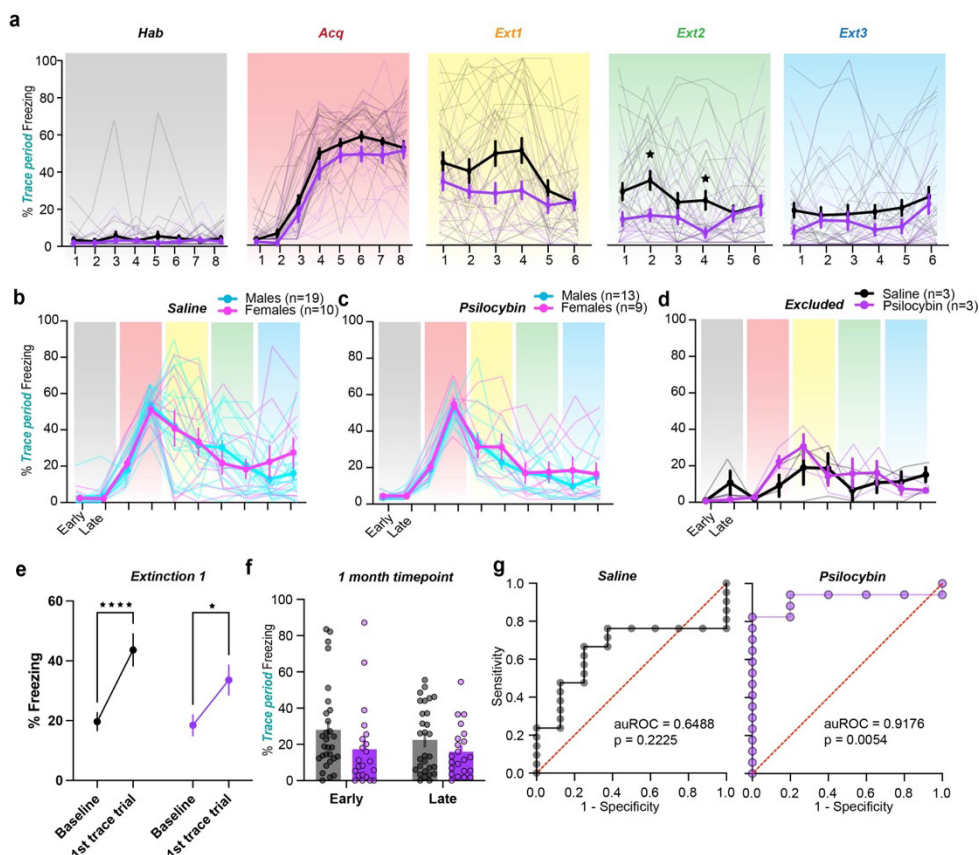
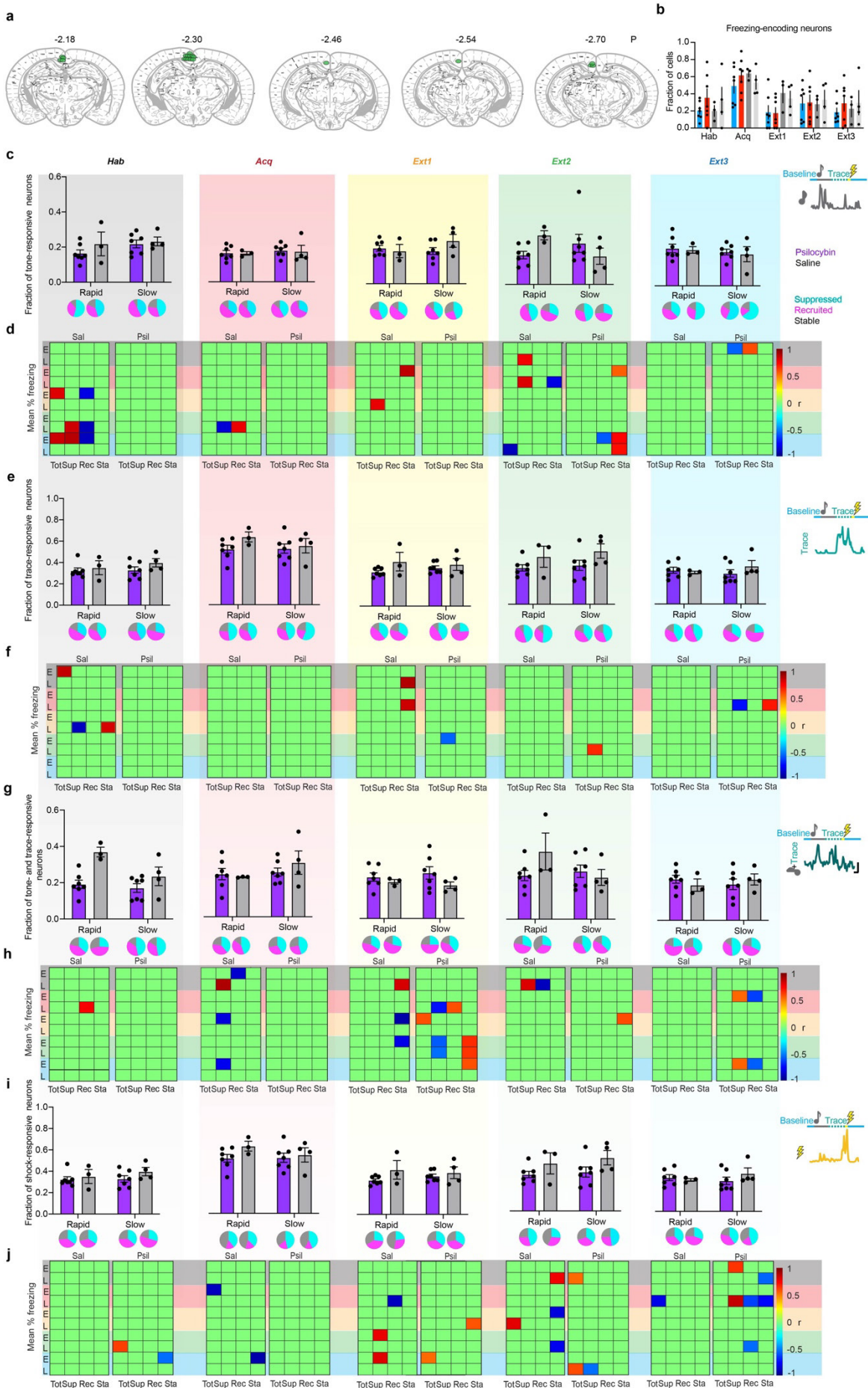


## Supplementary Materials.



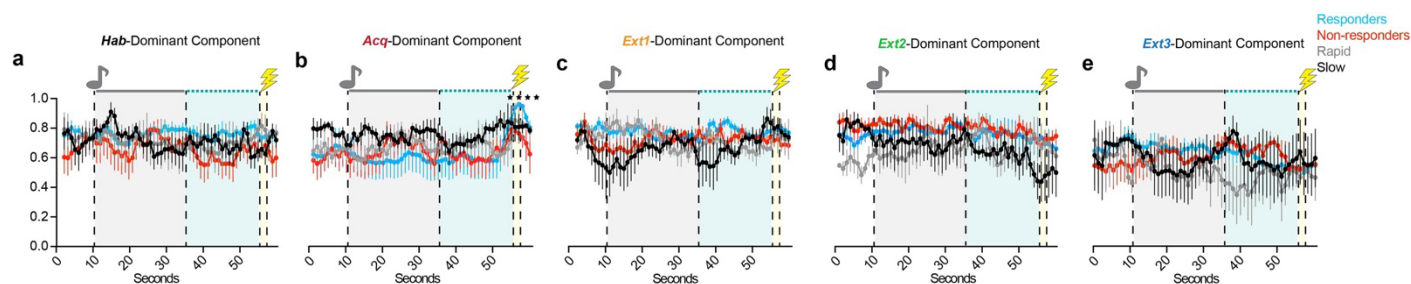
### Supplementary Figure 1 | Effects of psilocybin on trace fear extinction in males and females.

**a.** Trial by trial freezing of saline- and psilocybin-administered mice. Two-Way RM ANOVA with Sidak multiple comparisons correction. (Supp. Table 1, rows 102-106) **b.** Half-session freezing by sex of saline-administered animals. Two-Way RM ANOVA with Sidak multiple comparisons correction. (Supp. Table 1, row 107) **c.** Same as B) in psilocybin-administered animals. Two-Way RM ANOVA with Sidak multiple comparisons correction. (Supp. Table 1, row 108) **d.** Half-session freezing by treatment of excluded animals. Two-Way RM ANOVA with Sidak multiple comparisons correction. (Supp. Table 1, row 109) **e.** Percent freezing during the baseline vs. trace period during Extinction 1. Two-Way RM ANOVA with Sidak multiple comparisons correction. (Supp. Table 1, row 110) **f.** Percent trace-period freezing in early and late periods during an Extinction session 1 month after Extinction 3. Two-Way RM ANOVA with Sidak multiple comparisons correction. (Supp. Table 1, row 111) **g.** ROC curves from logistic regression predicting RE or SE status based on % time freezing during the first half of Extinction 1 during acute drug treatment in saline-administered mice (left) and psilocybin administered mice (right). Right: ROC curve from logistic regression. (Supp. Table 1, rows 12, 14) \*  $p \leq 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ , \*\*\*\*  $p < 0.0001$ .



