

Hedgehog Interacting Protein (Hhip) Regulates Insulin Secretion in Mice Fed High Fat Diets

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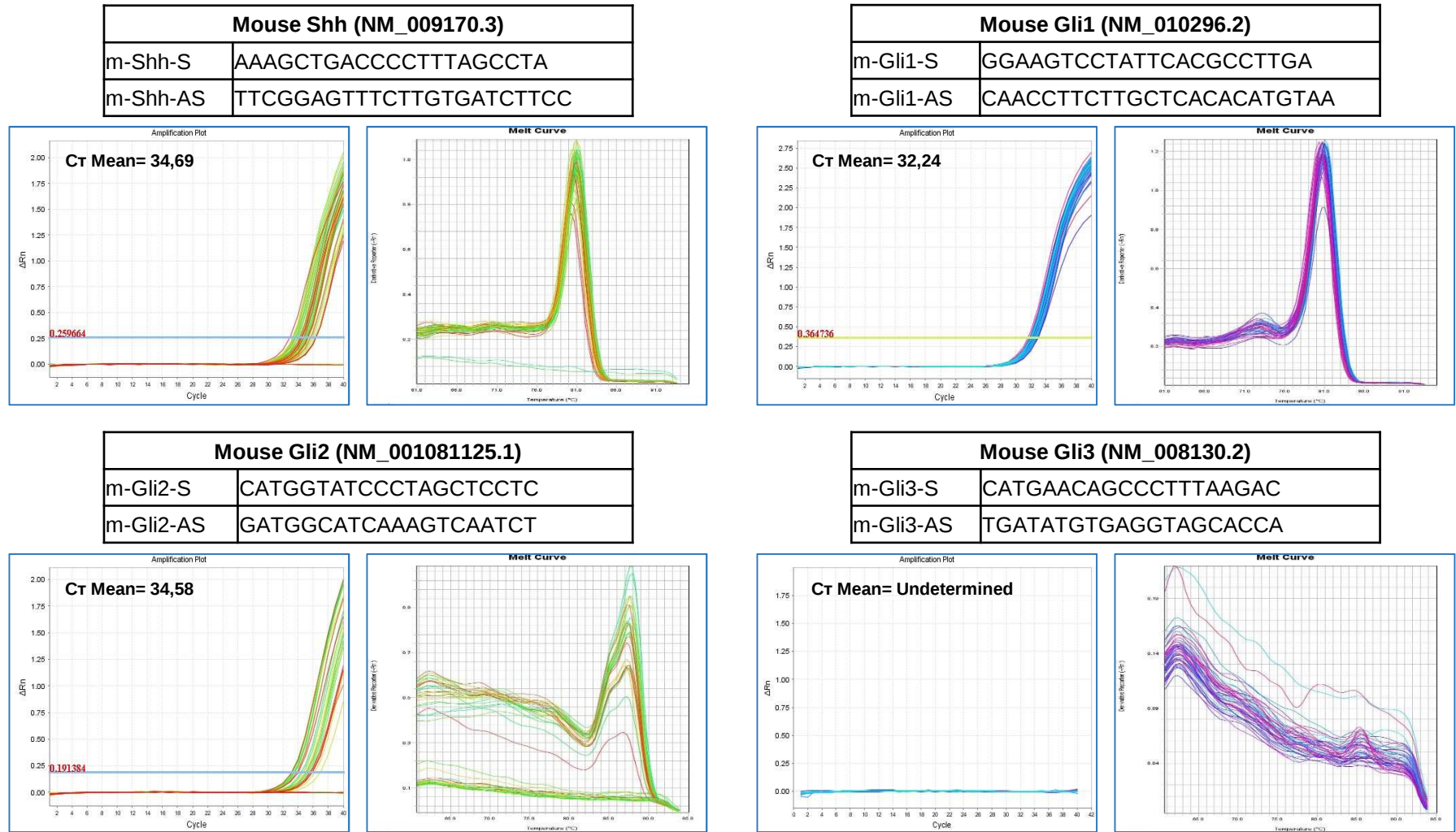
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Short Title: Hedgehog interacting protein (Hhip) gene and pancreatic beta cell dysfunction

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(a) Mouse Islets-qPCR



(b) qPCR Protocol

qPCR cycling protocol		
Activation	Denature	Anneal/ extend
2 min @ 95°C	40 cycles, 3 sec @ 95°C	40 cycles, 30 sec @ 60°C

Fig. S1. Shh-Glis mRNA expression in male mouse islets (Hhip ^{+/+} vs Hhip ^{+/-}; ND vs HFD) at 14 week-old. (a) qPCR data (CT and melting curves; Primers Sequences); (b) qPCR cycling protocol

