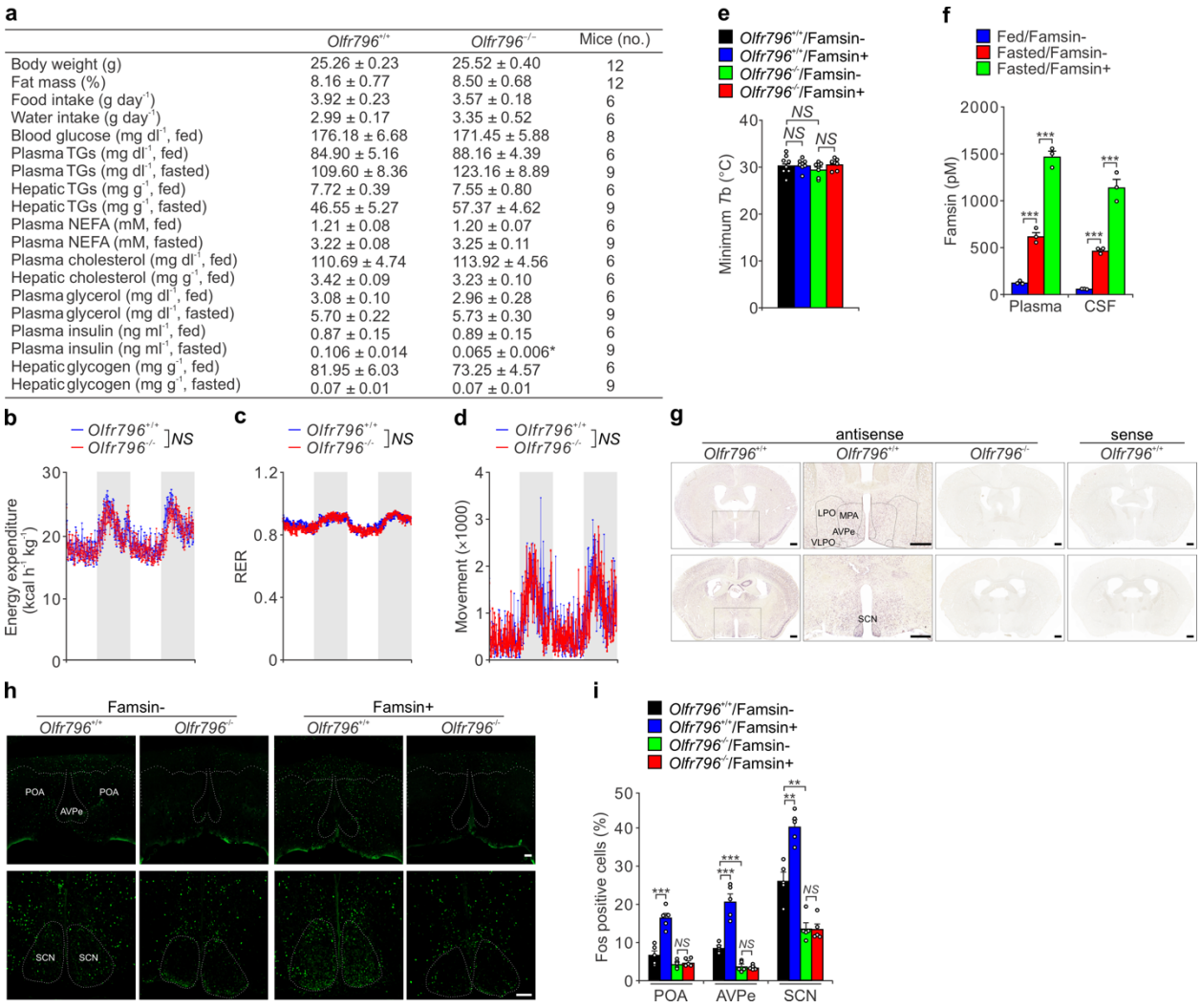

	Olfr796$^{+/+}$	*Olfr796*$^{-/-}$	Mice (no.)
Body weight (g)	25.26 ± 0.23	25.52 ± 0.40	12
Fat mass (%)	8.16 ± 0.77	8.50 ± 0.68	12
Food intake (g day^{-1})	3.92 ± 0.23	3.57 ± 0.18	6
Water intake (g day^{-1})	2.99 ± 0.17	3.35 ± 0.52	6
Blood glucose (mg dl^{-1}, fed)	176.18 ± 6.68	171.45 ± 5.88	8
Plasma TGs (mg dl^{-1}, fed)	84.90 ± 5.16	88.16 ± 4.39	6
Plasma TGs (mg dl^{-1}, fasted)	109.60 ± 8.36	123.16 ± 8.89	9
Hepatic TGs (mg g^{-1}, fed)	7.72 ± 0.39	7.55 ± 0.80	6
Hepatic TGs (mg g^{-1}, fasted)	46.55 ± 5.27	57.37 ± 4.62	9
Plasma NEFA (mM, fed)	1.21 ± 0.08	1.20 ± 0.07	6
Plasma NEFA (mM, fasted)	3.22 ± 0.08	3.25 ± 0.11	9
Plasma cholesterol (mg dl^{-1}, fed)	110.69 ± 4.74	113.92 ± 4.56	6
Hepatic cholesterol (mg g^{-1}, fed)	3.42 ± 0.09	3.23 ± 0.10	6
Plasma glycerol (mg dl^{-1}, fed)	3.08 ± 0.10	2.96 ± 0.28	6
Plasma glycerol (mg dl^{-1}, fasted)	5.70 ± 0.22	5.73 ± 0.30	9
Plasma insulin (ng ml^{-1}, fed)	0.87 ± 0.15	0.89 ± 0.15	6
Plasma insulin (ng ml^{-1}, fasted)	0.106 ± 0.014	0.065 ± 0.006*	9
Hepatic glycogen (mg g^{-1}, fed)	81.95 ± 6.03	73.25 ± 4.57	6
Hepatic glycogen (mg g^{-1}, fasted)	0.07 ± 0.01	0.07 ± 0.01	9

Supplementary information, Fig. S5. Effect of *Olfr796* knockout on metabolism.
a Effect of *Olfr796* knockout on metabolic parameters including body weight, fat mass, food intake, water intake, blood glucose, hepatic triglycerides (TGs) and cholesterol, hepatic glycogen, plasma triglycerides (TGs), NEFAs, cholesterol, glycerol and plasma insulin levels in 8-10-week-old male mice. Data are shown as mean ± s.e.m. Comparison of different groups was carried out using unpaired two-tailed Student's *t*-test. *p < 0.05. **b-d** Effect of *Olfr796* knockout on energy expenditure (**b**), RER (**c**) and movement (**d**) in 8-10-week-old male mice. The white and grey backgrounds indicate 12-hr periods of light and darkness, respectively. Data are shown as mean ± s.e.m. Comparison of different groups was carried out using two-way ANOVA followed by Tukey's test. *NS*, no statistical significance. n = 6 mice. **e** Effect of *Olfr796* knockout on minimum *T*b in 8-week-old male mice treated with or without famsin. Famsin (400 μg kg^{-1}) was intraperitoneally injected after 4 hr fasting. Data are shown as mean ± s.e.m. Comparison of different groups was carried out using two-way ANOVA followed by Tukey's test. *NS*, no statistical significance. n = 8 mice. **f** Plasma and cerebrospinal fluid (CSF) famsin levels from fed or overnight fasted 8-10-week-old male mice. Famsin (400 μg kg^{-1}) was intraperitoneally injected. Data are shown as mean ± s.e.m. Comparison of different groups was carried out using one-way ANOVA followed by Tukey's test. ***p < 0.001. n = 15 mice (each dot represents a value from the CSF mixture of 5 mice). **g** *In situ* hybridization showing relative mRNA levels of *Olfr796* in POA (preoptic area), AVPe (anteroventral periventricular nucleus) and SCN (suprachiasmatic nucleus) from ad lib-fed mice. MPA, medial POA; LPO, lateral POA; VLPO, ventrolateral POA. Scale bars, 500 μm. **h-i** Effect of famsin on neuronal activation evaluated by c-Fos staining (**h**) and quantification of Fos-positive cells (**i**). Famsin (400 μg kg^{-1}) was intraperitoneally injected after 4 hr fasting. Scale bars, 100 μm. Data are shown as mean ±

s.e.m. Comparison of different groups was carried out using two-way ANOVA followed by Tukey's test. **$p < 0.01$, ***$p < 0.001$. *NS*, no statistical significance. n = 5 mice.