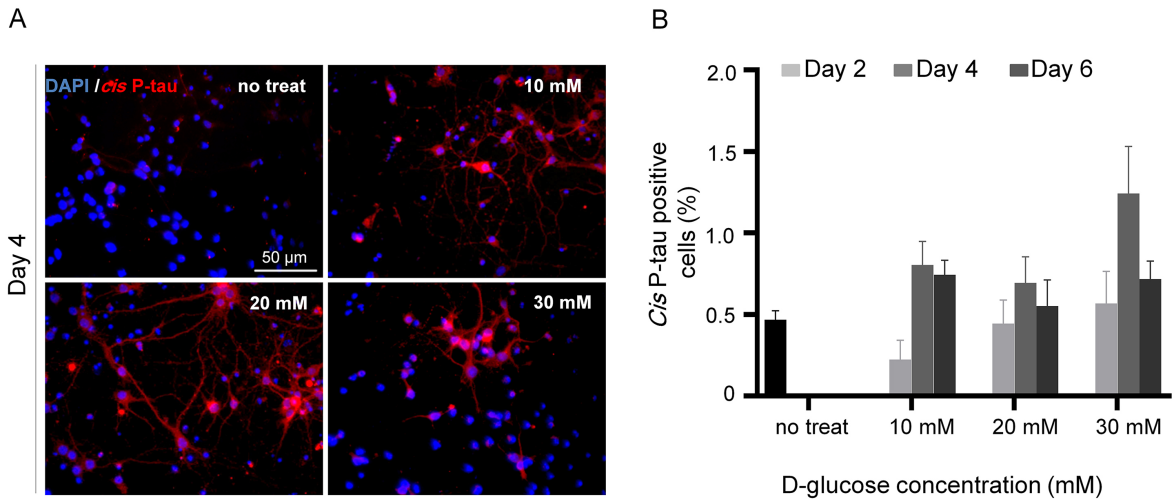
Supplementary data

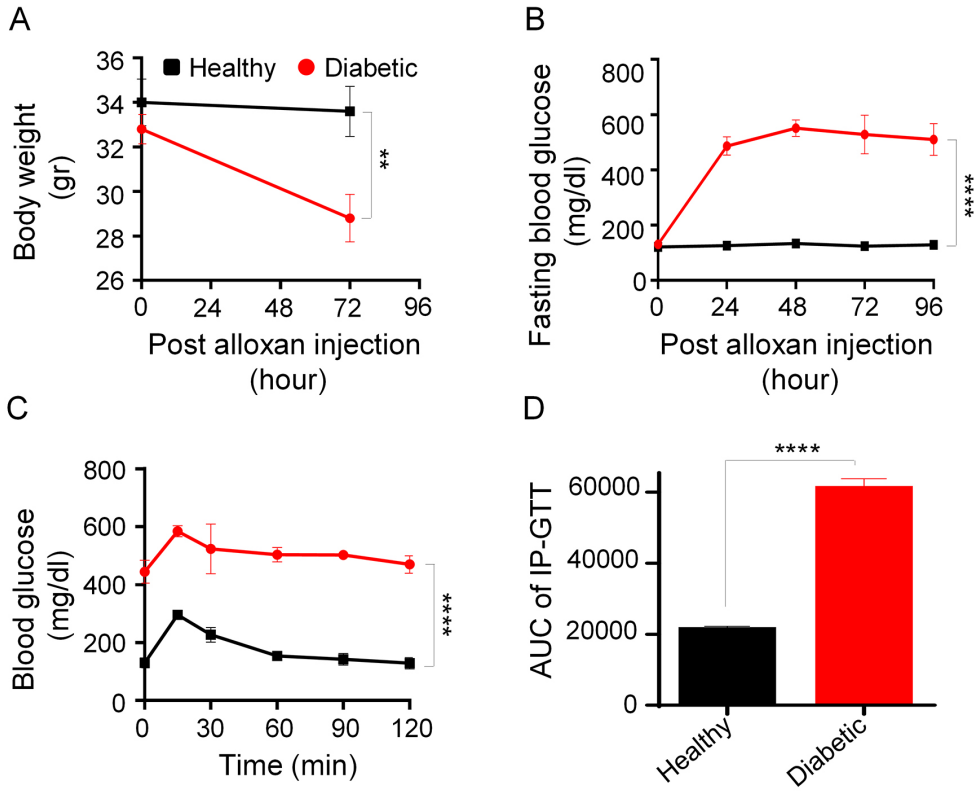
Supplementary Fig. 1



***In vitro* hyperglycemia induction with D-glucose.**

(**A**) Induction of hyperglycemia with different concentrations of D-glucose on different days showed that 10 mM, 20 mM and 30 mM D-glucose concentration couldn't efficiently induce *cis* P-tau formation in primary neuron culture. (**B**) Quantification analysis of part A.

