

Online Supplemental Material

Supplemental Table S1

Complete list of Hcrt neuron enriched transcripts.

Symbol: Official gene symbol. *ID*: Affymetrix Probset ID. *Exprs*: Microarray expression level, arbitrary Units. *FC*: 'Fold change' of Hcrt neurons compared to whole diencephalon RNA. *pSI*: Significance of enrichment, compared to all published cell types (19, 20) – an indication of uniqueness to Hcrt neurons within the brain. *Average ISH Score*: Manual scoring of Allen Brain Atlas (24) ISH patterns, average of two scorers.

Supplemental Table S2

Complete list of Hcrt neuron expressed transcripts.

Symbol: Official gene symbol. *ID*: Affymetrix Probset ID. *Exprs*: Microarray expression level, arbitrary Units. *FC*: 'Fold change' of Hcrt neurons compared to whole diencephalon RNA. *pSI*: Significance of enrichment, compared to all published cell types (19, 20) – an indication of uniqueness to Hcrt neurons within the brain.

Supplemental Table S3

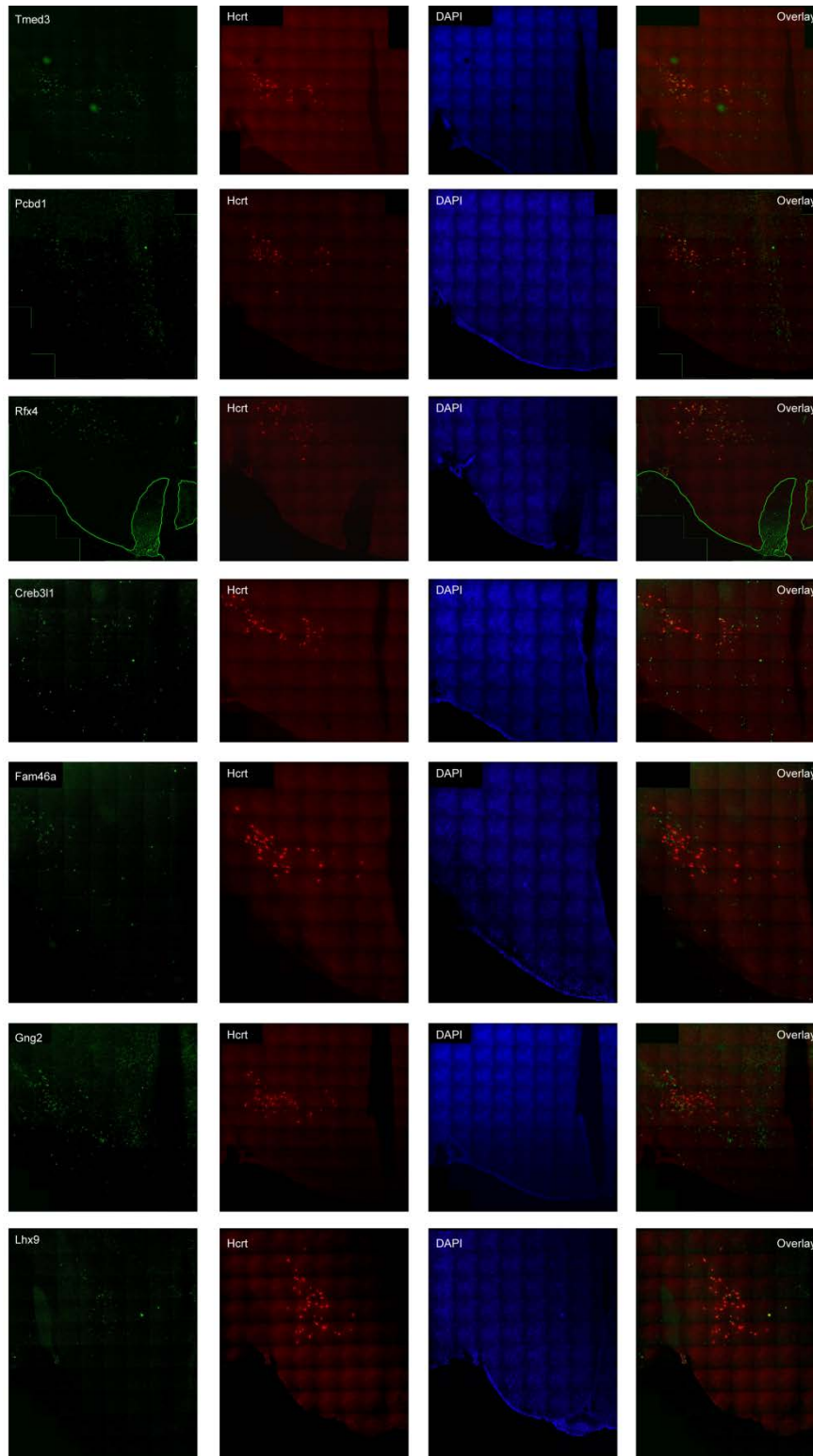
Genes and primers for *in situ* hybridization.

