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Supplementary Information for:

Selective engram coreactivation in idling brain inspires implicit learning

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Other supplementary materials for this manuscript include the following:

Dataset for Figures 1 to 6, S1, S2, S3, S5, and S6.

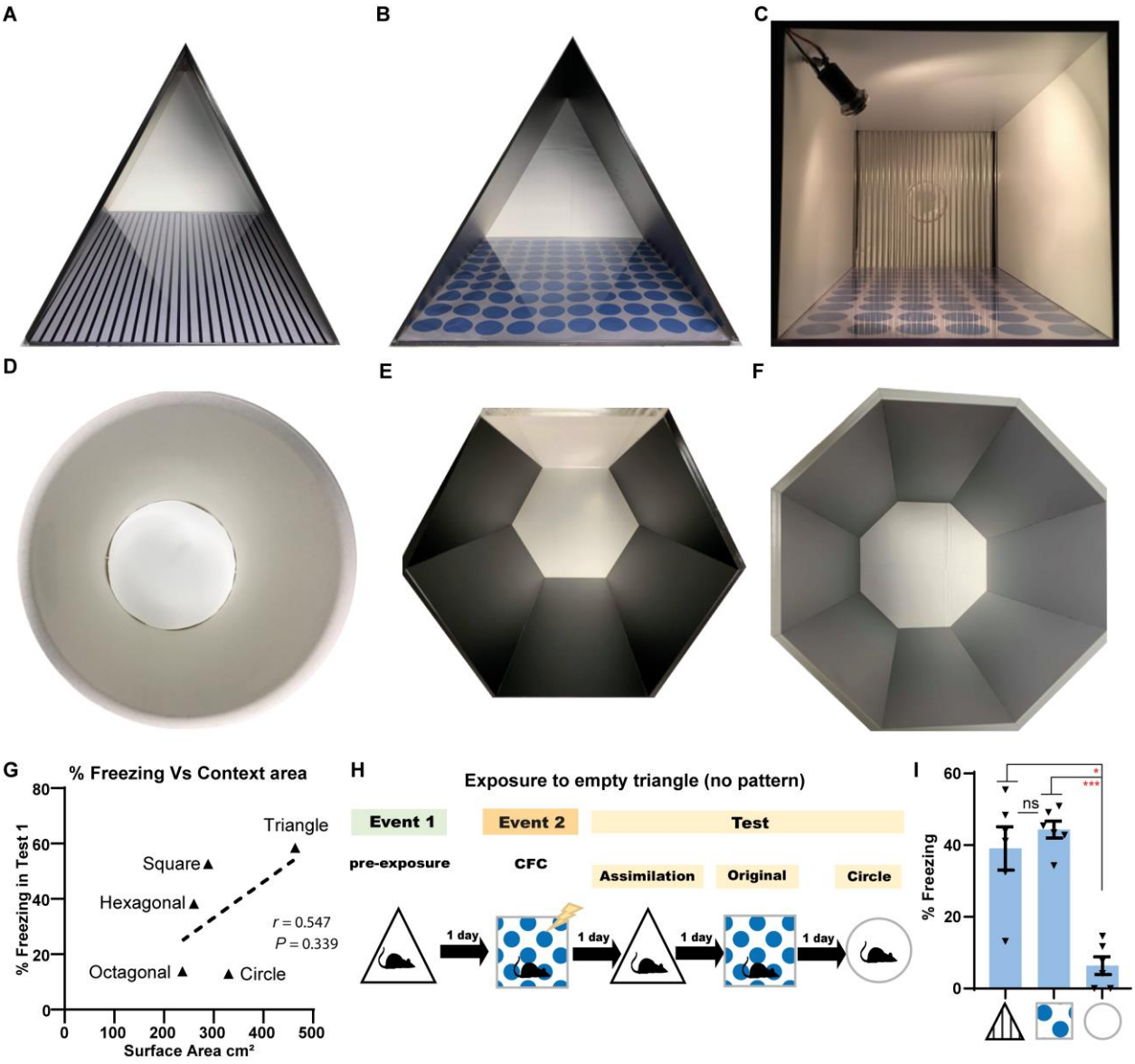

Fig. S1. Characteristics of the contexts used in the study. (*A* and *B*) Triangle-shaped prism context with two black walls, a plexiglass front covered from the outside with a white piece of paper showing either a black striped **(*A*)** or a blue circled **(*B*)** pattern, and a transparent acrylic floor placed on a white paper towel (Kim Towel, Kimberly-Clark, USA) (one side × height: 290 × 320 mm). **(*C*)** Square-shaped cubic context (width × depth × height: 175 × 165 × 300 mm) with three off-white sides, a plexiglass front covered from outside with a white piece of paper showing a blue circled pattern, and a flooring of 26 stainless steel rods with a diameter of 2 mm placed 5 mm apart. **(*D*)** Circle-shaped cylindrical context (diameter × height: 205 × 320 mm) with off-white walls and a white acrylic floor. **(*E*)** Hexagon-shaped context (one side × height: 100 × 300 mm) with five black walls, a plexiglass front covered from the outside with a white piece of paper, and a transparent acrylic floor placed on a white paper towel (Kim Towel, Kimberly-Clark, USA). **(*F*)** Octagon-shaped context with eight gray walls (one side × height: 70 × 300 mm) and a white acrylic

floor. All contexts were placed in exactly the same location during behavioral experiments. **(*G*)** Individual percent freezing during test in the E1 context, as in Fig. 1 *B*, and the surface area (cm^2) for the testing contexts; Dashed black line, linear fit; Inset, Pearson's (r) value and *P*-value (two-tailed). **(*H*)** Experimental design. **(*I*)** Freezing levels during each Test. Data are presented as mean ± SEM. *P*-values were determined using a one-way ANOVA followed by Tukey's multiple comparisons, $^{*}P < 0.05$, $^{***}P < 0.001$. ns, not significant ($P > 0.05$).

