

**Supplemental Table S1.** Criteria used to score the reflexes of rats anesthetized by emulsified isoflurane (EISO).

Reflexes	Score	Observation
Palpebral reflex	3	Stimulating eyelids with cotton swabs, appearance of dodging, closing eyes, blinking
	2	Slow or diminished response
	1	No response to stimulation was observed
Corneal reflex, CR	3	Stimulation of cornea with hard stubble, appearance of obvious contractions, tremors, and blinking of eyelids
	2	Slow or diminished response
	1	No response to stimulation was observed
Perianal reflex	3	Squirting the anus of the rat with a needle, and obvious anal contractions
	2	Only weak response
	1	No response to stimulation was observed

**Supplemental Table S2.** Criteria used to score the anesthetic effects of EISO in rats.

Criteria	Score	Observation
Sedation score	0	Normal
	1	Mild sedation (recumbent, head down, strong palpebral reflex, and normal eye position)
	2	Moderate sedation (recumbent, head down, moderate palpebral reflex, and partial ventromedial eye rotation)
	3	Profound sedation (recumbent, head down, absence of palpebral reflex, and complete ventromedial eye rotation)
Analgesia score	0	Normal (productive flight response)
	1	Mild (exaggerated movements of limbs and trying to get up)
	2	Moderate (slight movements of the limbs and trying to get up)
	3	Profound (lack of response)
Muscle relaxation score	0	Normal
	1	Mild relaxation of leg tone
	2	Moderate relaxation of leg tone
	3	Profound relaxation of leg tone
Posture score	0	Normal
	1	Sternal recumbency
	2	Lateral recumbency
Auditory response score	0	Normal
	1	Mild decrease in response (eye movement with body movement)
	2	Moderate decrease in response (eye movement without body movement)
	3	Profound decrease in response (no movement)

**Supplemental Table S3.** The primer sequences of the target genes and the internal reference genes.

Gene	Primer Sequences (5'-3')	GenBank Accession <sup>b</sup>	Product Size
<i>GABA<sub>A</sub>α1</i>	F <sup>a</sup> : AAACCTTTAACAGCGTCAGCA R <sup>a</sup> : CAGGAATCACTGCGTTGAGA	NM_183326.2	214
<i>NMDANR1</i>	F: TCTGCAACTTGATTTCCACCT R: GCGTCTGAGGAAGCCTATTG	NM_001270602.1	221
<i>NR2B</i>	F: AAGACAAGGGCCGATTCAT R: GGTCAAGGTAGAGCGACTTG	NM_012574.1	161
<i>Oprm1</i>	F: GATCCTCTCTTCTGCCATCG R: CAGGCCGTAACACACAGTGA	NM_001038597.2	186
<i>ERK 1/2</i>	F: AACAAACATACCGAGGTGGAG R: CTGGGATGAGCCGTATGAG	NM_053842.2	176
<i>JNK</i>	F: TGGTGATAGATGCGTCCAAA R: ACGGCTGCCCTCTTATGAC	NM_053829.2	224
<i>P38</i>	F: GGCCCTGCCTTACCATATC	NM_031020.2	214

	R: GAACGCCAGCAACTGAGATT		
<i>NF-κB</i>	F: CGCATCCAGACCAACAATAA R: CCAGAGTTCCGGTTTACTCG	NM_199267.2	214
<i>Notch</i>	F: GAGATGCTCCCAGCCAAGT R: TCCACAACATAGCACGTTCC	NM_001105721.1	157
<i>STEP 61</i>	F: ACCCGTGTTTACTGTGTGA R: AGCAGGTATTCATGGGCTGA	NM_019253.3	194
<i>FYN</i>	F: CTGAAATTGCCAAACCTCGT R: GCACCTTGCTGGCTGTGTA	NM_012755.1	193
<i>β-actin</i>	F:TCACCCACACTGTGCCCATCTATGA R: CATCGGAACCGCTCATTGCCGATAG	NM_031144.3	300
<i>GABA<sup>Meth</sup></i>	F:GGCACTGAAACTATGGAGTTTTAG R:GCACTCTTAAACACCAAAGAGC	NW_007905917.1	195
<i>NMDA<sup>Meth</sup></i>	F:GTGCAGACATGAAGCCTCCAG R:CCTTCAGCCATATAAAGTACAGC	NW_007905728.1	330
<i>OPRM<sup>Meth</sup></i>	F:ATTCAGGTTTGTACTCTGAGA R:TATATTCTCCTAGGAAACACT	NW_007905639.1	256

<sup>a</sup> F, forward of the target primer; R, reverse of the target primer. <sup>b</sup> The serial number of the target genes in the National Center for Biotechnology Information (NCBI) GenBank database.

**Supplemental Table S4.** Results of physiological indicators after the administration of emulsified isoflurane by intravenous infusion in SD rats.

Item	Con	FE	LD	HD	SE	<i>p</i> Value		
						Treated	Time	Tr × T
BT	38.13 a	38.50 a	37.60 b	37.60 b	0.16	<0.01	0.08	<0.01
RF	143.25 a	148.18 a	69.22 b	61.53 b	3.48	<0.01	0.32	0.06

Con, Control; FE, Fat Emulsion; LD, Low Dose; HD, High Dose; BT, Body Temperature; RF, Respiratory Frequency; Tr × T, Treated × Time; Means in the same row with different Roman letters (a and b) represent significant differences.