Supplemental Table S4

Antibodies and suppliers.

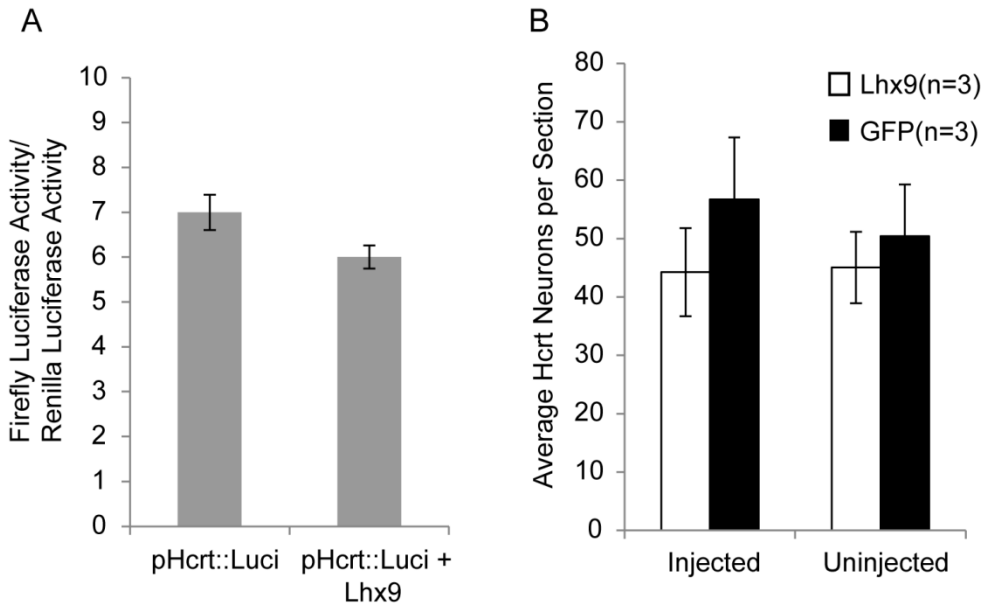
Supplemental Figure 1

Representative low power images of transcripts which show nearly completed overlap in Hcrt neurons.



Supplemental Figure 2

Lhx9 does not regulate the Hcrt promoter *in vitro* or *in vivo*



A) Luciferase assays in neuroblastoma cell line overexpressing Lhx9 do not induce activity of Hcrt promoter (T-test, $p > .05$). B) Unilateral overexpression of the Lhx9 in the lateral hypothalamus of wild type mice (C57/Bl6) using a lentiviral vector did not affect the number of Hcrt neurons compared to the contralateral hypothalamus without injection. Number of Hcrt neurons also did not differ when compared to control mice with unilateral GFP overexpression using a lentiviral vector (T-test, $p > .05$).