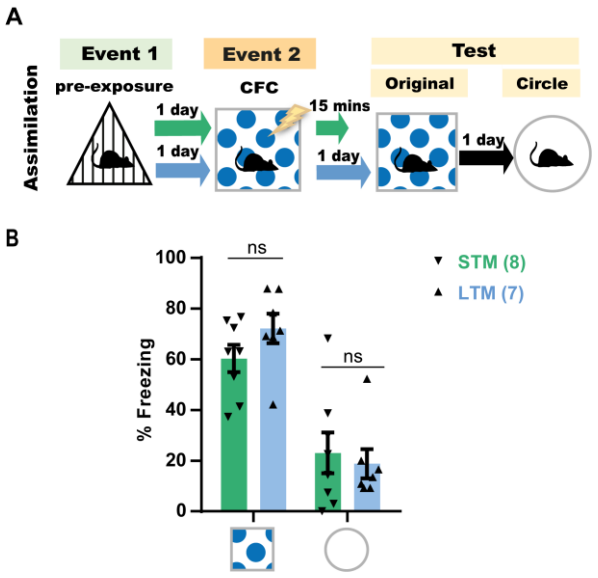

Fig. S2. The original CFC memory shows no significant incubation-dependent difference in freezing between short-term and long-term testing intervals. (*A*), Experimental design. **(*B*),** Freezing levels during each test (4 min). *P*-values were determined using a two-way RM ANOVA followed by Sidak's multiple comparisons. Data are presented as mean ± SEM. ns, not significant ($P > 0.05$).

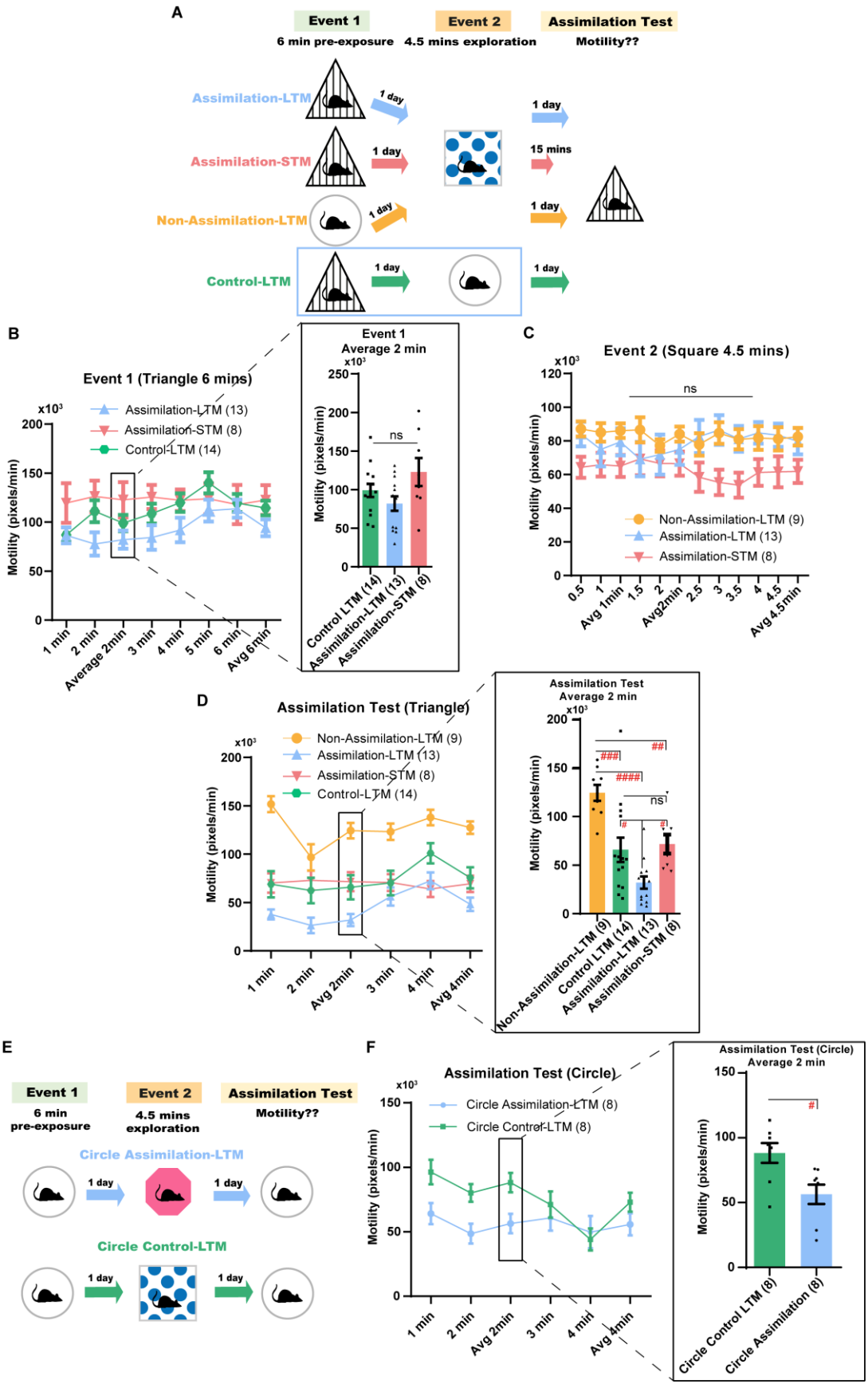
A
Event 1
6 min pre-exposure
Event 2
4.5 mins exploration
Assimilation Test
Motility??
Assimilation-LTM
Assimilation-STM
Non-Assimilation-LTM
Control-LTM
1 day
15 mins
B
Event 1 (Triangle 6 mins)
Assimilation-LTM (13)
Assimilation-STM (8)
Control-LTM (14)
Motility (pixels/min)
1 min
2 min
Average 2min
3 min
4 min
5 min
6 min
Avg 6min
Event 1
Average 2 min
ns
Control LTM (14)
Assimilation-LTM (13)
Assimilation-STM (8)
C
Event 2 (Square 4.5 mins)
Non-Assimilation-LTM (9)
Assimilation-LTM (13)
Assimilation-STM (8)
Avg 1min
Avg2min
Avg 4.5min
D
Assimilation Test (Triangle)
Non-Assimilation-LTM (9)
Assimilation-LTM (13)
Assimilation-STM (8)
Control-LTM (14)
Avg 2min
Avg 4min
Assimilation Test
Average 2 min
Non-Assimilation-LTM (9)
Control LTM (14)
Assimilation-LTM (13)
Assimilation-STM (8)
E
Event 1
6 min
pre-exposure
Event 2
4.5 mins
exploration
Assimilation Test
Motility??
Circle Assimilation-LTM
Circle Control-LTM
F
Assimilation Test (Circle)
Circle Assimilation-LTM (8)
Circle Control-LTM (8)
Assimilation Test (Circle)
Average 2 min
Circle Control LTM (8)
Circle Assimilation (8)

