Differentiation of Pancreatic Acinar Cells to Hepatocytes Requires an Intermediate Cell Type


The appearance of hepatocytes in adult pancreas is one example of transdifferentiation that has been observed in cancer patients. However, the mechanism underlying the pancreatic-to-hepatic conversion is less clear. The current study revealed that hepatocytes were derived from differentiated acinar cells via ABCG2-expressing intermediates. Exposure of acinar cells to glucocorticoids together with insulin increased Akt phosphorylation, ABCG2 expression, and hepatic transdifferentiation. When ABCG2-expressing cells were incubated with glucagonlike-peptide 1, these cells could differentiate into insulin-producing beta cells suggesting ABCG2-expressing cells resemble adult pancreatic multipotent stem/progenitor cells. The current findings imply donor pancreatic exocrine cells can be utilized to generate multipotent cells, insulin-producing beta cells or functional hepatocytes which may lead to development of new therapeutic strategies for patients with diabetes or acute liver failure.