

**Supplemental Table 1.** Recovery and matrix effect results of TMS-007 in different matrices.

QC level	Plasma				Brain homogenate			
	Recovery (n=6)		Normalized MF (n=6)		Recovery (n=6)		Normalized MF (n=6)	
	Mean ± SD (%)	CV (%)	Mean ± SD (%)	CV (%)	Mean ± SD (%)	CV (%)	Mean ± SD (%)	CV (%)
LQC	90.0 ± 8.9	9.9	111.0 ± 8.7	7.8	72.4 ± 3.3	4.6	116.8 ± 12.5	10.7
MQC	95.9 ± 4.8	5.0	107.8 ± 2.7	2.5	77.2 ± 3.2	4.1	118.9 ± 7.2	6.0
HQC	97.9 ± 7.5	7.6	102.9 ± 2.7	2.6	73.2 ± 3.0	4.1	114.3 ± 9.2	8.1

QC: quality control, LQC: low quality control, MQC: medium quality control, HQC: high quality control, Normalized MF: normalized matrix effect factor, SD: standard deviation, CV: coefficient of variance, n: number of replicates.

**Supplemental Table 2.** Recovery and matrix effect results of propranolol in different matrices.

Plasma				□	Brain homogenate				□
Recovery (n=18)		Matrix Effect (n=18)			Recovery (n=18)		Matrix Effect (n=18)		
Mean ± SD (%)	CV (%)	Mean ± SD (%)	CV (%)		Mean ± SD (%)	CV (%)	Mean ± SD (%)	CV (%)	□
98.6 ± 3.6	3.7	96.6 ± 1.4	1.4		104.1 ± 5.1	4.9	98.5 ± 2.0	2.1	

SD: standard deviation, CV: coefficient of variance, n: number of replicates.

**Supplemental Table 3.** Stability result of TMS-007 in different matrices under various conditions (n=3).

Biological matrix	Storage condition	LQC		HQC					
		Norminal concentration	Mean measured concentration	RE (%)	CV (%)	Norminal concentration	Measured concentration	RE (%)	CV (%)
Plasma (ng/mL)	Short-term stability; RT, 8 h	30.0	30.2	0.8	2.7	8000	7097	-11.3	2.4
	Post-processed stability in autosampler; 4 °C, 3 d		30.9	2.9	3.2		8188	2.4	4.0
	Freeze-thaw cycle stability; -70 °C, 3 cycles		29.7	-0.9	4.5		7033	-12.1	5.3
	Long-term stability; -70 °C, 7 d		30.4	1.2	4.2		7107	-11.2	4.0
Brain homogenate (ng/mL)	Short-term stability; RT, 8 h	30.0	31.8	6.1	4.6	8000	7162	-10.5	5.7
	Post-processed stability in autosampler; 4 °C, 3 d		31.6	5.2	7.5		9013	12.7	3.2
	Freeze-thaw cycle stability; -70 °C, 3 cycles		30.6	1.9	2.8		7167	-10.4	6.3
	Long-term stability; -70 °C, 7 d		26.2	-12.8	14.8		6873	-14.1	7.8

LQC: low quality control, HQC: high quality control, RE: relative error, CV: coefficient of variance, RT: room temperature, n: number of replicates.