Fig. S3. Pre-exposure to spatial commonalities induces offline assimilation of non-emotional memories. (*A* and *E*) Experimental design. **(*B*)** Motility examined in 1-min intervals during Event 1 (6 min) in the triangle context (motility in circle pre-exposed group is not included in the comparison). Inset, average motility calculated for the first 2 min of pre-exposure session. *P*-values were determined using a one-way ANOVA followed by Tukey's multiple comparisons, ns, not significant ($P > 0.05$). Data are presented as mean ± SEM. **(*C*)** Motility was measured in 0.5-min intervals during Event 2 (4.5 min) in the square context for the assimilation and non-assimilation groups (motility in control-LTM group is not included in the comparison). *P*-values were determined using a two-way RM ANOVA followed by Sidak's multiple comparisons. ns, not significant ($P > 0.05$). Data are presented as mean ± SEM. **(*D* and *F*)** Motility examined in 1-min intervals during the test (4 min) in the triangle (*D*) or the circle (*F*) contexts. Inset, average motility calculated for the first 2 min of the test. *P*-values were determined using a one-way ANOVA followed by Holm-Sidak's multiple comparisons in (*D*) or using unpaired *t* test in (*F*), $^{\#}P < 0.05$, $^{\#\#}P < 0.01$, $^{\#\#\#}P < 0.001$, $^{\#\#\#\#}P < 0.0001$. Data are presented as mean ± SEM.

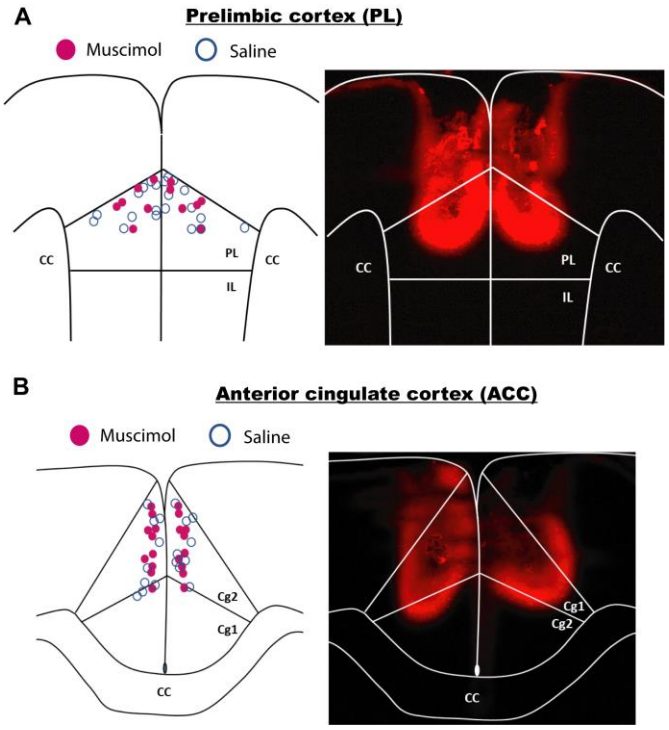

Fig. S4. Drug injections into the ACC or PL. (*A*) Left: Schematic diagram showing the center of each injection in the PL. Right: Schematic diagram showing representative rhodamine B staining in the PL. **(*B*)** Left: Schematic diagram showing the center of each injection in the ACC. Right: Schematic diagram showing representative rhodamine B staining in the ACC. IL, infralimbic cortex; CC, corpus callosum.

