

## Table S1.

### Taqman probes used for real-time PCR

<b>Gene</b>	<b>Name</b>	<b>Accession Nr.</b>
Luciferase	Firefly luciferase enzyme	AIY9ZTZ
dio2	Type 2 deiodinase	Mm00515664_m1
GAPDH	glyceraldehyde-3-phosphate dehydrogenase	Mm99999915_g1

**Table S2.****Serum free thyroid hormone levels and body weight of THAI mice**

	<b>WT</b>	<b>THAI #4</b>	P value	<b>THAI #23</b>	P value	<b>THAI #18</b>	P value
fT4 (pmol/L)	13.44 ± 1.81	10.57 ± 1.96	0.325	12.86±1.44	0.811	12.89±2.03	0.846
fT3 (pmol/L)	5.33 ± 0.74	4.26 ± 0.41	0.249	4.27±0.36	0.247	4.40±0.39	0.309
body weight (g)	29.83 ± 1.27	32.93 ± 1.31	0.14	28.33±0.42	0.223	27.5±1.51	0.344

Results are expressed as means ± SEM (n=4). No significant difference was found (wt vs. THAI) by Student's t-test.

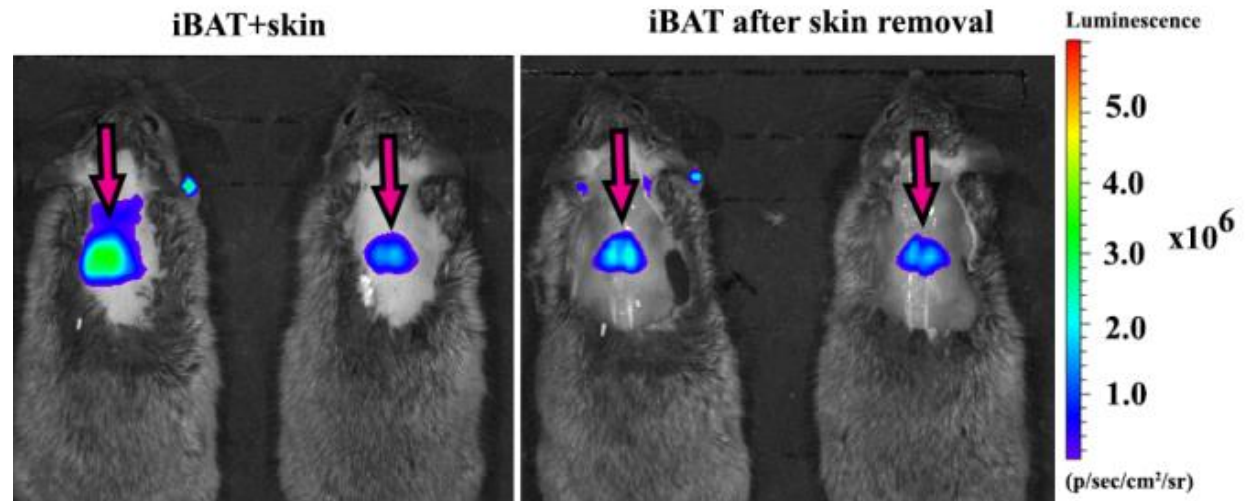
## Table S3.

### Metabolic phenotyping and body composition of THAI mice

	WT	THAI #4	P value
lean body mass %	80.51 ± 2.03	81.92 ± 1.53	0.6
fat mass %	13.07 ± 2.27	12.79 ± 1.77	0.92
daily average RER VCO <sub>2</sub> /VO <sub>2</sub>	0.86 ± 0.03	0.86 ± 0.01	0.91
daily average VO <sub>2</sub> (ml/kg lean body/h)	3746.49 ± 328	4072.59 ± 184	0.42