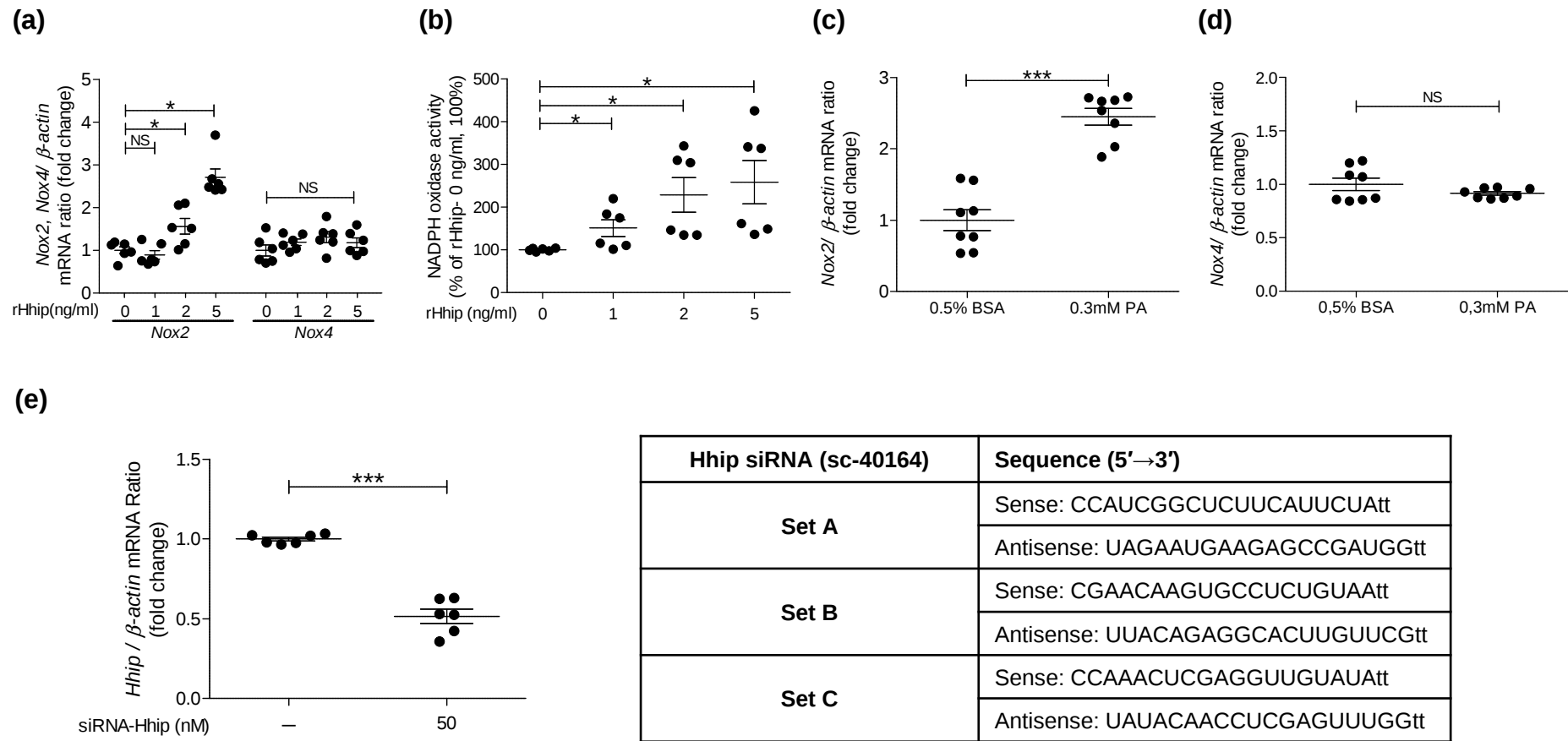


Fig. S2. The *in vitro* studies. (a) qPCR (*Nox2* and *Nox4* mRNA expression) in cells treated by rHhip (0-5ng/ml). (b) NADPH activity in cells treated by rHhip (0-5ng/ml); (c-d) qPCR (c, *Nox 2 mRNA*; d, *Nox4 mRNA*) in cells treated by PA (0.3mM). (e) qPCR (Hhip-siRNA efficiency) and Hhip-siRNA sequences. Three to four separated experiments; Data shown as mean $\pm$ SEM; 1 way-ANOVA followed by Bonferroni's post hoc test; * $p \leq 0.05$; *** $p \leq 0.001$; NS, non-significant vs INS-1 832/13 cells cultured in medium with 0.5% BSA (100%).

