

Online Supplementary Material Figure Legend

Supplementary Figure 1. KD025 inhibits CK2 to protect against GLT. **A** 10 μ M KD025 rescues GLT-induced apoptosis as measured using caspase 3/7 activity (n=5). **B** INS-1E cells were starved at 2.8 mM glucose for 1 hour and stimulated at 16.7 mM glucose for 2 hours. Ratio of secretion between high and low glucose is shown in Fig 1B. 10 μ M KD025 rescues GLT-mediated insulin secretion defect in INS-1E cells (n=5). **C** KD025 has no effect in the viability of INS-1E cells in basal media (n=6). **D** GLT reduces intracellular luciferase, measured as a proxy for insulin content, at 2.8 mM and 16.7 mM glucose. 10 μ M KD025 has no effect in GLT-mediated reduction in insulin content (n=5). **E** Knockdown of *Csnk2a1* but not *Csnk2a2* rescues GLT-mediated insulin secretion defect in INS-1E cells (n=5). **F** Knockdown of either *Csnk2a1* or *Csnk2a2* has no effect in GLT-mediated reduction in insulin content (n=5). **G-H** INS-1E cells treated with a combination of siRNA against *Csnk2a1* as well as 10 μ M KD025 do not have additive protective effect against GLT-induced reduction in cell viability (n=6) (**G**) and insulin secretion (n=5) (**H**). Statistical analysis was performed using unpaired t-test (*p<0.05; **p<0.01; ***p<0.001).

Supplementary Figure 2. Whole western blots. **A** Western blot result showing the degree of ROCK2 inhibition. Box with dashed line is the cropped region shown in Fig. 1F. **B** Western blot result showing reduced CK2A1 protein expression when treated with siRNA against *Csnk2a1*. Box with dashed line is the cropped region shown in Fig. 3E. **C** Western blot result showing reduced CK2A2 protein expression when treated with siRNA against *Csnk2a2*. Box with dashed line is the cropped region shown in Fig. 3I. **D** Western blot showing the transient expression of C-terminal CK2A1::FLAG fusion protein. Box with dashed line is the cropped region shown in Fig. 4A.