

Cell Reports, Volume 43

Supplemental information

**Sympathetic NPY controls
glucose homeostasis, cold tolerance,
and cardiovascular functions in mice**

Raniki Kumari, Raluca Pascalau, Hui Wang, Sheetal Bajpayi, Maria Yurgel, Kwaku Quansah, Samer Hattar, Emmanouil Tampakakis, and Rejji Kuruvilla

NPY^{DBH}-tdTomato Mouse

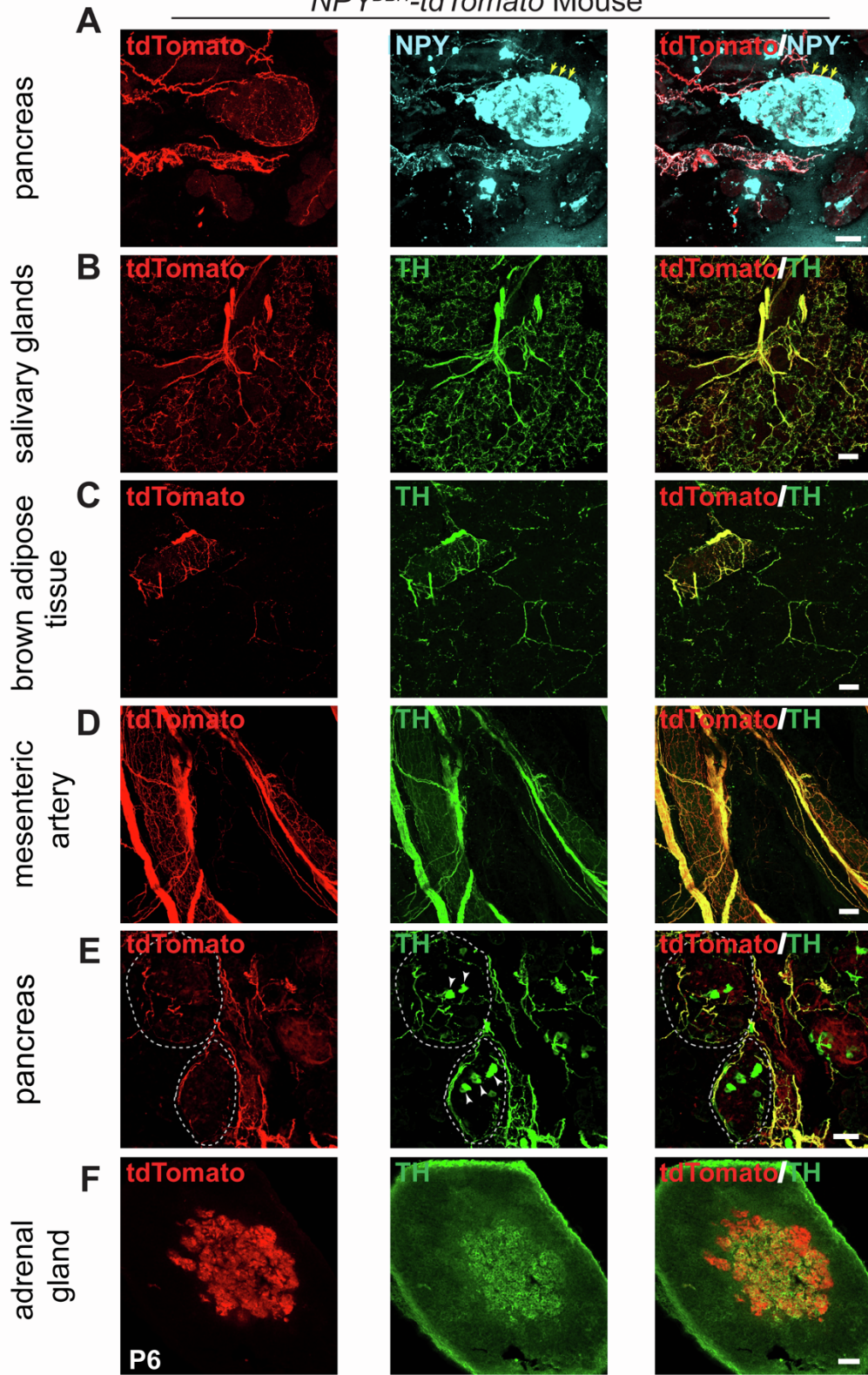


Figure S1. Innervation of peripheral organs by NPY^{DBH}-tdTomato sympathetic axons.

Related to Figure 2. (A) TdTomato reporter signal (red) is observed in axons innervating pancreatic islets, but not seen in islet endocrine cells which show intrinsic NPY immunoreactivity (cyan, yellow arrows) in NPY^{DBH}-tdTomato mice. **(B, C)** Partial overlap of TH immunoreactivity with tdTomato reporter signal in axons innervating paravertebral targets, salivary glands (B) and BAT (C). **(D-F)** Complete overlap of tdTomato reporter expression with TH immunostaining in mesenteric artery (D) and pancreatic islets (E), which are prevertebral targets, as well as adrenal chromaffin cells (F). Note that TH is also expressed in some islet endocrine cells (white arrowheads in E). Scale bars, 50 μ m.