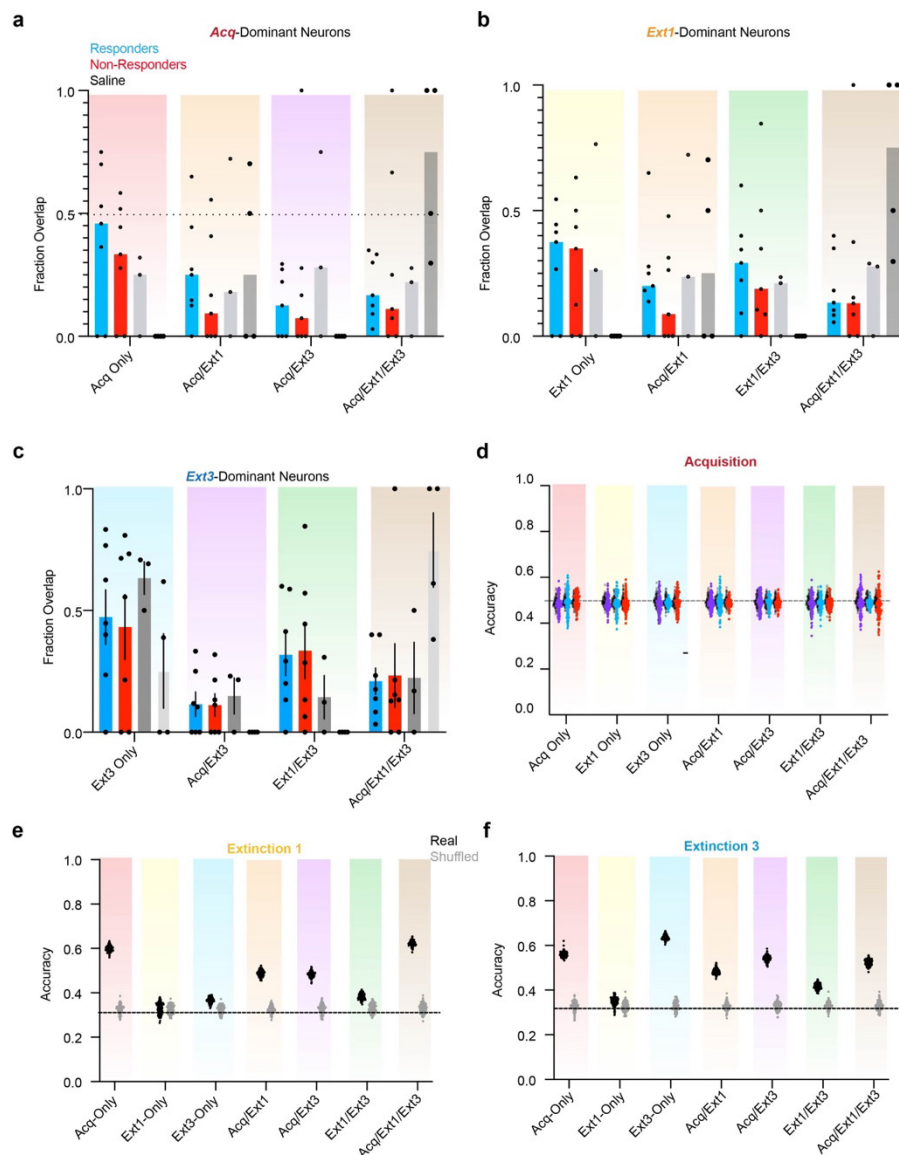
### Supplementary Figure 2 continued | All RSC cells recorded.

**a.** Center and bottom of implant tracts of all included mice from anterior (left) to posterior (right) granular RSC. **b.** Fraction of freezing encoding neurons on each day. Two-way RM ANOVA. (Supp. Table 1, row 112) **c.** Mean fraction of tone-responsive neurons on each day. Insets are proportions of neurons with suppressed, recruited, and stable responses. Two-Way ANOVA. (Supp. Table 1, rows 113-117) **d.** Heatmaps displaying significant correlations (Pearson's rho) between proportions of total (Tot), suppressed (Sup), recruited (Rec), and stable (Sta) tone-responsive neurons on each day and % freezing during the early (E) and late (L) halves of each session (black rows = Hab freezing and black columns = fractions of neurons during Hab, red = Acq, yellow = Ext1, green = Ext2, blue = Ext3). **e,g,i.** Same as C for trace-, tone-and-trace, and shock-responsive neurons. Two-Way ANOVA. (Supp. Table 1, rows 118-132) **f,h,j.** Same as D for trace-, tone-and-trace, and shock-responsive neurons. Data are represented as mean  $\pm$  SEM. \*  $p \leq 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ , \*\*\*\*  $p < 0.0001$ .



### Supplementary Figure 3 | TCA factors reveal RSC dynamics modulated by session.

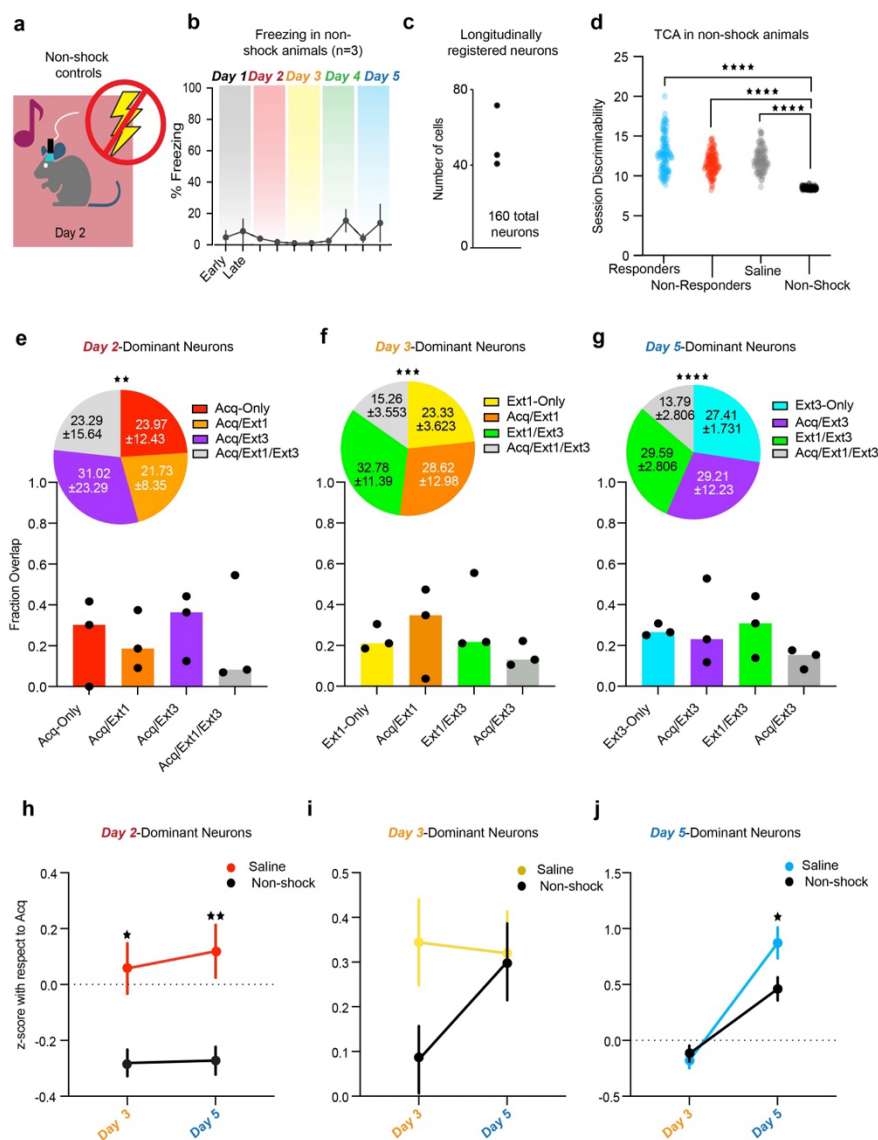
**a.** Normalized temporal factor weights by group of the Habituation-dominant component. Two-Way RM ANOVA. (Supp. Table 1, row 133) **b.** Same as A) for the Acquisition-dominant component. Two-Way RM ANOVA. (Supp. Table 1, row 134) **c.** Same as A) for the Extinction 1-dominant component. Two-Way RM ANOVA. (Supp. Table 1, row 135) **d.** Same as A) for the Extinction 2-dominant component. Two-Way RM ANOVA. (Supp. Table 1, row 136) **e.** Same as A) for the Extinction 3-dominant component. Two-Way RM ANOVA. (Supp. Table 1, row 137) Data are represented as mean  $\pm$  SEM. \*  $p \leq 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ , \*\*\*\*  $p < 0.0001$ .



