Cavβ3 regulates Ca^{2+}-signalling and insulin expression in pancreatic β cells in a cell-autonomous manner

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Supplementary Figure Legend

Supplementary Figure 1. Depolarization-induced Ca^{2+} entry in wild-type and Cavβ3-KO β-cells. (A) Mean Fura-2 (F340/F380) ratiometric traces in the presence of 2 mM extracellular Ca^{2+} before and after addition of 25 mM potassium in wild-type (black) and Cavβ3-KO (red) cells. Application of 2 µM nimodipine reduced Ca^{2+}-entry. **(B)** Resting Ca^{2+}, peak amplitude and area under the curve of the potassium-induced Ca^{2+}-influx, shown as Tukey's box and whiskers with the boxes extend from the 25th to the 75th percentile and the line inside the box shows the median. The inter-quartile ranges (IQR) represent the difference between the 25th and 75th percentiles. Whiskers are extended to the most extreme data point that is no more than 1.5×IQR from the edge of the box and outliers beyond the whiskers are depicted as dots. The indicated P-values were calculated by Mann-Whitney test and the number of measured cells (x) per experiment (y) are indicated as (x/y) in panel B.

Supplementary Figure 2. Cavβ3 inhibits frequency of low (3 mM) glucose induced Ca^{2+} oscillations. (A) Representative Fura-2 (F340/380) ratiometric traces in the presence of extracellular Ca^{2+} from wild-type (black) and Cavβ3-KO (red) β-cells in the presence of 3 mM extracellular glucose. **(B)** Numbers of glucose-evoked Ca^{2+} oscillations per minute (left) and the mean peak amplitude per cell (right) from experiments in A. **(C)** Representative Fura-2 (F340/380) ratiometric traces in the presence of extracellular Ca^{2+} from wild-type β-cells pretreated with vehicle (+vehicle, black) or 10 µM xestospongin C (+Xest. C, gray) for 20 min and xestospongin C was maintained during the whole experiment. **(D)** Numbers of glucose-evoked Ca^{2+} oscillations per minute (left) and mean peak amplitude per cell (right) from experiments in C. Data in B and C are shown as Tukey's box and whiskers with the boxes extend from the 25th to the 75th percentile and the line inside the box shows the median. The inter-quartile ranges (IQR) represent the difference between the 25th and 75th percentiles. Whiskers are extended to the most extreme data point that is no more than 1.5×IQR from the

edge of the box and outliers beyond the whiskers are depicted as dots. The indicated P-values were calculated by Mann-Whitney test and the number of measured cells (x) per experiment (y) are indicated as (x/y). **(E)** Co-immunoprecipitation of the IP3R3. Immunoprecipitations were performed with antibodies against Cavβ3 and anti-IP3-receptor type 3 (IP3R3). Eluted protein complexes were subjected to Western blot using a second independent anti-IP3R3 antibody.

Supplementary Figure 3. Full scans for Western blots (uncropped images) which are shown in main Figures 1B, 1C, 4C, 5E,7K and S2E.