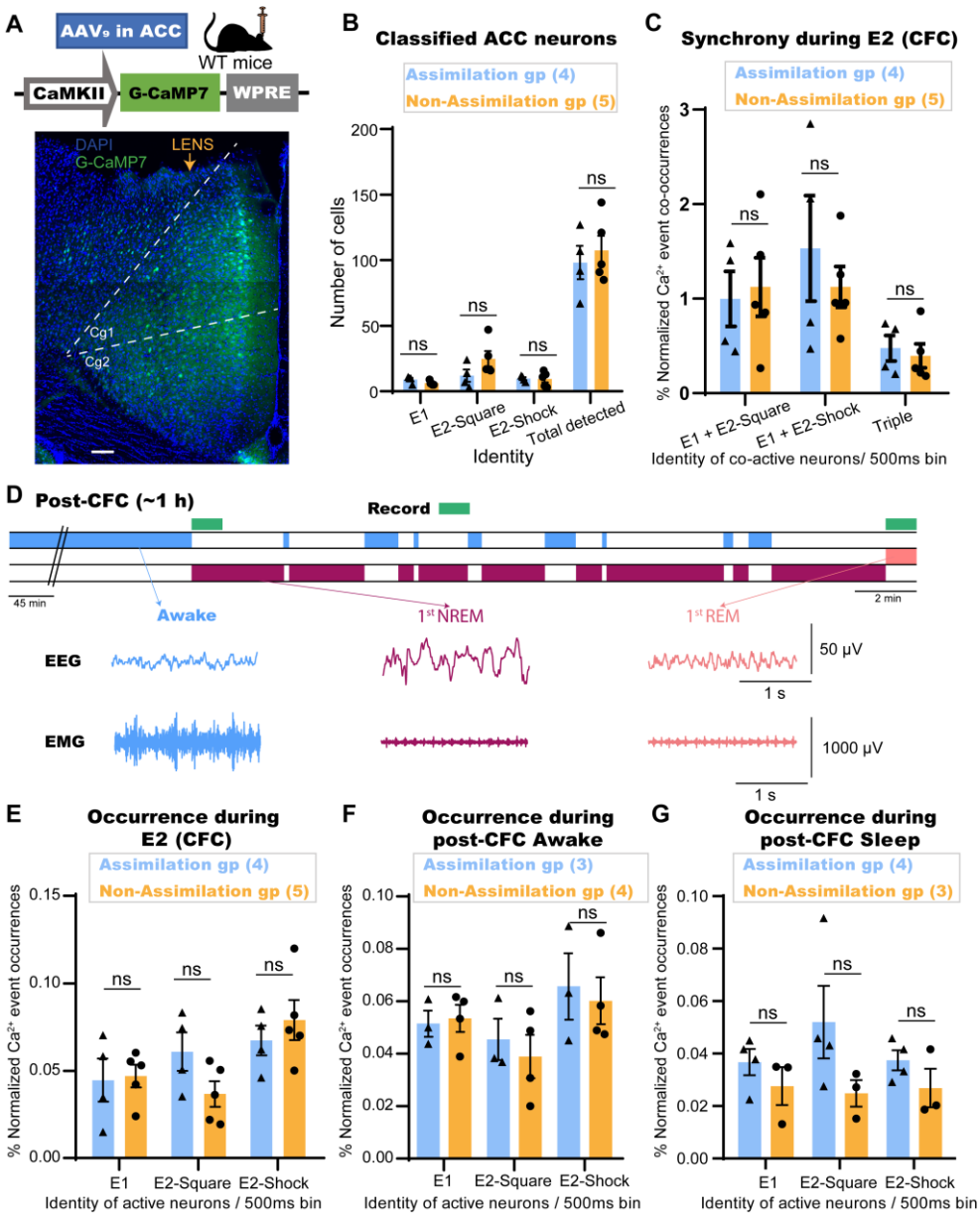

Fig. S5. ***In vivo*** **calcium imaging during offline memory assimilation task as well as awake/sleep stages detection during post-CFC offline session. (*A*)** Top: Design of AAV injected into the ACC. Bottom: Coronal section of the ACC showing G-CaMP7 protein expression and GRIN lens trace. Scale bar represents 100 μm. **(*B*)** Averaged number of ACC cells classified as E1, E2-Square, or E2-Shock-responsive as well as mean total detected in each group. **(*C*)** % Normalized Ca^{2+} event co-occurrences of E1-cells and E2-cells throughout the 2.5 min post-shock period in CFC training. **(*D*),** Top: Diagram for post-CFC stage-specific recording. Bottom: Example EEG and EMG recordings for each detected stage. **(E-G),** Single Ca^{2+} event occurrences of E1- or E2- responsive cells throughout the 2.5 min post-shock period in CFC training (*E*), within 2-min post-CFC awake (*F*) or within 2-min post-CFC sleep (*G*). Data are presented as Mean ± SEM in (*B*, *C*, and *E*-*G*). *P*-values were determined using unpaired *t* test. ns, not significant ($P > 0.05$).

