthma attack.

This study took place at the MRC's Laboratory for Molecular Biology in Cambridge and was funded by the Medical Research Council and Asthma UK.

As part of the MRC's ongoing commitment to explore the body's resilience to disease, and to understand how this may be exploited for developing new treatments, this breakthrough will help researchers to understand the relationship between the onset of disease and failures in the function of the immune system.

Research efforts will now focus on identifying how nuocytes work in humans and finding out further information about their involvement in the development of asthma.

Lead author, Dr Andrew McKenzie of the Medical Research Council, said: *"We have identified a new immune cell type, which is extremely rare in itself. The fact that the discovery of these cells could offer new hope for preventing asthma attacks makes our findings even more exciting. My group is now pursuing this goal with the aim of translating our research into new treatments."*

Research Relations Manager at Asthma UK, Dr Elaine Vickers, said: *"This exciting breakthrough is a real leap forward in our understanding of the immune system and how it can become oversensitive, causing the symptoms of asthma. Every new piece of the puzzle brings fresh hope of new treatments for the 5.4 million people in the UK who suffer from asthma. We look forward to Dr McKenzie's future work into the precise role of this new immune cell, and whether it could be targeted to prevent the development of asthma - a condition that still kills three people in the UK each day."*

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Notes to Editors:

1. 'Nuocytes represent a new innate effector leukocyte that mediates type-2 immunity' is published in the journal Nature on 3 March 2010.

2. For almost 100 years the Medical Research Council has improved the health of people in the UK and around the world by supporting the highest quality science. The MRC invests in world-class scientists. It has produced 29 Nobel Prize winners and sustains a flourishing environment for internationally recognised research. The MRC focuses on making an impact and provides the financial muscle and scientific expertise behind medical breakthroughs, including the first antibiotic penicillin, the structure of DNA and the lethal link between smoking and cancer. Today MRC funded scientists tackle research into the major health challenges of the 21st century. www.mrc.ac.uk

3. Asthma UK is the charity dedicated to improving the health and well-being of the 5.4 million people in the UK whose lives are affected by asthma. For up-to-date news on asthma, information and publications, visit the Asthma UK website <http://www.asthma.org.uk/> or independent and confidential advice on asthma, call the Asthma UK Adviceline, which is staffed by asthma nurse specialists. It is open weekdays from 9am to 5pm on 0800 121 62 44. Asthma UK, Summit House, 70 Wilson Street, London EC2A 2DB

