New discovery on early immune system development

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Researchers at Lund University have shed light on how and when the immune system is formed, raising hope of better understanding various diseases in children, such as leukaemia.

The immune system is complex and a number of genetic diseases are attributed to defects in the cells that form its origins. The study from Lund and Oxford University presents unique findings on the formation of these cells.

We know that the first blood stem cells are formed in the aorta region and then travel to the liver, which is the body's major blood-forming organ during the foetal stage. In the liver, the blood stem cells produce the more mature blood cells that form our blood system. At the same time, T- and B-cells are formed, which comprise the basis of our advanced immune system. From birth, this process takes place in the bone marrow and the liver ceases to form blood cells.

Researchers have long believed that the first cells that lead to the development of our immune system, the immune-competent cells, are formed from blood stem cells in the liver while the foetus is developing. Blood stem cells can be found in the liver from day 11

More information: 'Lymphomyeloid Contribution of an Immune-Restricted Progenitor Emerging Prior to Definitive Hematopoietic Stem Cells', *Cell Stem Cell* , 2013.

Provided by Lund University