**Supplementary Figure 4 | Psilocybin bidirectionally modulates neural ensembles driving RSC dynamics during TFC in responders.**

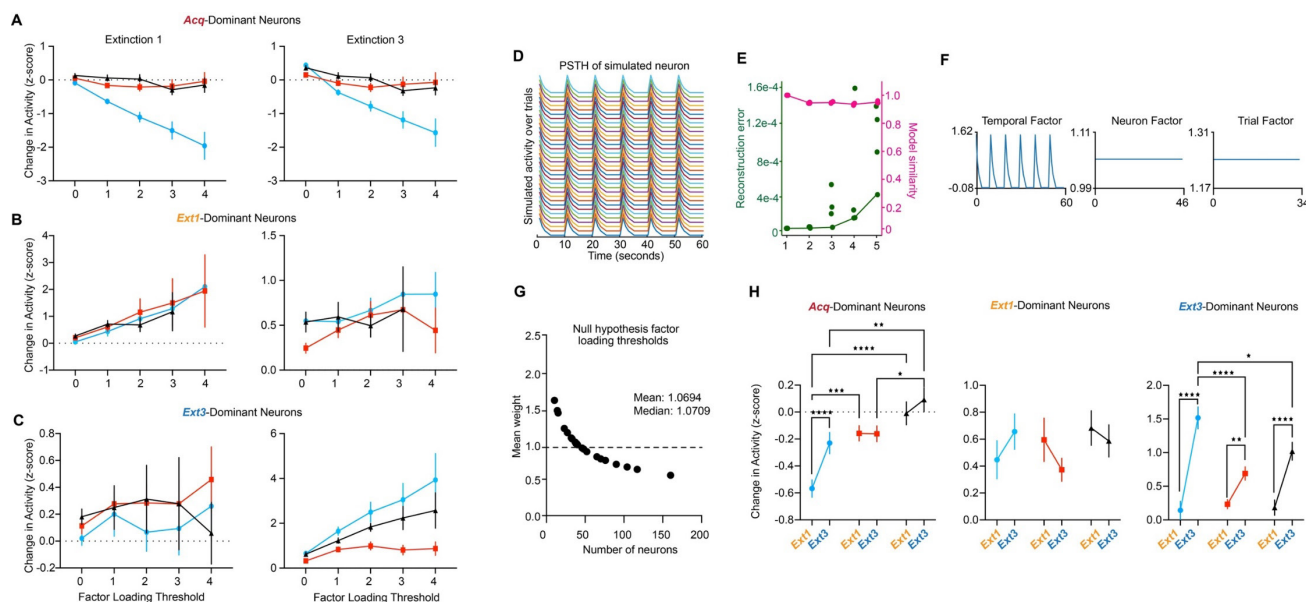
**a.** Overlaps of ensembles within individual animals comprising the mean values in Fig. 4B top. Bars are median. **b.** Same as A for Fig. 4B middle. **c.** Same as A for Fig. 4B middle. **d.** Fisher decoder performance on Acquisition activity in functionally defined ensembles of cells to distinguish responders vs. non-responders (purple), responders vs. rapid saline (blue around grey), and non-responders vs. rapid saline (red around grey). 100 iterations for each comparison. Shuffled values are behind real values. **e.** Three-way Fisher decoder performance classifying responders vs. non-responders vs. rapidly extinguishing saline mice trained on activity during Extinction 1. **f.** Same as E for Extinction 3 activity.





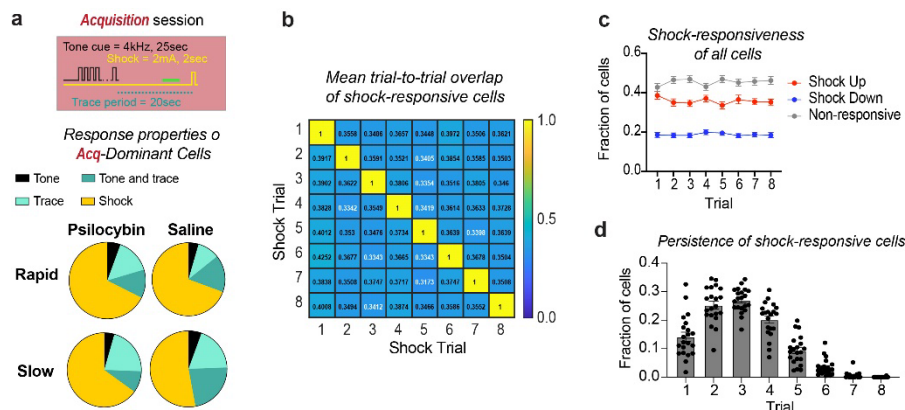
### Supplementary Figure 5 | Non-shock controls do not exhibit conditioning-associated dynamics.

**a.** Schematic of non-shock protocol. 3 Miniscope implanted mice underwent identical 5 day paradigm to all other mice, with the exception that they received no shock during Acquisition or drug treatment. **b.** Half-session freezing in non-shock mice. (Supp. Table 1, row 138). **c.** Number of longitudinally registered neurons in non-shock mice. **d.** Sum of session discriminability index. Because roughly half the number of neurons were recorded in non-shock mice as in the other two groups, pooled tensors from psilocybin responders, non-responders, and saline mice were subsampled to a different, random set of 160 neurons in each of 100 iterations of TCA. One-Way ANOVA. (Supp. Table 1, rows 139). **e.** Overlap of the Day 2-dominant ensemble with Day 3- and Day 5-dominant ensembles in non-shock mice. Bar graphs display the median fraction overlaps. Dots are individual animals. Insets are pie charts displaying total overlap. Stars indicate comparison to saline distribution. Chi-square. (Supp. Table 1, rows 140) **f.** Same as E for the Day 3-dominant ensemble. Chi-square. (Supp. Table 1, rows 141). **g.** Same as F for the Day 5-dominant ensemble. Chi-square. (Supp. Table 1, rows 142) **h.** Average z-score with respect to Day 2 of Day 2-dominant ensemble during Day 3 and 5 in non-shock mice (black) compared to conditioned, saline-administered mice. Two-Way RM ANOVA. (Supp. Table 1, rows 143). **i.** Same as H for the Day 3-dominant ensemble. (Supp. Table 1, rows 144). **j.** Same as H for the Day 5-dominant ensemble. (Supp. Table 1, rows 145). Data are represented as mean  $\pm$  SEM. \*  $p \leq 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ , \*\*\*\*  $p < 0.0001$ .



**Supplementary Figure 6 | Results are robust to changes in factor loading thresholds.**

**a.** Change in activity in mean  $\pm$  SEM from *Acquisition* in *Acq*-dominant neurons as a function of factor loading thresholds varying between  $w=0-4$  during *Extinction 1* (left) and *Extinction 3* (right). **b.** Same as A) for *Ext1*-dominant neurons. **c.** Same as A) for *Ext3*-dominant neurons. **d.** PSTH of an example simulated neuron to determine the null hypothesis factor loading threshold. Tensors of  $t \times c \times c \times T$  size, where  $c$  is the number of neurons recorded in a given animal, were created with identically behaving neurons to determine the factor loading threshold in a hypothetical population in which each neuron equally contributes to dynamics, or the null hypothesis factor loading threshold for that animal. **e.** Reconstruction error and model similarity of varying model ranks for populations of identical neurons. A model of rank 1 yields 0 error in this case. **f.** Representative rank 1 TCA of a simulated dataset with  $n=46$  neurons, the median number of neurons recorded in this study. Because variances across trials and neurons were clamped at 0, only the temporal factor varies. **g.** Data in Fig. 4A plotted as a function of number of neurons recorded. Mean weight of neuron factors across 100 iterations of TCA at the number of cells recorded in each animal. **h.** Change in activity in mean  $\pm$  SEM from *Acquisition* during *Extinction 1* and 3 in *Acq*-dominant (left), *Ext1*-dominant (middle), and *Ext3*-dominant (right) using ensembles determined with the null hypothesis factor loading for each animal. Two-way RM ANOVA. (Supp. Table 1, rows 88-90). \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ , \*\*\*\*  $p < 0.0001$ .



### Supplementary Figure 7 | Shock-responsive neurons are unstable in the RSC.

**a.** Average proportions of Acq-dominant neurons in each group that were upregulated in response to shock, trace, tone, or tone-and-trace. **b.** Heatmap of the average fraction of overlap in shock-up neurons between each trial of Acquisition. Average overlap between trials ranges from 30-45%. **c.** Fractions of shock-up, shock-down, or shock-nonresponsive neurons across all 21 mice on each trial of acquisition, determined by permutation test. **d.** Persistence of the response properties of shock-up neurons over the session. Each point y is the fraction of neurons upregulated in response to the shock for x number of trials. Data are represented as mean  $\pm$  SEM over all 21 mice.