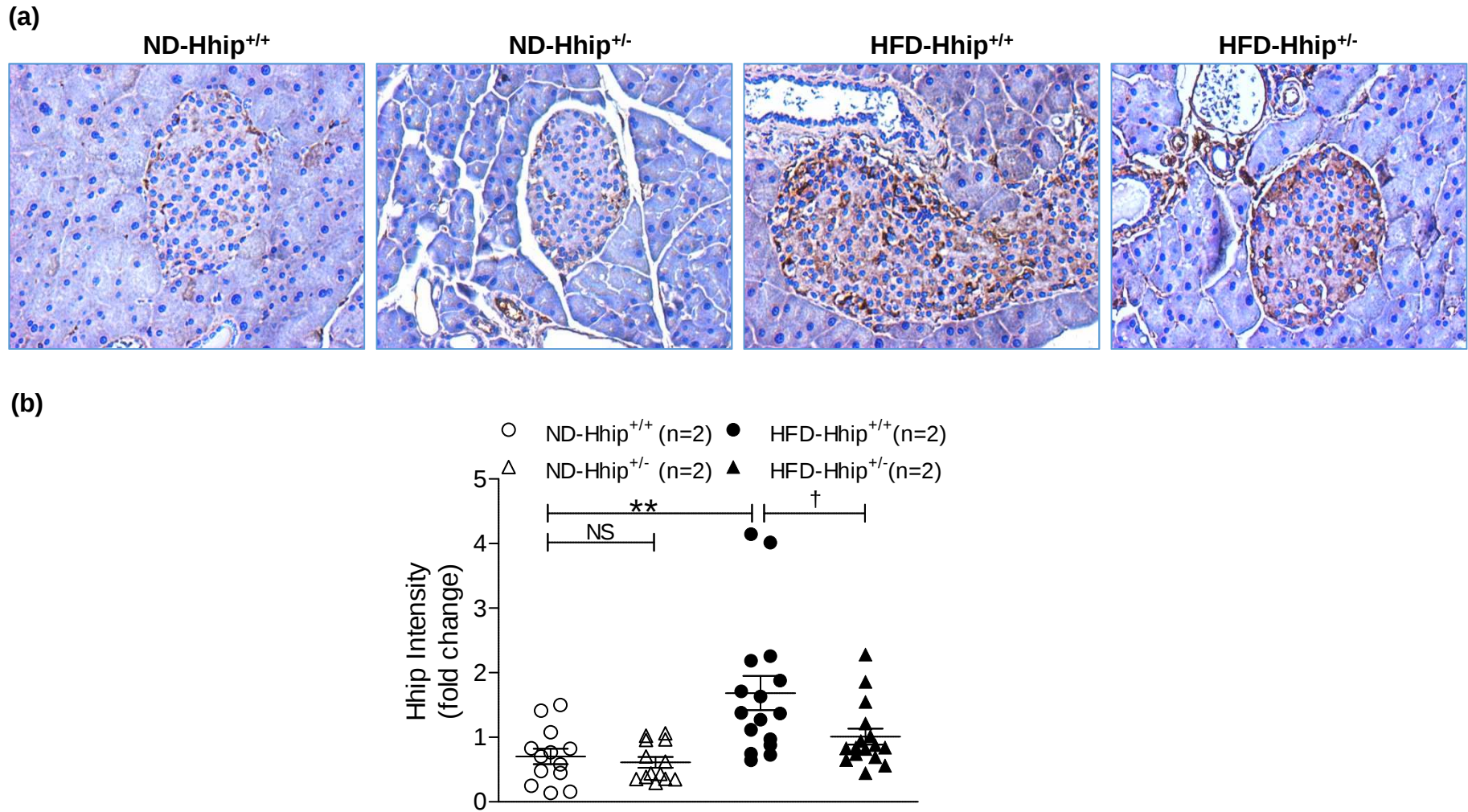


Fig. S3. Hhip-IHC in the islets among 4 subgroups of female mice (Hhip^{+/+} vs Hhip^{+/-}; ND vs HFD; n=2/group) at 14 week-old. (b) Semi-quantification of staining; ND-Hhip^{+/+} (n=2, 13 islets); ND-Hhip^{+/-} (n=2, 13 islets); HFD-Hhip^{+/+} (n=2, 16 islets); HFD-Hhip^{+/-} (n=2, 16 islets); Data shown as mean $\pm$ SEM; 1 way-ANOVA followed by Bonferroni's post hoc test. * $p \leq 0.05$; ** $p \leq 0.01$ vs. ND-Hhip^{+/+}; † $p \leq 0.05$ HFD-Hhip^{+/+} vs. HFD-Hhip^{+/-}; NS, non-significant.