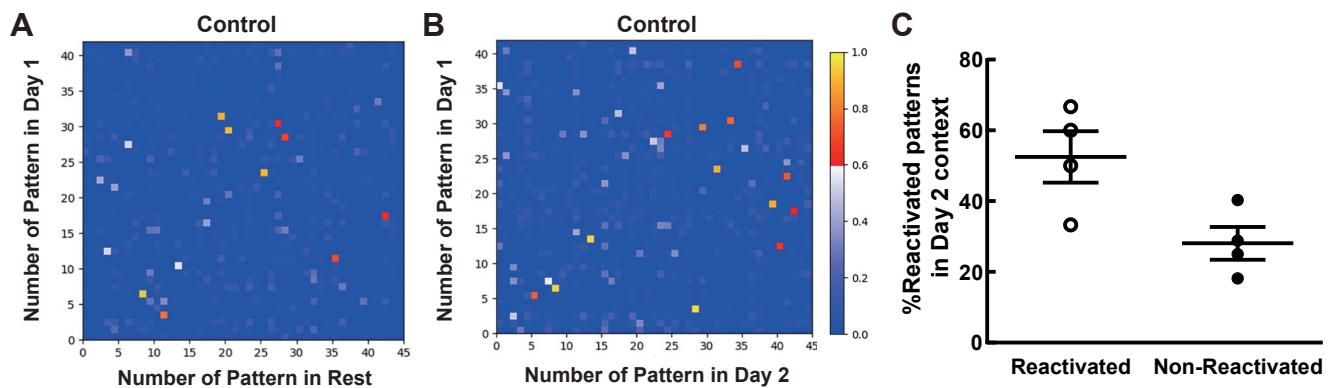


**Fig. S1. No significant difference was observed in the number of detected neuronal cells and ensembles between the control and sevoflurane groups.** (A) The number of cells detected during Day 1 and 2 context sessions. Non-anesthesia control mice [ $416.3 \pm 64.55$ ] vs. sevoflurane treatment mice [ $315.8 \pm 73.36$ ], 95% CI = -339.6 to 138.6;  $F(3, 3) = 1.292$ ,  $P = 0.8383$ ;  $t_6 = 1.028$ ,  $P = 0.3434$ , unpaired t-test. (B) The number of neuronal ensembles detected in Day 1 context session. Non-anesthesia control mice [ $72.25 \pm 9.068$ ] vs. sevoflurane treatment mice [ $67.00 \pm 20.89$ ], 95% CI = 60.97 to 50.47;  $F(3, 3) = 5.306$ ,  $P = 0.2039$ ;  $t_6 = 0.2305$ ,  $P = 0.8253$ , unpaired t-test. (C) The number of neuronal ensembles detected in Day 2 context session. Non-anesthesia control mice [ $93.00 \pm 9.548$ ] vs. sevoflurane treatment mice [ $69.25 \pm 18.43$ ], 95% CI = -74.54 to 27.04;  $F(3, 3) = 3.726$ ,  $P = 0.3086$ ;  $t_6 = 1.144$ ,  $P = 0.2962$ , unpaired t-test. Data are shown as means  $\pm$  S.E.M.



**Fig. S2. Neuronal ensembles reactivated during the rest session tended to be more reactivated during test session in non-anesthesia mice.** (A and B) Representative images of cosine similarity of all ensemble pattern pairs between Day 1 context, rest, Day 2 context sessions (A: Day 1 context and the rest session, B: the Day 1 context and Day 2 context session). (C) The proportion of neuronal ensembles reactivated in test session. Reactivated ensembles [52.50] vs. non-reactivated ensembles [28.09];  $t_3 = 2.549$ ,  $P = 0.084$ , paired t-test. Data are shown as means  $\pm$  S.E.M.

**Table S1. Statistical data table for the behavioral experiment.**

Session	Minute	Mean of control group	Mean of sevoflurane group	95% CI of difference	Adjusted P-value
Pre-exposure	1	0.000	0.000	-3.982, 3.982	> 0.9999
Fig. 1D	2	0.350	0.755	-4.386, 3.557	> 0.9999
	3	0.375	0.300	-3.907, 4.507	> 0.9999
	4	2.500	0.518	-2.000, 5.964	> 0.9999
	5	1.225	3.318	-6.075, 1.889	0.9617
	6	3.775	2.964	-3.171, 4.793	> 0.9999
	Test	32.88	10.95	1.358, 42.50	<b>0.033*</b>
Fig. 1E	2	30.41	19.61	-9.769, 31.38	0.5983
	3	25.15	19.97	-15.39, 25.75	> 0.9999