Row	Figure	Statistical Model	Variable	Degrees of Freedom (DFn, DFd)	Parameter(s)	Parameter value	p-value	Multiple comparisons? (Sidak test)	p-value	n per group
1	Fig. 1B, panel 1	Two Way RM-ANOVA	Treatment	(1,49)	F-statistic	0.2838	0.1969			29 sal, 22 psil
			Time			1.712	0.1969			
			Interaction			1.715	0.9741			
2	Fig. 1B, panel 2	Two Way RM-ANOVA	Treatment	(1,49)	F-statistic	0.6344	0.4296			29 sal, 22 psil
			Time			557.5	<0.0001			
			Interaction			0.04144	0.8395			
3	Fig. 1B, panel 3	Two Way RM-ANOVA	Treatment	(1,49)	F-statistic	2.863	0.565			29 sal, 22 psil
			Time			9.184	0.0039			
			Interaction			0.3357	0.097			
4	Fig. 1B, panel 4	Two Way RM-ANOVA	Treatment	(1,49)	F-statistic	5.072	0.0288	Sidak: Early, Late	Early: 0.0093, Late: 0.3329	29 sal, 22 psil
			Time			8.207	0.0061			
			Interaction			5.236	0.0265			
5	Fig. 1B, panel 5	Two Way RM-ANOVA	Treatment	(1,49)	F-statistic	1.773	0.6977			29 sal, 22 psil
			Time			2.326	0.1337			
			Interaction			0.1527	0.1891			
6	Fig. 1C	Mann-Whitney	Treatment		Mann-Whitney U	235	0.1116			29 sal, 22 psil
7	Fig. 1D, panel 1	Two Way RM-ANOVA	Treatment	(3,47)	F-statistic	0.7305	0.539			5-21 mice
			Time			0.2511	0.6187			
			Interaction			0.5344	0.661			
8	Fig. 1D, panel 2	Two Way RM-ANOVA	Treatment	(3,47)	F-statistic	0.7676	0.518			5-21 mice
			Time			482	<0.0001			
			Interaction			4.265	0.0096			
9	Fig. 1D, panel 3	Two Way RM-ANOVA	Treatment	(3,47)	F-statistic	2.793	0.0506			5-21 mice
			Time			7.015	0.011			
			Interaction			0.9362	0.4307			
10	Fig. 1D, panel 4	Two Way RM-ANOVA	Treatment	(3,47)	F-statistic	5.415	0.0028	Sidak: Early, Late	Early: Sal RE vs. Psil RE 0.0114; Sal SE vs. Psil SE 0.0059; Late: Sal RE vs. Psil SE 0.0190; Psil RE vs. Sal SE: 0.008; Psil RE vs. Psil SE 0.0337;	5-21 mice
			Time			3.069	0.0863			
			Interaction			2.948	0.0423			
11	Fig. 1D, panel 5	Two Way RM-ANOVA	Treatment	(3,47)	F-statistic	29.27	0.0001	Sidak: Early, Late	Early: Sal RE vs. Sal SE <0.0001; Sal RE vs. Psil SE 0.0174; Psil RE vs. Sal SE <0.0001; Psil RE vs. Psil SE <0.0039; Late: Sal RE vs. Sal SE <0.0001; Sal RE vs. Psil SE 0.0001; Psil RE vs. Sal SE <0.0001; Psil RE vs. Psil SE <0.0001	5-21 mice
			Time			7.377	0.0092			
			Interaction			2.606	0.2058			
12	Fig. 1F, panel 1	Logistic regression	Extinction rate class		beta0/log likelihood/auROC	1.458±0.7874 / 0.5949 / 0.6488	0.4411/ 0.4405 / 0.2225			5-21 mice
13	Fig. 1F, panel 2	Two Way RM-ANOVA	Group	(9, 243)	F-statistic	17.38	0.0066	Sidak: Session half	Ext3 late: 0.0021	7-18 mice
			Time			33.75	<0.0001			
			Interaction			17.38	<0.0001			
14	Fig. 1G, panel 1	Logistic regression	Extinction rate class		beta0/log likelihood/ auROC	3.772±1.487 / 6.477 / 0.9251	0.0392 / 0.0109 / 0.0054			5-21 mice
15	Fig. 1G, panel 2	Two Way RM-ANOVA	Group	(9, 243)	F-statistic	16.97	0.0005	Sidak: Session half	Ext1 late: 0.0235; Ext2 late: 0.006; Ext3 late: 0.0143	7-18 mice
			Time			39.91	<0.0001			
			Interaction			6.473	<0.0001			
16	Fig. 2F, panel 1	Two Way RM-ANOVA	Group	(3,17)	F-statistic	2.014	0.1502			3-7 mice
			Time			1.685	0.1191			
			Interaction			1	0.7516			
17	Fig. 2F, panel 2	Two Way RM-ANOVA	Group	(3,17)	F-statistic	0.6155	0.6143			3-7 mice
			Time			23.36	<0.0001			
			Interaction			0.8446	0.6605			
18	Fig. 2F, panel 3	Two Way RM-ANOVA	Group	(3, 17)	F-statistic	0.4326	0.7324			3-7 mice
			Time			1.404	0.2312			
			Interaction			0.6765	0.8004			
19	Fig. 2F, panel 4	Two Way RM-ANOVA	Group	(3, 17)	F-statistic	1.162	0.353			3-7 mice
			Time			1.462	0.2107			
			Interaction			0.6521	0.8229			
20	Fig. 2F, panel 5	Two Way RM-ANOVA	Group	(3, 17)	F-statistic	7.78	0.0017	Sidak: Trials	Trial 2: Res vs. Non 0.0479; Trial 4: Res vs. Non 0.0181	3-7 mice
			Time			0.9564	0.4493			
			Interaction			0.5976	0.8691			
21	Fig. 2F, panel 6	Unpaired t-test	Group	(2, 18)	F-statistic	1.254	0.3615			3-7 mice
22	Fig. 2J	Two Way RM ANOVA	Group	(3, 17)	F-statistic	0.2566	0.4897			
			Time			0.6486	0.6298			
			Interaction			0.9656	0.4897			
			Group	(3, 17)		0.04281	0.9878			



Row	Figure	Statistical Model	Variable	Degrees of Freedom (DFn, DFd)	Parameter(s)	Parameter value	p-value	Multiple comparisons? (Sidak test)	p-value	n per group
23	Fig. 2K	Two Way RM ANOVA	Time	(4, 68)	F-statistic	5.506	0.0007			3-7 mice
			Interaction	(12, 68)		1.106	0.3109			
24	Fig. 2L	Two Way RM ANOVA	Group	(3, 17)	F-statistic	1.461	0.2606			3-7 mice
			Time	(4, 68)		0.9682	0.4308			
			Interaction	(12, 68)		0.7331	0.7144			
25	Fig. 2M	Two Way RM ANOVA	Group	(3, 17)	F-statistic	0.2848	0.8357			3-7 mice
			Time	(4, 68)		50.48	<0.0001			
			Interaction	(12, 68)		1.534	0.1335			
26	Fig. 2N	Two Way RM ANOVA	Group	(3, 17)	F-statistic	0.2464	0.979			3-7 mice
			Time	(4, 68)		110.3	<0.0001			
			Interaction	(12, 68)		0.3381	0.8626			
27	Fig. 2O	Two Way RM ANOVA	Group	(3, 17)	F-statistic	0.7136	0.5573			3-7 mice
			Time	(4, 68)		154.6	<0.0001			
			Interaction	(12, 68)		0.6438	0.7974			
28	Fig. 2P	Two Way RM ANOVA	Group	(3, 17)	F-statistic	0.435	0.7308			3-7 mice
			Time	(2, 679, 45.54)		13.15	<0.0001			
			Interaction	(12, 68)		1.213	0.2808			
29	Fig. 3A, panel 1	Two Way ANOVA	Treatment	(1, 17)	F-statistic	1.779	0.1998			3-7 mice
			Extinction class	(1, 17)		0.4785	0.4984			
			Interaction	(1, 17)		0.5428	0.4713			
30	Fig. 3A, panel 2	Two Way ANOVA	Treatment	(1, 17)	F-statistic	0.1064	0.7482			3-7 mice
			Extinction class	(1, 17)		0.4287	0.5214			
			Interaction	(1, 17)		3.734	0.0702			
31	Fig. 3A, panel 3	Two Way ANOVA	Treatment	(1, 17)	F-statistic	48.57	<0.0001	Sidak: Psil vs. Sal	Rapid: <0.0001; Slow: 0.0004	3-7 mice
			Extinction class	(1, 17)		0.403	0.534			
			Interaction	(1, 17)		1.219	0.285			
32	Fig. 3A, panel 4	Two Way ANOVA	Treatment	(1, 17)	F-statistic	1.432	0.2479			3-7 mice
			Extinction class	(1, 17)		0.4266	0.5224			
			Interaction	(1, 17)		4.623	0.0462	Sidak: Psil vs. Sal	Slow psil v. slow sal: 0.0464	
33	Fig. 3A, panel 5	Two Way ANOVA	Treatment	(1, 17)	F-statistic	1.148	0.3473			3-7 mice
			Extinction class	(1, 17)		1.616	0.2207			
			Interaction	(1, 17)		1.148	0.299			
34	Fig. 3B, panel 1	Two Way ANOVA	Treatment	(1, 17)	F-statistic	3.335	0.0854			3-7 mice
			Extinction class	(1, 17)		0.4659	0.5041			
			Interaction	(1, 17)		1	0.2761			
35	Fig. 3B, panel 2	Two Way ANOVA	Treatment	(1, 17)	F-statistic	0.04985	0.826			3-7 mice
			Extinction class	(1, 17)		3.258	0.0888			
			Interaction	(1, 17)		0.6745	0.6745			
36	Fig. 3B, panel 3	Two Way ANOVA	Treatment	(1, 17)	F-statistic	14.97	0.0012	sidak: psil v sal	rapid: 0.1184; slow: 0.0049	3-7 mice
			Extinction class	(1, 17)		0.07179	0.792			
			Interaction	(1, 17)		0.8108	0.3805			
37	Fig. 3B, panel 4	Two Way ANOVA	Treatment	(1, 17)	F-statistic	0	0.7698			3-7 mice
			Extinction class	(1, 17)		0.685	0.4193			
			Interaction	(1, 17)		0.0884	0.8432			
38	Fig. 3B, panel 5	Two Way ANOVA	Treatment	(1, 17)	F-statistic	0.002783	0.9585			3-7 mice
			Extinction class	(1, 17)		3.41	0.0823			
			Interaction	(1, 17)		3.41	0.0823			
39	Fig. 3E, panel 1	Two Way ANOVA	Treatment	(1, 17)	F-statistic	0.1006	0.755			3-7 mice
			Extinction class	(1, 17)		0.8545	0.3682			
			Interaction	(1, 17)		0.6187	0.4423			
40	Fig. 3E, panel 2	Two Way ANOVA	Treatment	(1, 17)	F-statistic	0.2706	0.054			3-7 mice
			Extinction class	(1, 17)		2.857	0.1092			
			Interaction	(1, 17)		4.285	0.6097			
41	Fig. 3E, panel 3	Two Way ANOVA	Treatment	(1, 17)	F-statistic	20.69	0.0003			3-7 mice
			Extinction class	(1, 17)		10.27	0.0052			
			Interaction	(1, 17)		9.196	0.0075	Sidak	rapid sal v psil: 0.0002 sal rapid v slow: 0.0028	
42	Fig. 3E, panel 4	Two Way ANOVA	Treatment	(1, 17)	F-statistic	0.08971	0.7682			3-7 mice
			Extinction class	(1, 17)		0.1562	0.6976			
			Interaction	(1, 17)		0.09206	0.7653			
43	Fig. 3E, panel 5	Two Way ANOVA	Treatment	(1, 17)	F-statistic	0.2325	0.6358			3-7 mice
			Extinction class	(1, 17)		7.921	0.0119	Sidak: psil	rapid v slow: 0.0136	
			Interaction	(1, 17)		0.5108	0.6358			
44	Fig. 3FF panel 1	Two Way ANOVA	Treatment	(1, 17)	F-statistic	0.06716	0.1367			3-7 mice
			Extinction class	(1, 17)		0.01831	0.8939			
			Interaction	(1, 17)		2.401	0.7516			
45	Fig. 3F, panel 2	Two Way ANOVA	Treatment	(1, 17)	F-statistic	0.6654	0.4295			3-7 mice
			Extinction class	(1, 17)		0.1733	0.6824			
			Interaction	(1, 17)		6.323	0.0223			
46	Fig. 3F, panel 3	Two Way ANOVA	Treatment	(1, 17)	F-statistic	43.19	<0.0001	Sidak: rapid v slow	sal; ,0081; psil; <0.0001	3-7 mice
			Extinction class	(1, 17)		1.651	0.2161			
			Interaction	(1, 17)		4.437	0.0503			
47	Fig. 3F, panel 4	Two Way ANOVA	Treatment	(1, 17)	F-statistic	1	0.527			3-7 mice
			Extinction class	(1, 17)		0.2496	0.6238			
			Interaction	(1, 17)		0.4172	0.4045			
			Treatment	(1, 17)		0.6719	0.4237			

