Articles of Significant Interest in This Issue

Morphogenesis of the Islets of Langerhans Is Guided by Extraendocrine Slit2 and Slit3 Signals

Precise positioning of endocrine cells within the pancreatic islets of Langerhans is required for optimal blood glucose homeostasis; however, the mechanisms underlying this positioning during islet development remain unclear. Gilbert et al. (e00451-20) demonstrate the requirement of Slit-Robo signaling for islet morphogenesis. Slit2 and Slit3 (Slit2/3) are expressed in nonislet tissue, and their simultaneous loss results in fragmented islets. Slit2/3 are found to promote islet formation by preventing aberrant cell migration, presumably via interactions with Robo receptors on the surface of islet endocrine cells. These findings highlight the importance of Slit-Robo in islet development and are key to generating fully functional islets from stem cells in vitro.

Mitosis Flips PHLPP1’s Interactome

The PH domain leucine-rich repeat protein phosphatase 1 (PHLPP1) is a multidomain Ser/Thr phosphatase that dephosphorylates diverse cellular substrates to oppose survival and inflammatory signaling pathways. However, little is known about the molecular mechanisms governing PHLPP1 itself. Kawashima et al. (e00333-20) demonstrate that a unique N-terminal extension of PHLPP1 is phosphorylated by Cdk1 and regulates a change in protein interaction partners during mitosis. Supporting a key role for PHLPP1 in mitosis, its deletion results in mitotic delays and increased chromosomal segregation errors. The regulation of mitosis by PHLPP1 may provide an additional mechanism for its tumor-suppressive function.