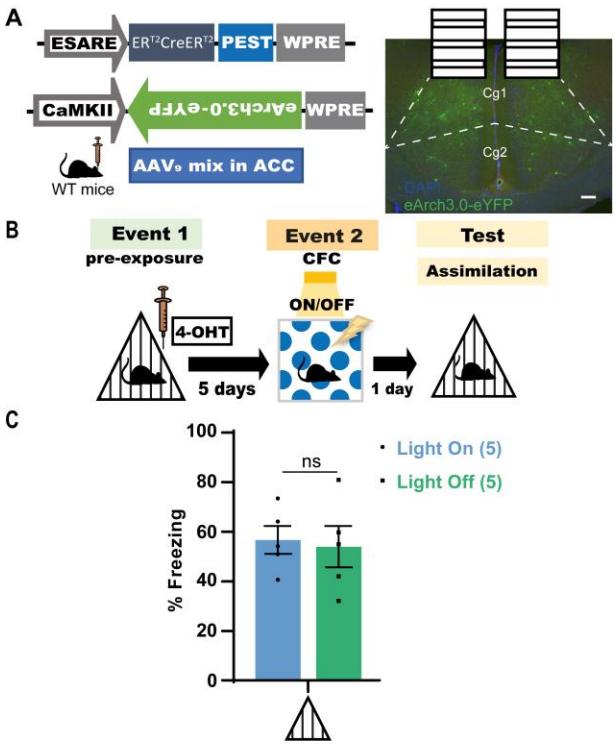

Fig S6. Online ACC dynamics are dispensable for the assimilation. (*A*) Left: Design of AAVs injected into the ACC for engram labeling. Right: Coronal section of the ACC showing eYFP protein expression in mice sacrificed after test session. Dashed lines show the boundary of the ACC. Scale bar represents 100 μm. $ER^{T2}CreER^{T2}$, tamoxifen-inducible recombinase; eYFP, enhanced yellow fluorescent protein; DAPI, 4′,6-diamidino-2-phenylindole; Cg1, cingulate cortex, area 1; Cg2, cingulate cortex, area 2; 4-OHT, 4-hydroxytamoxifen. **(*B*)** Experimental design. ON; laser ON group; OFF, laser OFF group. **(*C*),** Freezing levels during the test session. Graph shows mean ± SEM. *P*-values were determined using unpaired *t* test; ns, not significant ($P > 0.05$).