Row	Figure	Statistical Model	Variable	Degrees of Freedom (DFn, DFd)	Parameter(s)	Parameter value	p-value	Multiple comparisons? (Sidak test)	p-value	n per group
48	Fig. 3F, panel 5	Two Way ANOVA	Extinction class	(1,17)		0.458	0.5077			3-7 mice
			Interaction	(1,17)	F-statistic	1.523	0.234			
49	Fig. 3G, top	Linear regression	PC distance during ext3 x freezing late ext3, psil	(1,12)	F-statistic/Beta 0/R2	16.61 / -191.8±47.07 / 0.5805	0.0015			14 mice
50	Fig. 3G, bottom	Linear regression	PC distance during ext3 x freezing late ext3, sal	(1,5)	F-statistic/Beta 0/R2	.6275 -100.5±126.9 / 0.1115	0.4642			7 mice
51	Fig. 4B, panel 1	Two Way RM ANOVA	Sex	(3, 17)		0.4119	0.7465			7 mice
			Time	(33, 561)		14.28	<0.0001			
			Interaction	(99, 561)	F-statistic	0.7388	0.9684			
52	Fig. 4B, panel 2	Two Way RM ANOVA	Sex	(3, 17)		6.775	0.0033			7 mice
			Time	(33, 561)		11.96	<0.0001			
			Interaction	(99, 561)	F-statistic	1.27	0.0515			
53	Fig. 4B, panel 3	Two Way RM ANOVA	Sex	(3, 17)		1.71	0.2029			7 mice
			Time	(33, 561)		9.227	<0.0001			
			Interaction	(99, 561)	F-statistic	1.71	0.3224			
54	Fig. 4B, panel 4	Two Way RM ANOVA	Sex	(3, 17)		1.46	0.2609			7 mice
			Time	(33, 561)		19.95	<0.0001			
			Interaction	(99, 561)	F-statistic	1.125	0.2092			
55	Fig. 34, panel 5	Two Way RM ANOVA	Sex	(3, 17)		0.5065	0.583			7 mice
			Time	(33, 561)		17.3	<0.0001			
			Interaction	(99, 561)	F-statistic	1.333	0.025			
56	Fig. 4C, solid	Ordinary One-Way ANOVA	Group	(3,17)	F-statistic	0.3857	1			7 mice
57	Fig. 4C, checked	Ordinary One-Way ANOVA	Group	(3,17)	F-statistic	0.7163	0.5558			7 mice
58	Fig. 4D	Multiple unpaired t-tests	Dateset (real vs. shuffled)	198	t-statistic	144.1; 115.9; 25.21; 38.53	<0.0001; <0.0001; <0.0001; <0.0001			100 iterations
59	Fig. 4E - data for	Multiple linear regression	Component trial factor weight X trial by trial freezing		F-statistic/R2	for each animal (res, nonres, rapid, slow):	for each animal (res, nonres, sal):			21 mice
						24.2871	0			
						0.8126	0			
						7.262	0.5646			
						10.0595	0.6424			
						2.7637	0.3304			
						5.1204	0.4776			
						6.6871	0.5442			
						4.7136	0.457			
						8.9874	0.6161			
						5.2324	0.483			
						3.8343	0.4064			
						5.7258	0.5056			
						1.7432	0.2374			
						8.4946	0.6027			
						4.3268	0.4359			
						3.2644	0.3683			
5.7293	0.5057									
4.2004	0.4286									
3.3388	0.3735									
3.1072	0.3569									
2.0108	0.2642									
2.4635	0.3055									
60	Fig. 4E	One sample t-test	Median correlation between component trial factor: weight X trial by trial freezing > 0	6; 6; 2; 3	t-statistic	res: 29.481/ non-res: 9.638/ rapid: 13.05; slow = 10.92	res: <0.0001; non-res: <0.0001; rapid: 0.0083; slow: 0.0081			
61	Fig. 4F, column 1	Linear regression	Strength of component in session X extinction rate	(1,19)	F-statistic/Beta 0/R2	H: 0.6973 / -0.07817 / 0.03540; A: 0.4962, / 0.05690 / 0.02545; E1 0.6020 / 0.05855 / 0.03071; E2: 0.1427/ 0.01963 / 0.007452; E3: 0.4347 / 0.04096 / 0.02237	H: 0.4141, A: 0.4897, E1: 0.4474, E2: 0.7098, E3 0.5176			21 mice
						62	Fig. 4F, column 2	Linear regression	Strength of component in session X extinction rate	
63	Fig. 4F, column 3	Linear regression	Strength of component in session X extinction rate	(1,19)	F-statistic/Beta 0/R2	H: 0.1744 / -0.03684/ 0.009095; A: 0.4962, / -0.02452 / 0.005961; E1 2.394 / -0.1309 / 0.1119; E2: 0.2255/ -0.0564 / 0.01173; E3: 0.04184 /-0.02214 / 0.002197	H: 0.6809, A: 0.7394, E1: 0.1383, E2: 0.8403, E3 0.8401			21 mice

