

Description of Additional Supplementary Files

File Name: Supplementary Data 1

Description: Detailed information of genotyping primers, generated plasmids, used primary and secondary antibodies and used qPCR probs.

File Name: Supplementary Data 2

Description: Differential expressed genes in *Syt13*^{low} and *Syt13*^{high} endocrine precursors and *Fev*⁺ cells and the corresponding pathway analyses. For statistical analysis, two-sided Welch's t-test was used. Benjamini-Hochberg correction was applied for multiple testing.

File Name: Supplementary Data 3

Description: List of potential Syt13 interaction partner proteins identified by BioID proximity labeling and the corresponding pathway analysis.

File Name: Supplementary Movie 1

Description: 3D reconstruction of whole-mount imaged control pancreata at E18.5.

File Name: Supplementary Movie 2

Description: 3D reconstruction of whole-mount imaged Syt13 KO pancreata at E18.5.

File Name: Supplementary Movie 3

Description: Time-lapse imaging of endocrine cell dynamics from WT pancreata in a 2D culture system.

File Name: Supplementary Movie 4

Description: Time-lapse imaging of endocrine cell dynamics from Syt13 KO pancreata in a 2D culture system.

File Name: Supplementary Movie 5

Description: Time-lapse imaging of Syt13-positive vesicle movement in MDCK cells.

File Name: Supplementary Movie 6

Description: Time-lapse imaging showing colocalization of Syt13-positive vesicles with lysosomes (LysoTracker) in MDCK cells.