

Healthy bodies help fight disease? Clues to how diet affects the immune system

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Scientists are proposing that dietary fats can affect how well our immune system works and have discovered that one of the earliest steps in immune system activation relies on a molecule that binds fats.

“This study may help explain the link between dietary fat consumption and inflammation and could be one of the critical links between metabolism and immune responses,” says senior author Professor Charles Mackay, Director of Sydney’s Garvan Institute’s Immunology Program.

Our intake of fats (fatty acids) has changed dramatically over the last thirty years. At the same time there has been an increase in inflammatory diseases in the western world – especially asthma, atherosclerosis, and autoimmune diseases such as rheumatoid arthritis.

“We have shown that a subset of white blood cells, called dendritic cells, which initiate immune responses, rely on the fatty acid binding molecule aP2 for their function. It is possible that different fatty acids or their total levels will affect aP2 function in dendritic cells, and hence affect immune responses,” explains Mackay.

Professor Mackay added: “What we want to do now is study whether it is the total levels of fats or the different types of fats that alter dendritic cell function, through their binding to aP2. We know that dietary changes can improve symptoms of rheumatoid arthritis and we believe that a ‘diet hypothesis’ may account for the dramatic changes in inflammatory diseases seen in the western world over the past 30 years

-molecules such as aP2 may be one of the clues that will help explain this phenomenon.”

Over-activation of dendritic cells can trigger inflammatory diseases. This discovery reveals aP2 is key to that process. Fatty acid binding molecules, such as aP2, have already been identified as promising targets for the treatment of metabolic disorders such as type 2 diabetes and atherosclerosis. This new research suggests that medicines directed at aP2 would have great potential in inflammatory as well as metabolic diseases.

Source: Research Australia

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