Row	Figure	Statistical Model	Variable	Degrees of Freedom (DFn, DFd)	Parameter(s)	Parameter value	p-value	Multiple comparisons? (Sidak test)	p-value	n per group
64	Fig. 4F, column 4	Linear regression	Strength of component in session X extinction rate	(1,19)	F-statistic/Beta 0/R2	H: 2.029 / 0.1275 / 0.0965; A: 0.03238, / -0.01209 0.001701; E1 0.006821 / -0.008477 / 0.0003589; E2: 5.533 / -0.1994 / 0.2255; E3: 0.2794 / 0.03526 / 0.01449	H: 0.1705, A: 0.8591, E1: 0.935, E2: 0.0296, E3 0.6032			21 mice
65	Fig. 4F, column 5	Linear regression	Strength of component in session X extinction rate	(1,19)	F-statistic/Beta 0/R2	H: 0.06392 / 0.02579 / 0.003353; A: 2.43, / 0.07323 / 0.1134; E1 0.218 / 0.05245 / 0.01134; E2: 0.9223 / 0.0414 / 0.0463; E3: 10.8 / -0.2158 / 0.3624	H: 0.8031, A: 0.1355, E1: 0.6459, E2: 0.3489, E3 0.0039			21 mice
66	Fig. 4G	Linear regression	Component strength X extinction rate	(1,19)	F-statistic/Beta 0/R2	11.74 / -1.579±0.4607 / 0.3820	0.0028			21 mice
67	Fig. 5B, top	Chi-square	Extinction class		3 Chi-square	85.29	<0.0001			3-4 mice
68	Fig. 5B, middle	Chi-square	Extinction class		3 Chi-square	78.29	<0.0001			3-4 mice
69	Fig. 5B, bottom	Chi-square	Extinction class		3 Chi-square	73.77	<0.0001			3-4 mice
70	Fig. 5C	Linear regression	Fraction of Acq/Ext1/Ext3 neurons x extinction rate, saline	(1, 5)	F-statistic/Beta 0/R2	11.66/1.119 ± .3275/0.6999	0.0189			7 mice
71	Fig. 5D, top	Wilcoxon rank-sum	Median # 0		Sum of signed ranks	Rap 1 -1004; Rap3 1576; Slo1 28; Slo3 152	.0001; <0.0001; .6215; .0032			60 neurons (Rap), 20 (Slow)
72	Fig. 5D, bottom	Two-Way RM ANOVA	Extinction class (1,78) Time (1,78) Interaction (1,78)		Two-Way RM ANOVA	0.6696 0.4157 21.95 <0.0001 8.879 0.0038		Sidak Rapid: <0.0001 Ext3: 0.0342		60 (Rap), 20(slow)
73	Fig. 5E, top	Wilcoxon rank-sum	Median # 0		Sum of signed ranks	Rap 1 189; Rap3 -89; Slo1 -384; Slo3 -388	0.0013; .1560; .1430; .1250			22 (rap), . 34 (slow)
74	Fig. 5E, bottom	Two-Way RM ANOVA	Extinction class (1,54) Time (1,54) Interaction (1,54)		Two-Way RM ANOVA	5.533 0.0223 35.24 <0.0001 27.85 <0.0001		Sidak Sidak Rapid: <0.0001		22 (rap), . 34 (slow)
75	Fig. 5F, top	Wilcoxon rank-sum	Median # 0		Sum of signed ranks	Rap 1 48.00; Rap3 102; Slo1 371; Slo3 -233	0.2312; 1.0063; 0.0359; 0.001			16 neurons (Rap), 45 (Slow)
76	Fig. 5F, bottom	Two-Way RM ANOVA	Extinction class (1,59) Time (1,59) Interaction (1,59)		Two-Way RM ANOVA	2.34 0.1314 11.56 0.0012 1.994 0.1632		Sidak Rapid: 0.0137		16 neurons (Rap), 45 (Slow)
77	Fig. 6B, top	Chi-square	Group		3 Chi-square	Res vs. Sal: 19.09; Res v Nonres: 6.433; Nonres v sal: 12.04	Res vs. Sal 0.0003, Res v nonres: 0.0823; Nonres v sal: 0.0072			3-7 mice
78	Fig. 6B, middle	Chi-square	Group		3 Chi-square	Res vs. Sal:5.470; Res v Nonres: 2.487; Nonres v sal: 32.49	Res vs. Sal 0.1404, Res v nonres: 0.4776; Nonres v sal: 0.0089			3-7 mice
79	Fig. 6B, bottom	Chi-square	Group		3 Chi-square	Res vs. Sal: 16.25; Res v Nonres: .2203; Nonres v sal: 33.49	Res vs. Sal 0.001, Res v nonres: 0.9473; Nonres v sal: 0.0004			3-7 mice
80	Fig. 6C, top	Wilcoxon rank-sum	Median = 0		sum of signed ranks	R1: -1849, R3: -1794, N1 -1415, N3 -1173, S1 -151, S3 -123	R1 <0.0001, R3 <0.0001, N1 <0.0001, N3 <0.0001, S1 <0.0001, S3 0.0021			63 neurons (R), 53 neurons (N), 17 neurons (S)
81	Fig. 6C, bottom	Two Way RM ANOVA	Group (2, 130) Time (1, 130) Interaction (2, 130)		F-statistic	4.734 2.965 0.01344	0.0104 0.0875 0.9866	Sidak: Ext1, Ext3	Ext1: Res vs. Non 0.0155; Res vs. Sal 0.9998; Non vs. Sal 0.1974 Ext3: Res vs. Non 0.0199; Res vs. Sal 0.9992; Non vs. Sal 0.2398	63 neurons (R), 53 neurons (N), 17 neurons (S)
82	Fig. 6D, top	Wilcoxon rank-sum	Median = 0		sum of signed ranks	R1: 493, R3: 489, N1 754, N3 326, S1 183, S3 5	R1 0.0010, R3 0.0011, N1 <0.0001, N3 <0.0001, S1 0.0856, S3 0.0007, S3 0.9383			41 neurons (R), 47 neurons (N), 21 neurons (S)
83	Fig. 6D, bottom	Two Way RM ANOVA	Group (2, 106) Time (1, 106) Interaction (2, 106)		F-statistic	1.845 20.77 1.961	0.163 0.0104 0.9866	Sidak: Res, Non-Res, Sal	Res: Ext1 vs. Ext3 0.0488; Non: Ext1 vs. Ext3 0.2563; Sal: Ext1 vs. Ext3 0.0020	41 neurons (R), 47 neurons (N), 21 neurons (S)

