A

B

C

D

E

Relative mRNA

Relative mRNA

Relative mRNA

Relative mRNA

Relative mRNA

Pituitary

Ovary

Liver

Duodenum

Jejunum

Ileum

Colon

Pancreas

Body weight

Food intake

fl/fl

KO

fl/fl

KO

fl/fl

KO

fl/fl

KO

fl/fl

KO

fl/fl

KO

fl/fl

KO

fl/fl

KO

fl/fl

KO

fl/fl

KO
Figure S1. Specific deletion of Lrh1 in kisspeptin neurons. A, In situ hybridization for Lrh-1 in arcuate of Lrh1<sup>fl/fl</sup>(fl/fl) and Lrh1<sup>Kiss-1-/-</sup>(KO) female mice (dark field microscopy, 20x magnification, scale bars: 50μm). B-D, Lrh1 mRNA levels in the pituitary (B), ovary (C) and other tissues (D) of fl/fl and KO female mice (n=8 per group). E, Body weight and food intake data for fl/fl and KO mice (n=5-7 per group). Error bars represent standard error of the mean.
A

Before Cre recombination

- CAG promoter
- LoxP
- LacZ
- Triple pA signal
- LoxP

After Cre recombination

- CAG promoter
- LoxP
- Lrh1
- IRES
- Egfp

B

Pituitary

|               | Con | Lrh1 Tg |
|---------------|-----|--------|
| Relative mRNA |     |        |
| 0.4           |     | 1.6    |
| 0.8           |     | 0.8    |
| 1.2           |     | 1.2    |
| 1.6           |     | 0.4    |

C

Ovary

|               | Con | Lrh1 Tg |
|---------------|-----|--------|
| Relative mRNA |     |        |
| 0.4           |     | 1.2    |
| 0.8           |     | 0.8    |
| 1.2           |     | 1.6    |
| 1.6           |     | 1.6    |
**Figure S2.** Generation of the kisspeptin neuron-specific *Lrh1*-transgenic mouse line. **A,** Schematic of the CAG-Z-*Lrh1* transgene cassette. Cre-recombination removes the LacZ-reporter and the triple polyA transcriptional stop signal. *Lrh1* expression is unchanged in the **B,** pituitary and **C,** ovary (n=4 per group). Error bars represent standard error of the mean.