

Hebrok Lab

The main focus of our lab is to study the mechanisms that underlie mammalian pancreas organogenesis and pancreatic diseases, including diabetes and pancreatic cancer. In particular, our studies aim to determine whether controlled activation and deactivation of particular signaling pathways:

- affect the function, proliferation and/or survival of insulin-producing β -cells
- promote the formation of β -cells from uncommitted stem cells
- prevent the formation and growth of pancreatic tumors

To address these questions, we are currently using multiple tools including transgenic mouse models in which gene expression is conditionally regulated to manipulate the activity of specific signaling pathways. The information gained from these studies is used to optimize and develop novel methods to generate functional insulin-producing β -cells from human stem cell populations such as human embryonic stem cells (hESCs) and induced pluripotent stem (iPS) cells.

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