Table S1| Sampling and statistical analysis details

Fig. #	Group	Sample size		Mean ± SEM	Statistical test	Degree of freedom & F/t value	p-value	Significance
		Exact size (n)	Excluded size (n)					
1 *B*	Triangle	11	0	E1, 14.8 ± 4.73, T1, 58.5 ± 6.09; T2, 56.3 ± 2.9	Two-way RM ANOVA	Interaction F (6, 78) = 8.791	P < 0.0001	****
	Hexagon	11	0	E1, 2.1 ± 0.68, T1, 38.3 ± 5.4; T2, 51 ± 4.77		Session F (2, 78) = 172.2		
	Octagon	11	0	E1, 0.97 ± 0.38, T1, 13.9 ± 3.86; T2, 52.3 ± 3.65		pre-exposure condition F (3, 39) = 13.62		
	Circle	10	0	E1, 2.38 ± 0.88, T1, 12.9 ± 2.86; T2, 50.7 ± 5.76				
1 *C*	Triangle	11	0	delta % freezing, 43.7 ± 5.2	One-way ANOVA	F (3, 39) = 13.4	P<0.0001	****
	Hexagon	11	0	delta % freezing, 36.21 ± 5.33				
	Octagon	11	0	delta % freezing, 12.88 ± 4.1				
	Circle	10	0	delta % freezing, 10.54 ± 2.8				
1 *E*	No Pre-exposure- 1day	8	0	T1, 12.33 ± 3.45; T2, 40.042 ± 5.65 ; T3, 8.417 ± 2.39	Two-way RM ANOVA	Interaction F (6, 96) = 7.552	P < 0.0001	****
	NonAssimilation-1day	20	0	T1, 18.57 ± 3.17; T2, 40.56 ± 4.01; T3, 10.99 ± 2.29		Session F (2, 96) = 91.05	P < 0.0001	****
	Assimilation-1day	15	0	T1, 46.29 ± 5.32; T2, 51.43 ± 5.72; T3, 16.31 ± 3.58		pre-exposure condition F (3, 48) = 9.047	P < 0.0001	****
	Assimilation-5day	9	0	T1, 61.35 ± 7.898; T2, 58.25 ± 5.64; T3, 13.96 ± 5.36				
2 *B*	Subtle -STM	15	0	T1, 29.5 ± 4.78; T2, 50.31 ± 5.66; T3, 11.57 ± 3.35	Two-way RM ANOVA	Interaction F (6, 102) = 7.457	P < 0.0001	****
	Obvious -STM	15	0	T1, 54.34 ± 4.31; T2, 62.07 ± 4.91; T3, 7.47 ± 1.80		Session F (2, 102) = 130.0	P < 0.0001	****
	Subtle -LTM	13	0	T1, 60.21 ± 4.6; T2, 53.15 ± 5.17; T3, 10.82 ± 3.09				
	Non-Assimilation-STM	12	0	T1, 26.04 ± 6.02; T2, 57.47 ± 8.11; T3, 16.25 ± 4.25		pre-exposure condition F (3, 51) = 2.577	P = 0.0638	ns
3 *B*	Muscimol	6	2	T1, 66.08 ± 8.76; T2, 24.25 ± 5.15; T3, 18.22 ± 8.77	Two-way RM ANOVA	Interaction F (2, 28) = 8.585	P = 0.0012	**
	Saline	10	0	T1, 56.88 ± 6.36; T2, 55.61 ± 7.18; T3, 16.09 ± 4.06		Session F (2, 28) = 35.95	P < 0.0001	****
						Injection condition F (1, 14) = 0.7451	P = 0.4026	ns
3 *C*	Muscimol	10	0	T1, 21.14 ± 6.41; T2, 16.83 ± 5.81; T3, 3.65 ± 1.01	Two-way RM ANOVA	Interaction F (2, 34) = 1.856	P = 0.1718	ns
	Saline	9	0	T1, 52.34 ± 6.34; T2, 47.58 ± 8.08; T3, 19.97 ± 7.61		Session F (2, 34) = 18.27	P < 0.0001	****
						Injection condition F (1, 17) = 13.29	P = 0.0020	**
4 *B*, Freezing behavior	Assimilation	4	0	T1, 61.88 ± 7.551; T2, 73.75 ± 4.491; T3, 22.92 ± 8.297	Two-way RM ANOVA	Interaction F (2, 10) = 5.956	P = 0.0198	*
	Non-Assimilation	3	0	T1, 30.42 ± 4.174; T2, 66.67 ± 10.026; T3, 22.64 ± 4.204		Session F (2, 10) = 49.75	P < 0.0001	****
						pre-exposure condition F (1, 5) = 2.409	P = 0.1813	ns
4 *D*, Single occurrence (Test)	Assimilation	4	0	% Normalized E1, 0.05 ± 0.005	Unpaired t test (Two-tailed)	t=0.2877 df=5	P = 0.7851	ns
	Non-Assimilation	3	0	% Normalized E1, 0.05 ± 0.017				
	Assimilation	4	0	% Normalized E2-Shock, 0.04 ± 0.005	Unpaired t test (Two-tailed)	t=0.3150 df=5	P = 0.7655	ns
	Non-Assimilation	3	0	% Normalized E2-Shock, 0.04 ± 0.009				
4 *E*, Synchrony in Test	Assimilation	4	0	% Normalized E1 + E2-Shock, 0.99 ± 0.173	Unpaired t test (One-tailed)	t=2.017 df=5	P = 0.0499	*
	Non-Assimilation	3	0	% Normalized E1 + E2-Shock, 0.53 ± 0.123				
5 *B*, Synchrony in Post-CFC Awake	Assimilation	3	0	% Normalized E1 + E2-Square, 0.95 ± 0.144	Unpaired t test (One-tailed)	t=2.059 df=5	P = 0.0473	*
	Non-Assimilation	4	0	% Normalized E1 + E2-Square, 1.39 ± 0.462				
	Assimilation	3	0	% Normalized E1 + E2-Shock, 1.44 ± 0.31	Unpaired t test (One-tailed)	t=3.019 df=5	P = 0.0147	*
	Non-Assimilation	4	0	% Normalized E1 + E2-Shock, 1.07 ± 0.343				
	Assimilation	3	0	% Normalized Triple, 0.433 ± 0.042	Unpaired t test (One-tailed)	t=4.791 df=5	P = 0.0025	*
	Non-Assimilation	4	0	% Normalized Triple, 0.45 ± 0.21				
	Assimilation	3	0	% Normalized E2-Square + E2-Shock, 1.64 ± 0.243	Unpaired t test (One-tailed)	t=1.725 df=5	P = 0.0726	ns
	Non-Assimilation	4	0	% Normalized E2-Square + E2-Shock, 1.22 ± 0.35				
5 *C*, Synchrony in Post-CFC Sleep	Assimilation	4	0	% Normalized E1 + E2-Square, 0.81 ± 0.118	Unpaired t test (One-tailed)	t=2.059 df=5	P = 0.0473	*
	Non-Assimilation	3	0	% Normalized E1 + E2-Square, 0.43 ± 0.141				