Row	Figure	Statistical Model	Variable	Degrees of Freedom (DFn, DfD)	Parameter(s)	Parameter value	p-value	Multiple comparisons? (Sidak test)	p-value	n per group
84	Fig. 6E, top	Wilcoxon rank-sum	Median = 0		sum of signed ranks	R1: 28, R3: 1784, N1 355, N3 941, S1 -1004, S3 1576	R1 0.9214, R3 <0.0001, N1 0.0525, N3 <0.0001, S1 <0.0001, S3 <0.0001			60 neurons (R), 46 neurons (N), 60 neurons (S)
85	Fig. 6E, bottom	Two Way RM ANOVA	Group	(1, 163)		5.424	0.0052	Ext1, Ext3	Ext3: Res vs. Non <0.0001; Res vs. Sal 0.0039; Sal v non .3349	60 neurons (R), 46 neurons (N), 60 neurons (S)
			Time	(2, 163)		112.4	<0.0001	Res, Non-Res, Sal	Res: <0.0001; Non: 0.0083; Sal: <0.0001	
86	Fig. 6F, top	Wilcoxon rank-sum	Median = 0		sum of signed ranks	R1: -307, R3: -465, N1 -48, N3 -328, S1 189, S3 -89	R1 0.0077, R3 <0.0001, N1 0.5979, N3 <0.0001, S1 0.156, S3 <0.0001			34 neurons (R), 28 neurons (N), 22 neurons (S)
			Group	(2, 81)		6.869	0.0004	Ext1, Ext3	Ext1: Res v npr: Res vs. Sal <0.0001; Non vs. Sal <0.0001	34 neurons (R), 28 neurons (N), 22 neurons (S)
87	Fig. 6F, bottom	Two Way RM ANOVA	Time	(1, 81)		22.41	<0.0001	Res, Non-Res, Sal	Res Ext1 vs. Ext3: 0.0744; Non: Ext1 vs. Ext3 0.0136 Sal: Ext1 vs. Ext3 <0.0001	
			Interaction	(2, 81)	F-statistic	0.6691	<0.0001			
88	Fig. 6G, top	Wilcoxon rank-sum	Median = 0		sum of signed ranks	R1: -210, R3: 16, N1 -187, N3 -19, S1 -119, S3 31	R1 <0.0001, R3 0.0049, N1 0.0005, N3 0.7593, S1 0.4235, S3 0.4874			20 neurons (R), 21 neurons (N), 17 neurons (S)
			Group	(2, 81)		8.81	0.5472	Ext1, Ext3	Res: Ext1 vs. Ext3 <0.0001; Non: Ext1 vs. Ext3 0.0364; Sal: Ext1 vs. Ext3 <0.0001	20 neurons (R), 21 neurons (N), 17 neurons (S)
89	Fig. 6G, bottom	Two Way RM ANOVA	Time	(1, 81)		75.07	<0.0001	Res, Non-Res, Sal	Ext3 Res vs. Non: 0.0057	
			Interaction	(2, 81)	F-statistic	0.6069	0.0005			
90	Fig. 6H, top	Wilcoxon rank-sum	Median = 0		sum of signed ranks	R1: 693, R3: 1035, N1 368, N3 490, S1 93, S3 93	R1 <0.0001, R3 <0.0001, N1 0.0003, N3 <0.0001, S1 0.4016, S3 0.0016			45 neurons (R), 32 neurons (N), 14 neurons (S)
			Group	(2, 55)		3.698	0.0287	Ext1, Ext3	Non vs. Sal 0.0134	45 neurons (R), 32 neurons (N), 14 neurons (S)
91	Fig. 6H, bottom	Two Way RM ANOVA	Time	(1, 55)		0.9934	0.3216	Res, Non-Res, Sal		
			Interaction	(2, 55)	F-statistic	0.9202	0.4022			
92	Fig. 6I, top	Wilcoxon rank-sum	Median = 0		sum of signed ranks	R1: -165, R3: 69, N1 265, N3 263, S1 48, S3 102	R1 0.0255, R3 0.3666, N1 0.0032, N3 0.0035, S1 0.2312, S3 0.0063			25 neurons (R), 29 neurons (N), 16 neurons (S))
			Group	(2, 112)		5.609	<0.0001	Ext1, Ext3	Ext1: Res vs. Non 0.0156; Res vs. Sal 0.0178 Ext3: Res vs. Sal 0.0086	25 neurons (R), 29 neurons (N), 16 neurons (S)
93	Fig. 6I, bottom	Two Way RM ANOVA	Time	(1, 112)		16.18	0.0038	Res, Non-Res, Sal	Res: Ext1 vs. Ext3 0.002; Sal: Ext1 vs. Ext3 0.0039	
			Interaction	(2, 112)	F-statistic	0.9663	0.0788			
94	Fig. 7B, top	Wilcoxon rank-sum	Median = 0		sum of signed ranks	R1: -8126, R3: -4531, N1 -3852, N3 -2972, SR1 -422, SR3 -324, SS1 194, SS3 548	R1 <0.0001, R3 <0.0001, N1 <0.0001, N3 0.0006, SR1 0.3670, SR3 0.3690, SS1 0.6390, SS3 0.1824			145 neurons (R), 128 neurons (N), 72 neurons (Rap), 79 neurons (Slow)
			Group	(3, 420)		12.99	<0.0001	Ext1, Ext3	Ext1: Res vs. Non 0.0003; Res vs. Rapid <0.0001; Res vs. Slow <0.0001; Ext3: Res vs. Rapid 0.0052; Res vs. Slow 0.0004;	145 neurons (R), 128 neurons (N), 72 neurons (Rap), 79 neurons (Slow)
95	Fig. 7B, bottom	Two Way RM ANOVA	Time	(1, 420)		5.524	0.0192	Res, Non-Res, Sal		
			Interaction	(3, 420)	F-statistic	1.178	0.1625			
96	Fig. 7C, top	Wilcoxon rank-sum	Median = 0		sum of signed ranks	R1: 2229, R3: 4645, N1 4941, N3 2719, SR1 2192, SR3 1483, SS1 194, SS3 548	R1 0.0276, R3 <0.0001, N1 <0.0001, N3 <0.0001, SR1 0.0001, SR3 0.0001, SS1 0.6390, SS3 0.6390,			145 neurons (R), 137 neurons (N), 73 neurons (Rap), 79 neurons (Slow)
			Group	(3, 426)		8.33	<0.0001	Ext1, Ext3	Ext1: Res v Rap: 0.0003; Non v Rap: 0.0062; Rap v Slow: <0.0001	145 neurons (R), 137 neurons (N), 73 neurons (Rap), 79 neurons (Slow)
97	Fig. 7C, bottom	Two Way RM ANOVA	Time	(1, 426)		0.9501	0.3302	Res, Non-Res, Sal		
			Interaction	(3, 426)	F-statistic	1.251	0.2909			
98	Fig. 7D, top	Wilcoxon rank-sum	Median = 0		sum of signed ranks	R1: 157, R3: 9921, N1 2606, N3 5870, S1 -1279, S3 5038, S1 1339, S3 1129	R1 0.8840, R3 <0.0001, N1 0.0018, N3 <0.0001, S1 0.0407, S3 <0.0001, S1 0.0821, S3 <0.0002			145 neurons (R), 137 neurons (N), 105 neurons (Rap), 65 (Slow)
			Group	(2, 390)		8.085	<0.0001	Ext1, Ext3	Ext3: Res vs. Non <0.0001; Res vs. Rap 0.0365; Res v Slow: <0.0001; Non v Rap: 0.0116; Rap v slow: 0.0003	

Row	Figure	Statistical Model	Variable	Degrees of Freedom (DFn, DFD)	Parameter(s)	Parameter value	p-value	Multiple comparisons? (Sidak test)	p-value	n per group
99	Fig. 7D, bottom	Two Way RM ANOVA	Time	(1, 390)		136.5	<0.0001	Res, Non-Res, Sal	Res: Ext1 vs. Ext3 <0.0001; Non: Ext1 vs. Ext3 <0.0001; Sal: Ext1 vs. Ext3 <0.0001	145 neurons (R), 137 neurons (N), 105 neurons (Rap), 65 (Slow)
			Interaction	(2, 390)	F-statistic	8.3	<0.0001			
100	Fig. 7E	Linear regression	Activity of shock responsive Acq dom neurons x freezing late Ext3 psil	(1, 12)	F-statistic/Beta 0/R2	7.3591/24.27±8.947/0.3801	0.0189			7 mice
101	Fig. 7F	Linear regression	Activity of nonoverlapping shock responsive Ext3-dom neurons x freezing late ext3	(1, 12)	F-statistic/Beta 0/R2	15.47/-16.58±4.214/0.5632	0.0002			21 mice
102	Supp Fig. 1A panel 1	Two Way RM ANOVA	Treatment	(1, 50)		2.165	0.1474			22 psil, 29 sal
			Time	(7, 350)		0.6103	0.7475			
			Interaction	(7, 350)	F-statistic	0.6835	0.686			
103	Supp Fig. 1A panel 2	Two Way RM ANOVA	Treatment	(1, 50)		2.939	0.0525			22 psil, 29 sal
			Time	(7, 350)		155.8	<0.0001			
			Interaction	(7, 350)	F-statistic	0.6591	0.7067			
104	Supp Fig. 1A panel 3	Two Way RM ANOVA	Treatment	(1, 50)		4.161	0.0467		Trial 3: 0.0359, Trial 4: 0.0354	22 psil, 29 sal
			Time	(7, 350)		7.14	<0.0001			
			Interaction	(7, 350)	F-statistic	2.289	0.0465			
105	Supp Fig. 1A panel 4	Two Way RM ANOVA	Treatment	(1, 50)		5.199	0.016	Trials	Sal vs. Psil: Trial 2: 0.0182, Trial 4: 0.0217	22 psil, 29 sal
			Time	(7, 350)		2.067	0.0701			
			Interaction	(7, 350)	F-statistic	2.848	0.0269			
106	Supp Fig. 1A panel 5	Two Way RM ANOVA	Treatment	(1, 50)		1.318	0.1581			22 psil, 29 sal
			Time	(7, 350)		3.6585	0.0035			
			Interaction	(7, 350)	F-statistic	0.5474	0.5562			
107	Supp Fig. 1B	Two Way RM ANOVA	Sex	(1, 27)		0.1026	0.7512			7-18 mice
			Time	(27, 243)		28.88	<0.0001			
			Interaction	(27, 243)	F-statistic	1.034	0.4132			
108	Supp Fig. 1C	Two Way RM ANOVA	Sex	(1, 20)		0.4265	0.5211			7-18 mice
			Time	(9, 180)		42.41	<0.0001			
			Interaction	(9, 180)	F-statistic	0.6221	0.7772			
109	Supp Fig. 1D	Two Way RM ANOVA	Treatment	(1, 4)		0.1253	0.7412			9-17 mice
			Time	(9, 36)		4.254	0.008			
			Interaction	(9, 36)	F-statistic	1.457	0.2355			
110	Supp Fig. 1E	Two Way RM ANOVA	Treatment	(1, 49)		1.39	0.2441	Baseline vs. trace	Sal: <0.0001; Psil 0.0160	7-18 mice
			Time	(1, 49)		23.67	<0.0001			
			Interaction	(1, 49)	F-statistic	1.216	0.2755			
111	Supp Fig. 1F	Two Way RM ANOVA	Treatment	(1, 49)		3.314	0.0829			7-18 mice
			Time	(1, 49)		1.247	0.2696			
			Interaction	(1, 49)	F-statistic	0.4218	0.5191			
112	Supp Fig. 2B	Two Way RM ANOVA	Treatment	(12, 68)		0.8675	0.4727			3 mice
			Time	(4, 68)		8.696	<0.0001			
			Interaction	(17, 68)	F-statistic	0.5662	0.8615			
113	Supp Fig. 2C, Panel 1	Two Way ANOVA	Treatment	(1, 17)		1.261	0.277			7-18 mice
			Extinction Class	(1, 17)		1.225	0.2838			
			Interaction	(1, 17)	F-statistic	0.4269	0.5222			
114	Supp Fig. 2C, Panel 2	Two Way ANOVA	Treatment	(1, 17)		0.04233	0.8394			7-18 mice
			Extinction Class	(1, 17)		0.3822	0.5446			
			Interaction	(1, 17)	F-statistic	0.01151	0.9158			
115	Supp Fig. 2C, Panel 3	Two Way ANOVA	Treatment	(1, 17)		0.6713	0.1651			7-18 mice
			Extinction Class	(1, 17)		0.6673	0.4253			
			Interaction	(1, 17)	F-statistic	2.104	0.4239			
116	Supp Fig. 2C, Panel 4	Two Way ANOVA	Treatment	(1, 17)		0.1883	0.6698			7-18 mice
			Extinction Class	(1, 17)		0.3438	0.5654			
			Interaction	(1, 17)	F-statistic	4.24	0.0551			
117	Supp Fig. 2C, Panel 5	Two Way ANOVA	Treatment	(1, 17)		0.1476	0.7056			7-18 mice
			Extinction Class	(1, 17)		0.6509	0.4309			
			Interaction	(1, 17)	F-statistic	0.006763	0.9354			
118	Supp Fig. 2E, Panel 1	Two Way ANOVA	Treatment	(1, 17)		1.666	0.214			7-18 mice
			Extinction Class	(1, 17)		0.485	0.4956			
			Interaction	(1, 17)	F-statistic	0.299	0.5916			
119	Supp Fig. 2E, Panel 2	Two Way ANOVA	Treatment	(1, 17)		1.932	0.1825			7-18 mice
			Extinction Class	(1, 17)		0.5825	0.4558			
			Interaction	(1, 17)	F-statistic	0.7397	0.4017			
			Treatment	(1, 17)		3.089	0.0968			