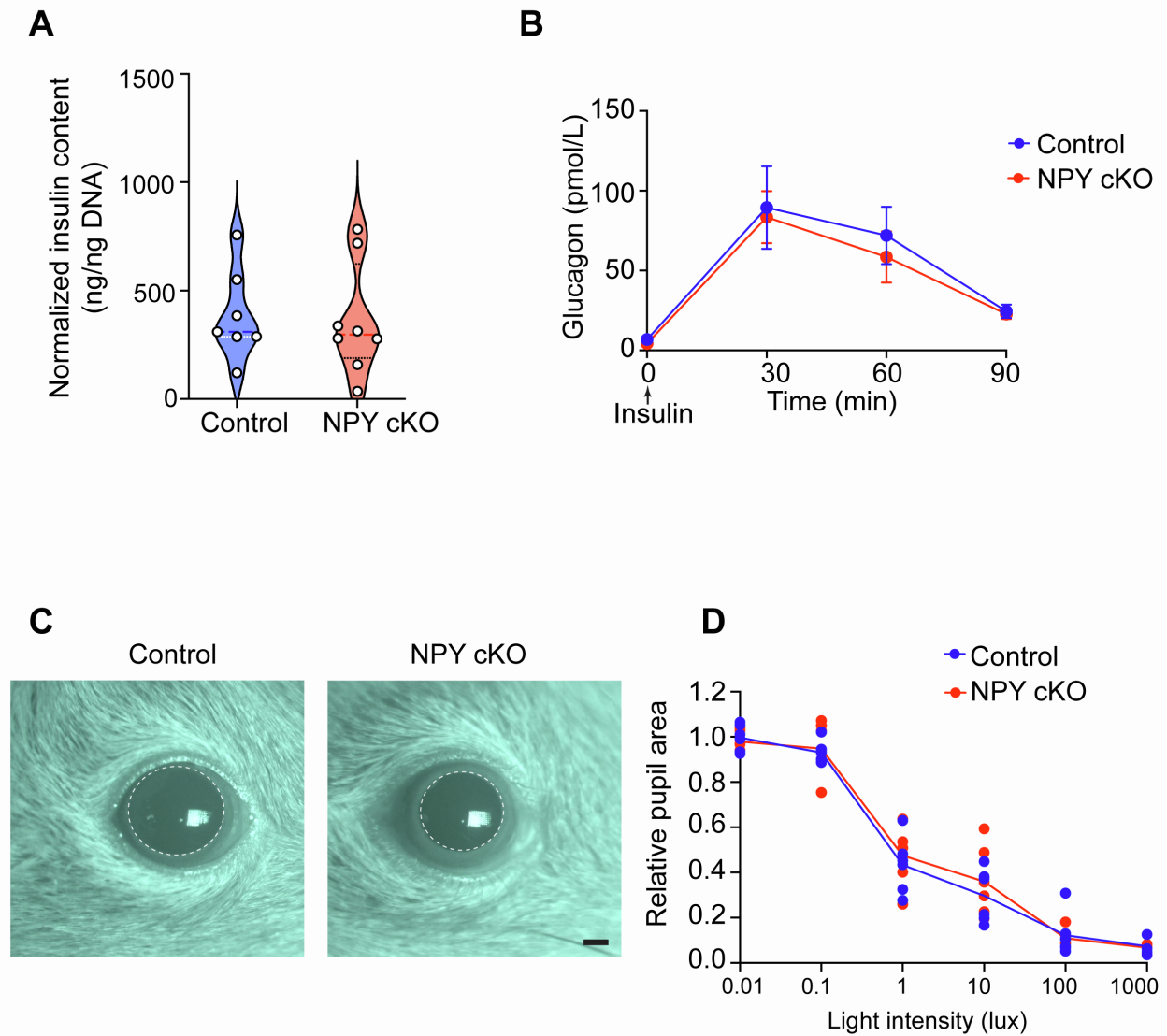


Figure S2. Additional functional analyses in NPY cKO mice. Related to Figure 5

(A) Total insulin content in pancreatic islets is unaffected in NPY cKO mice. Insulin content is normalized to total islet DNA content. Results are means \pm s.e.m from islets isolated from $n=7$ control and 8 mutant mice, unpaired t-test. **(B)** NPY cKO mice show a similar increase in plasma glucagon levels in response to insulin-induced hypoglycemia (i.p. injection of 0.75U/kg insulin after 6 hr fasting) as control animals. Results are means \pm s.e.m from $n=9$ control, 11 mutant mice, two-way ANOVA, Sidak's multiple comparisons tests. **(C)** Representative pupil images of control

and mutant mice. Pupil areas are shown by white dotted circles. Mutant mice show reduced pupil size. Scale bar, 160 μm . **(D)** Pupil constriction in response to increasing light intensities is comparable between control and mutant mice indicating normal parasympathetic activity in NPY cKO mice. Results are means \pm s.e.m. from n=6 mice per genotype, two-way ANOVA with Bonferroni's correction.