	Assimilation	4	0	% Normalized E1 + E2-Shock, 0.83 ± 0.159	Unpaired t test (One-tailed)	t=3.019 df=5	P = 0.0147	*
	Non-Assimilation	3	0	% Normalized E1 + E2-Shock, 0.25 ± 0.057				
	Assimilation	4	0	% Normalized Triple, 0.32 ± 0.045	Unpaired t test (One-tailed)	t=4.791 df=5	P = 0.0025	*
	Non-Assimilation	3	0	% Normalized Triple, 0.06 ± 0.014				
	Assimilation	4	0	% Normalized E2-Square + E2-Shock, 1.09 ± 0.161	Unpaired t test (One-tailed)	t=1.725 df=5	P = 0.0726	ns
	Non-Assimilation	3	0	% Normalized E2-Square + E2-Shock, 0.62 ± 0.239				
6 *D*, Left	Light On + 4-OHT	9	0	T1, 29.72 ± 4.662; T2, 49.2 ± 7.19	Two-way RM ANOVA	Interaction F (2, 23) = 6.208	P = 0.0070	**
	Light On + VEH	9	0	T1, 57.6 ± 5.346; T2, 45.34 ± 2.634		Session F (1, 23) = 0.1513	P = 0.7009	ns
	Light Off + 4-OHT	8	0	T1, 62.57 ± 8.3; T2, 50.35 ± 4.89		Pre-exposure condition F (2, 23) = 4.015	P = 0.0319	*
6 *D*, Middle	Light On + 4-OHT	9	0	NREM, 6652.78 ± 360.460; REM, 395.89 ± 70.618	Two-way RM ANOVA	Interaction F (1, 16) = 0.7369	P = 0.4033	ns
	Light On + VEH	9	0	NREM, 6250.56 ± 422.321; REM, 463 ± 71.993		Sleep stage F (1, 16) = 485.3	P < 0.0001	****
						Pre-exposure condition F (1, 16) = 0.3323	P = 0.5724	ns
6 *D*, Right	Light On + 4-OHT	9	0	NREM, 50.35 ± 2.782; REM, 3.06 ± 0.576; Awake, 46.6 ± 2.864	Two-way RM ANOVA	Interaction F (2, 32) = 0.1652	P = 0.8484	ns
	Light On + VEH	9	0	NREM, 51.41 ± 2.317; REM, 3.73 ± 0.474; Awake, 44.864 ± 2.422		Sleep stage F (2, 32) = 195.8	P < 0.0001	****
						Pre-exposure condition F (1, 16) = 0.1171	P = 0.7366	ns
Fig. S1 *G*	Triangle	11	0	T1, 58.5 ± 6.09; Area, 464 cm^2.	Pearson's correlation	r = 0.547	P = 0.339	ns
	Hexagon	11	0	T1, 38.3 ± 5.4; Area, 260 cm^2.				
	Octagon	11	0	T1, 13.9 ± 3.86; Area, 237 cm^2.				
	Circle	10	0	T1, 12.9 ± 2.86; Area, 330 cm^2.				
	Square	43	0	T2, 52.6 ± 2.12; Area, 289 cm^2.				
Fig. S1 *I*	Empty Triangle (no Pattern)	6	0	T1, 39.12 ± 6.05; T2, 44.38 ± 2.385; T3, 6.39 ± 2.48	One-way ANOVA	Session F (1.228, 6.142) = 19.37	P=0.0035	**
Fig. S2 *B*	STM	8	0	T1, 60.32 ± 5.34; T2, 23.04 ± 8.01	Two-way RM ANOVA	Interaction F (1, 13) = 2.295	P = 0.1537	ns
	LTM	7	0	T1, 72.19 ± 5.88; T2, 18.79 ± 6.83		Session F (1, 13) = 72.54	P < 0.0001	****
						Condition F (1, 13) = 0.2661	P = 0.6146	ns
Fig. S3 *B*	Control-LTM	14	0	Average (2min), 99065 ± 8463	One-way ANOVA	F (2, 32) = 2.942	P = 0.0672	ns
	Assimilation-LTM	13	0	Average (2min), 81999 ± 9357				
	Assimilation-STM	8	0	Average (2min), 122840 ± 18096				
Fig. S3 *C*	Assimilation-STM	8	0	0.5 min, 64235.3 ± 6324; 1 min, 65792.6 ± 7021.32; Avg 1 min, 65013.9 ± 6557.43; 1.5min, 69248.3 ± 9730.15; 2 min, 66611.6 ± 7706.07; Avg 2 min, 66471.9 ± 7232.47; 2.5 min, 58387.1 ± 8677.3; 3 min, 55344.9 ± 7618.9; 3.5 min, 53660.3 ± 7427.09; 4 min, 61262.9 ± 7982.82; 4.5 min, 61645.4 ± 9242.75; Avg 4.5 min, 61798.7 ± 6909.01	Two-way RM ANOVA	Interaction F (22, 297) = 1.717	P = 0.0253	*
	Non-Assimilation-LTM	9	0	0.5 min, 87107.11 ± 4555.62; 1 min, 85027.56 ± 5502.74; Avg 1 min, 86067.33 ± 4388.12; 1.5min, 86578.22 ± 7389.47; 2 min, 77266.67 ± 3819.37; Avg 2 min, 83994.89 ± 4535.55; 2.5 min, 77882.45 ± 6679.07; 3 min, 84657.78 ± 6489.92; 3.5 min, 80864.22 ± 6096.74; 4 min, 81684 ± 7084.26; 4.5 min, 81192.67 ± 6911.91; Avg 4.5 min, 82473.41 ± 5257.35		Session F (11, 297) = 0.6624	P = 0.7737	ns
	Assimilation-LTM	13	0	0.5 min, 83959.08 ± 7351.79; 1 min, 74867.85 ± 10176.71; Avg 1 min, 79413.46 ± 8150.93; 1.5min, 69135.69 ± 10294.73; 2 min, 71832.39 ± 11925.19; Avg 2 min, 74948.75 ± 9292.93; 2.5 min, 82601.15 ± 9841.19; 3 min, 86400.69 ± 8842.49; 3.5 min, 81211.39 ± 7688.99; 4 min, 84763.62 ± 6343.98; 4.5 min, 83348.08 ± 6964.71; Avg 4.5 min, 79791.10 ± 7829.41		pre-exposure condition F (2, 27) = 1.939	P = 0.1633	ns

