ESM Fig.3 Analysis of Mafa KO islets
(a-d) Labeling efficiency of lineage tracing in this study. The MafaKO;RIPCreER;Rosa-YFP (a: n=4) and control (wild-type or Mafa +/-;RIPCreER;Rosa-YFP (b: n=4) mice at 4 weeks of age and wild-type;RIPCreER;Rosa-YFP mice at 8 weeks of age (c: n=3) were given tamoxifen at days 1 to 4. At day 7, pancreases of these mice were analyzed for the expression of YFP (green) and insulin (INS; red) by immunofluorescence, and representative islets are shown. (d) The proportions of YFP+ cells/insulin+ cells in the MafaKO;RIPCreER;Rosa-YFP (a) and control;RIPCreER;Rosa-YFP (b) mice at 4 weeks of age and wild-type;RIPCreER;Rosa-YFP mice at 8 weeks of age (c). In total, 5183, 4834 and 2947 insulin+ cells were quantified. (e) Proportion of glucagon+ cells in the MafaKO;RIPCreER;Rosa-YFP islets. Glucagon+ cells in the pancreas of MafaKO;RIPCreER;Rosa-YFP (n=4) and control (wild-type or Mafa +/-;RIPCreER;Rosa-YFP (n=6) and wild-type;RIPCreER;Rosa-YFP mice (n=6) mice at 12 weeks of age used for the lineage tracing studies (Fig. 2g-n) were quantified. Proportions of glucagon+ cells/islet cells are shown. In total, 1102/4723 (KO at 4 weeks), 969/4114 (control at 4 weeks), 1499/5841 (KO at 12 weeks) and 561/3277 (control at 12 weeks) glucagon+ cells/islet cells were counted. (f-h) Proliferation of alpha cells in the Mafa KO pancreas. (f, g) Representative islets of Mafa KO mice and their wild-type littermates 24 hours after the injection of BrdU (100 mg BrdU/kg body weight). BrdU (green), glucagon (GCG; red) and DAPI (blue). The higher magnification of the demarcated area shows BrdU+ glucagon+ cells. (h) Quantification of the BrdU+ cells among the glucagon+ cells. In total, 2173 and 1832 glucagon+ cells were counted in the Mafa KO and wild-type pancreas. n=5 for each genotype. (i) The mRNA expression of the indicated factors in the islets of the Mafa KO mice at 7 weeks of age relative to the wild-type islets analyzed by qRT-PCR. n=3. *: p<0.05 relative to wild-types. The data represent the mean ± SEM. Scale bars, 20 μm.