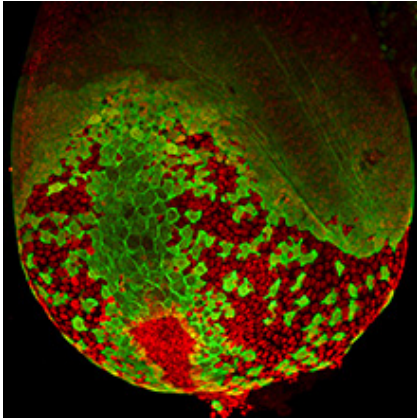


Insulin-producing beta cells from stem cells: Scientists decipher early molecular mechanisms of differentiation



Endodermal cells, they form organs such as lung, liver and pancreas. Credit: IDR, Helmholtz Zentrum MÜNCHEN

The Wnt/

The findings of the scientists of the Institute of Diabetes and Regeneration Research (IDR) at Helmholtz Zentrum München (HMGU) provide new insights into the molecular regulation of stem cell differentiation. These results reveal important target structures for regenerative therapy approaches to chronic diseases such as diabetes.

During embryonic development, organ-specific cell types are formed from pluripotent stem cells, which can differentiate into all cell types of the human body. The pluripotent cells of the embryo organize themselves at an early stage in germ layers: the endoderm, mesoderm and ectoderm. From these three cell populations different functional tissue cells arise, such as skin cells, muscle cells, and specific organ cells.

Various signaling pathways are important for this germ layer organization, including the Wnt/

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