Induction of pancreatic beta-like cell neogenesis

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The recent discovery that genetically-modified α-cells can regenerate and convert into β-like cells in vivo holds great promise for diabetes research. However, to eventually translate these findings to human, it is crucial to discover compounds with similar activities. We report the identification of G8 as an inducer of α-to-β-like cell conversion in vivo. This conversion induces α-cell replacement mechanisms through the mobilization of duct-lining precursor cells that adopt an α-cell identity prior to being converted into β-like cells, solely upon sustained G8 exposure. Importantly, these neo-generated β-like cells are functional and can repeatedly reverse chemically-induced diabetes in vivo. Similarly, the treatment of transplanted human islets with G8 results in a loss of α-cells and a concomitant increase in β-like cell counts, suggestive of α-to-β-like cell conversion processes also in humans. This newly discovered G8-induced α-cell-mediated β-like cell neogenesis could therefore represent an unprecedented hope towards improved therapies for diabetes.

**Patrick COLLOMBAT’s bioketch**

Patrick Collombat studied in Toulouse (France) and subsequently moved to a Max-Planck Institute in Goettingen (Germany) where he obtained his PhD degree in 2003. Following a postdoctorate in the same institute, he was recruited in Nice in 2009. Since then, he is a group leader working on pancreatic beta-cell regeneration.