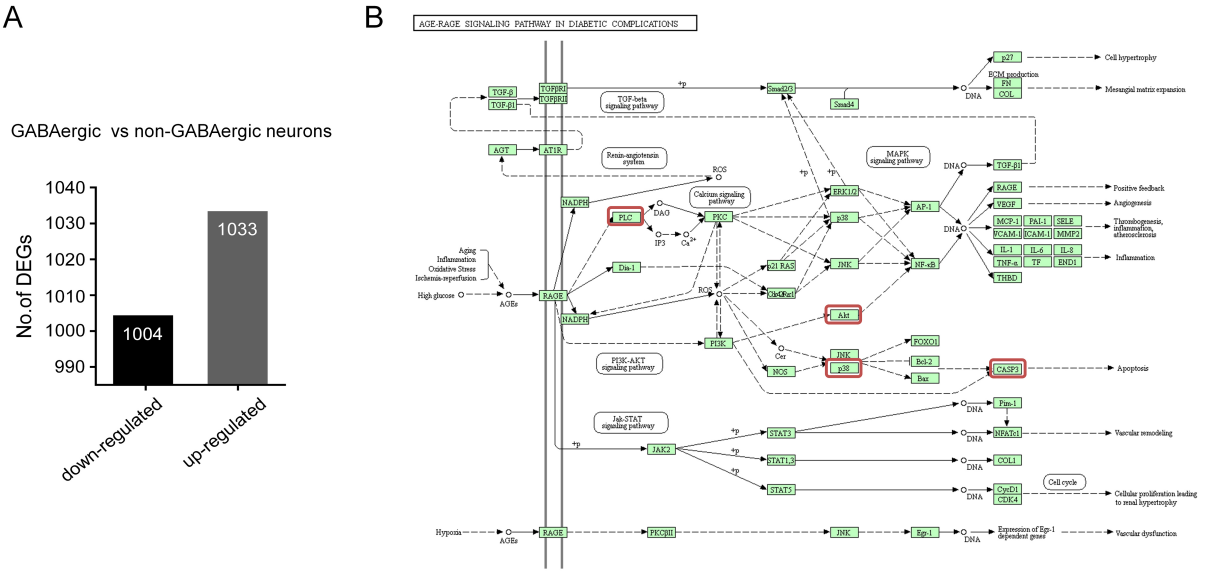
Supplementary Fig. 2



T1D modeling with alloxan.

(**A**) T1DM modeling was induced with 70 mg/kg single dose alloxan in NMRI mice. Body weight (gr) in diabetic and healthy mice was measured after 3 days. Body weight of diabetic mice was significantly lower than healthy mice, $^{**}p < 0.01$. (**B**) Fasting blood glucose level was measured every day in healthy and diabetic mice. Diabetic mice FBS was significantly higher than healthy mice, $^{****}p < 0.0001$. (**C**) Glucose tolerance test was done with injection of 2g/kg D-glucose in 96 hours of diabetic mice. Measurement of blood glucose at 15, 30, 60, 90 and 120 min showed elevated blood glucose in diabetic group, $^{****}p < 0.0001$. (**D**) Area under curve of glucose tolerance test results in diabetic mice was significantly higher than healthy mice, $^{****}p < 0.0001$. Data represented as mean ± SD. AUC: area under curve.

Supplementary Fig. 3



Differentially expressed gene analysis for midbrain GABAergic neurons. (**A**) Bar plot analysis for differentially expressed genes both in GABAergic and other neurons type. (**B**) AGE/RAGE signaling pathway in diabetes complications in detail. No. of DEGS: number of differentially expressed genes.