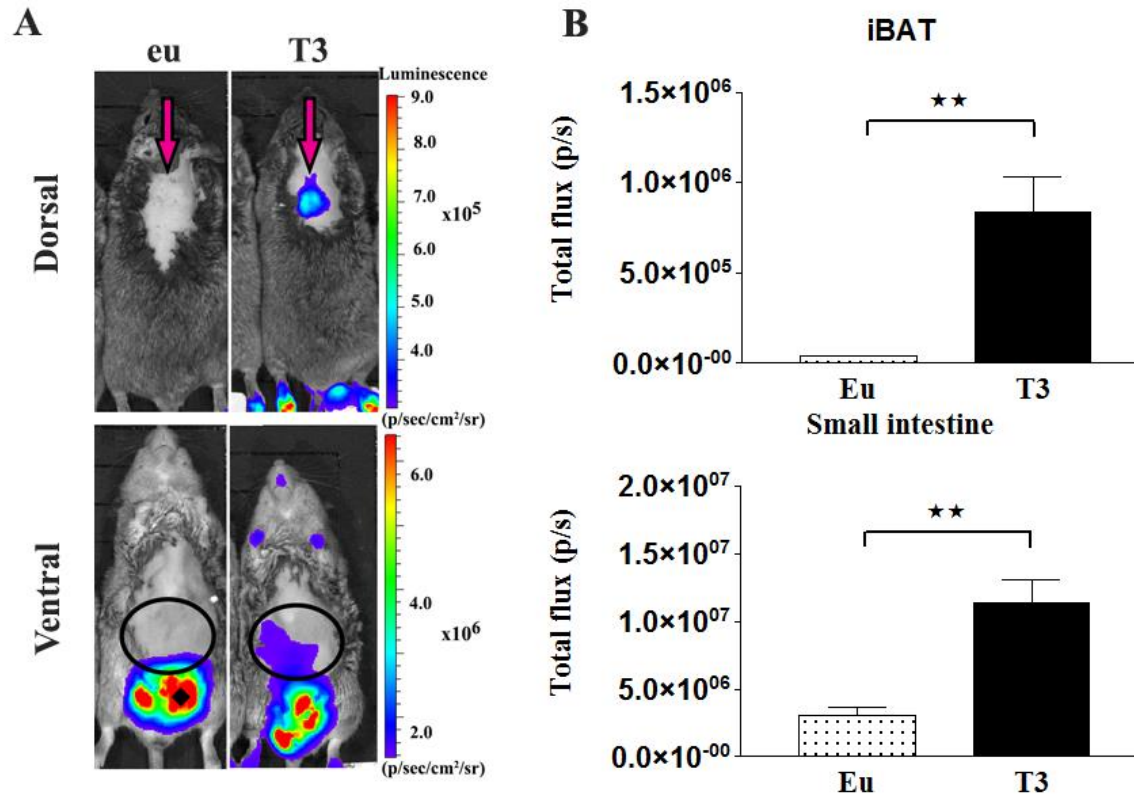
Results are expressed as means ± SEM (n=4). No significant difference was found (wt vs. THAI) by Student's t-test.

**Fig. S1.**



Bioluminescence in #4 THAI mice. Bioluminescence of the interscapular region of live THAI #4 mice originates from the iBAT. Animals were injected with L-T3 (1  $\mu\text{g/g}$  bw *i.p.* 24h before imaging). The animals were anesthetised before imaging. Intact animal (left) and direct imaging of iBAT after removal of skin of the interscapular region (right).

**Fig. S2.**



Detection of TH action in live #23 animals. (a) In vivo bioluminescence imaging on euthyroid and L-T3-treated (1  $\mu\text{g/g}$  bw injected i.p. 24h before imaging) THAI #23 mice followed by i.p. luciferin administration. Representative images of euthyroid (eu) and L-T3 treated (T3) mice and light intensity diagram of iBAT and small intestine. L-T3 injection increased light intensity in iBAT and small intestine. Dorsal image arrow: iBAT; Ventral image circle: intestine;  $\blacklozenge$ : testicles (b) Light intensity diagram (photon/sec) of luciferase activity in iBAT and small intestine of euthyroid and L-T3-treated THAI #23 mice. Mean of photon/sec  $\pm$  SEM (n=5) \*\* P<0.01 by Student's t-test.