Fig. S3 *D*	Non-Assimilation-LTM	9	0	Average (2min), 124279 ± 8159	One-way ANOVA	F (3, 40) = 13.6	P < 0.0001	****
	Control-LTM	14	0	Average (2min), 65754 ± 12499				
	Assimilation-LTM	13	0	Average (2min), 32065 ± 6277				
	Assimilation-STM	8	0	Average (2min), 71625.9 ± 9719				
Fig. S3 *F*	Circle Assimilation-LTM	8	0	Average (2min), 56330.75 ± 7526.53	Unpaired t test (Two-tailed)	t=2.967, df=14	P = 0.0102	*
	Circle Control-LTM	8	0	Average (2min), 88172.56 ± 7652.5				
Fig. S5 *B*, Number of classified/detected ACC cells	Assimilation	4	0	E1, 9.00 ± 1.354	Unpaired t test (Two-tailed)	t=1.928, df=7	P = 0.0952	ns
	Non-Assimilation	5	0	E1, 8.8 ± 1.5				
	Assimilation	4	0	E2-Square, 12.00 ± 4.601	Unpaired t test (Two-tailed)	t=1.637, df=7	P = 0.1456	ns
	Non-Assimilation	5	0	E2-Square, 24.8 ± 5.9				
	Assimilation	4	0	E2-Shock, 9.75 ± 1.109	Unpaired t test (Two-tailed)	t=0.1151, df=7	P = 0.9116	ns
	Non-Assimilation	5	0	E2-Shock, 6.8 ± 2.35				
	Assimilation	4	0	Total detected, 98.25 ± 12.64	Unpaired t test (Two-tailed)	t=0.5609, df=7	P = 0.5923	ns
	Non-Assimilation	5	0	Total detected, 107.6 ± 10.96				
Fig. S5 *C*, Synchrony in CFC	Assimilation	4	0	% Normalized E1 + E2-Square, 0.99 ± 0.292	Unpaired t test (One-tailed)	t=0.2923, df=7	P = 0.3893	ns
	Non-Assimilation	5	0	% Normalized E1 + E2-Square, 1.12 ± 0.31				
	Assimilation	4	0	% Normalized E1 + E2-Shock, 1.53 ± 0.559	Unpaired t test (One-tailed)	t=0.7407, df=7	P = 0.2415	ns
	Non-Assimilation	5	0	% Normalized E1 + E2-Shock, 1.13 ± 0.22				
	Assimilation	4	0	% Normalized Triple, 0.48 ± 0.136	Unpaired t test (One-tailed)	t=0.4329, df=7	P = 0.3391	ns
	Non-Assimilation	5	0	% Normalized Triple, 0.4 ± 0.126				
Fig. S5 *E*, Single occurrence (CFC)	Assimilation	4	0	% Normalized E1, 0.05 ± 0.012	Unpaired t test (Two-tailed)	t=0.1819, df=7	P = 0.8608	ns
	Non-Assimilation	5	0	% Normalized E1, 0.05 ± 0.006				
	Assimilation	4	0	% Normalized E2-Square, 0.06 ± 0.011	Unpaired t test (Two-tailed)	t=1.906, df=7	P = 0.0983	ns
	Non-Assimilation	5	0	% Normalized E2-Square, 0.04 ± 0.007				
	Assimilation	4	0	% Normalized E2-Shock, 0.07 ± 0.009	Unpaired t test (Two-tailed)	t=0.7820, df=7	P = 0.4598	ns
	Non-Assimilation	5	0	% Normalized E2-Shock, 0.08 ± 0.012				
Fig. S5 *F*, Single occurrence (Post-CFC Awake)	Assimilation	3	0	% Normalized E1, 0.05 ± 0.005	Unpaired t test (Two-tailed)	t=0.2627, df=5	P = 0.8032	ns
	Non-Assimilation	4	0	% Normalized E1, 0.05 ± 0.005				
	Assimilation	3	0	% Normalized E2-Square, 0.05 ± 0.008	Unpaired t test (Two-tailed)	t=0.5524, df=5	P = 0.6045	ns
	Non-Assimilation	4	0	% Normalized E2-Square, 0.04 ± 0.008				
	Assimilation	3	0	% Normalized E2-Shock, 0.07 ± 0.013	Unpaired t test (Two-tailed)	t=0.3655, df=5	P = 0.7297	ns
	Non-Assimilation	4	0	% Normalized E2-Shock, 0.06 ± 0.009				
Fig. S5 *G*, Single occurrence (Post-CFC Sleep)	Assimilation	4	0	% Normalized E1, 0.04 ± 0.005	Unpaired t test (Two-tailed)	t=1.082 df=5	P = 0.3287	ns
	Non-Assimilation	3	0	% Normalized E1, 0.03 ± 0.007				
	Assimilation	4	0	% Normalized E2-Square, 0.05 ± 0.014	Unpaired t test (Two-tailed)	t=1.611 df=5	P = 0.1682	ns
	Non-Assimilation	3	0	% Normalized E2-Square, 0.025 ± 0.005				
	Assimilation	4	0	% Normalized E2-Shock, 0.04 ± 0.004	Unpaired t test (Two-tailed)	t=1.385 df=5	P = 0.2248	ns
	Non-Assimilation	3	0	% Normalized E2-Shock, 0.03 ± 0.007				
Fig. S6 *C*	Light ON	5	0	T, 56.675 ± 5.63	Unpaired t test (Two-tailed)	t=0.2698 df=8	P = 0.7942	ns
	Light OFF	5	0	T, 53.967 ± 8.311				

Dataset for Figures 1 to 6, S1, S2, S3, S5, and S6 (separate file).