Row	Figure	Statistical Model	Variable	Degrees of Freedom (DFn, DfD)	Parameter(s)	Parameter value	p-value	Multiple comparisons? (Sidak test)	p-value	n per group
120	Supp Fig. 2E, Panel 3	Two Way ANOVA	Extinction Class	(1,17)	F-statistic	0.02798	0.8691			7-18 mice
			Interaction	(1,17)		0.8103	0.3806			
121	Supp Fig. 2E, Panel 4	Two Way ANOVA	Treatment	(1,17)	F-statistic	4.519	0.0485			7-18 mice
			Extinction Class	(1,17)		0.4693	0.5025			
122	Supp Fig. 2E, Panel 5	Two Way ANOVA	Interaction	(1,17)	F-statistic	0.06964	0.795			7-18 mice
			Treatment	(1,17)		0.3512	0.266			
123	Supp Fig. 2G, Panel 1	Two Way ANOVA	Extinction Class	(1,17)	F-statistic	0.1452	0.7079			7-18 mice
			Interaction	(1,17)		1.323	0.5612			
124	Supp Fig. 2G, Panel 2	Two Way ANOVA	Treatment	(1,17)	F-statistic	3.0676	0.0979			7-18 mice
			Extinction Class	(1,17)		5.674	0.0292			
125	Supp Fig. 2G, Panel 3	Two Way ANOVA	Interaction	(1,17)	F-statistic	13.91	0.0017			7-18 mice
			Treatment	(1,17)		0.2305	0.6373			
126	Supp Fig. 2G, Panel 4	Two Way ANOVA	Extinction Class	(1,17)	F-statistic	1.436	0.2472			7-18 mice
			Interaction	(1,17)		0.8092	0.3809			
127	Supp Fig. 2G, Panel 5	Two Way ANOVA	Treatment	(1,17)	F-statistic	2.208	0.5157			7-18 mice
			Extinction Class	(1,17)		0.003729	0.952			
128	Supp Fig. 2I, Panel 1	Two Way ANOVA	Interaction	(1,17)	F-statistic	0.4406	0.1556			7-18 mice
			Treatment	(1,17)		1.114	0.306			
129	Supp Fig. 2I, Panel 2	Two Way ANOVA	Extinction Class	(1,17)	F-statistic	1.644	0.217			7-18 mice
			Interaction	(1,17)		3.203	0.0913			
130	Supp Fig. 2I, Panel 3	Two Way ANOVA	Treatment	(1,17)	F-statistic	0.009515	0.9234			7-18 mice
			Extinction Class	(1,17)		0.002574	0.9601			
131	Supp Fig. 2I, Panel 4	Two Way ANOVA	Interaction	(1,17)	F-statistic	0.9156	0.3521			7-18 mice
			Treatment	(1,17)		1.666	0.214			
132	Supp Fig. 2I, Panel 5	Two Way ANOVA	Extinction Class	(1,17)	F-statistic	0.485	0.4956			7-18 mice
			Interaction	(1,17)		0.299	0.5916			
133	Supp Fig. 3A	Two Way RM ANOVA	Treatment	(1,17)	F-statistic	1.932	0.1825			7-18 mice
			Extinction Class	(1,17)		0.5825	0.4558			
134	Supp Fig. 3B	Two Way RM ANOVA	Interaction	(1,17)	F-statistic	0.7397	0.4017			7-18 mice
			Treatment	(1,17)		3.089	0.0988			
135	Supp Fig. 3C	Two Way RM ANOVA	Extinction Class	(1,17)	F-statistic	0.02798	0.8691			7-18 mice
			Interaction	(1,17)		0.8103	0.3806			
136	Supp Fig. 3D	Two Way RM ANOVA	Treatment	(1,17)	F-statistic	4.519	0.0485			7-18 mice
			Extinction Class	(1,17)		0.4693	0.5025			
137	Supp Fig. 3E	Two Way RM ANOVA	Interaction	(1,17)	F-statistic	0.06964	0.795			7-18 mice
			Treatment	(1,17)		0.3512	0.5612			
138	Supp Fig. 5B	One Way RM ANOVA	Extinction Class	(1,17)	F-statistic	0.1452	0.7079			7-18 mice
			Interaction	(1,17)		1.323	0.266			
139	Supp Fig. 5D	One Way ANOVA	Sex	(3,17)	F-statistic	0.6941	0.5683			7 mice
			Time	(59, 1003)		0.8867	0.7145			
140	Supp Fig. 5E	Chi-square	Interaction	(17, 1003)	F-statistic	0.8	0.6984			7 mice
			Sex	(3,17)		0.3718	0.7744			
141	Supp Fig. 5F	Chi-square	Time	(59, 1003)	F-statistic	3.18	<0.0001			7 mice
			Interaction	(17, 1003)		1.014	0.4399			
142	Supp Fig. 5G	Chi-square	Sex	(3,17)	F-statistic	1.329	0.2978			7 mice
			Time	(59, 1003)		1.021	0.4338			
143	Supp Fig. 5H	Chi-square	Interaction	(17, 1003)	F-statistic	1.52	<0.0001			7 mice
			Sex	(3,17)		1.741	0.5685			
144	Supp Fig. 5I	Chi-square	Time	(59, 1003)	F-statistic	1.457	0.0155			7 mice
			Interaction	(17, 1003)		0.9772	0.1966			
145	Supp Fig. 5J	Chi-square	Sex	(3,17)	F-statistic	0.327	0.8059			7 mice
			Time	(59, 1003)		1.255	0.0973			
146	Supp Fig. 5K	Chi-square	Interaction	(17, 1003)	F-statistic	1.136	0.1261			7 mice
			Sex	(3,17)		0.327	0.8059			
147	Supp Fig. 5L	Chi-square	Time	(59, 1003)	F-statistic	1.255	0.0973			7 mice
			Interaction	(17, 1003)		1.136	0.1261			
148	Supp Fig. 5M	Chi-square	Sex	(3,17)	F-statistic	0.327	0.8059			7 mice
			Time	(59, 1003)		1.255	0.0973			
149	Supp Fig. 5N	Chi-square	Interaction	(17, 1003)	F-statistic	1.136	0.1261			7 mice
			Sex	(3,17)		0.327	0.8059			
150	Supp Fig. 5O	Chi-square	Time	(59, 1003)	F-statistic	1.255	0.0973			7 mice
			Interaction	(17, 1003)		1.136	0.1261			
151	Supp Fig. 5P	Chi-square	Sex	(3,17)	F-statistic	0.327	0.8059			7 mice
			Time	(59, 1003)		1.255	0.0973			
152	Supp Fig. 5Q	Chi-square	Interaction	(17, 1003)	F-statistic	1.136	0.1261			7 mice
			Sex	(3,17)		0.327	0.8059			
153	Supp Fig. 5R	Chi-square	Time	(59, 1003)	F-statistic	1.255	0.0973			7 mice
			Interaction	(17, 1003)		1.136	0.1261			
154	Supp Fig. 5S	Chi-square	Sex	(3,17)	F-statistic	0.327	0.8059			7 mice
			Time	(59, 1003)		1.255	0.0973			
155	Supp Fig. 5T	Chi-square	Interaction	(17, 1003)	F-statistic	1.136	0.1261			7 mice
			Sex	(3,17)		0.327	0.8059			
156	Supp Fig. 5U	Chi-square	Time	(59, 1003)	F-statistic	1.255	0.0973			7 mice
			Interaction	(17, 1003)		1.136	0.1261			
157	Supp Fig. 5V	Chi-square	Sex	(3,17)	F-statistic	0.327	0.8059			7 mice
			Time	(59, 1003)		1.255	0.0973			
158	Supp Fig. 5W	Chi-square	Interaction	(17, 1003)	F-statistic	1.136	0.1261			7 mice
			Sex	(3,17)		0.327	0.8059			
159	Supp Fig. 5X	Chi-square	Time	(59, 1003)	F-statistic	1.255	0.0973			7 mice
			Interaction	(17, 1003)		1.136	0.1261			
160	Supp Fig. 5Y	Chi-square	Sex	(3,17)	F-statistic	0.327	0.8059			7 mice
			Time	(59, 1003)		1.255	0.0973			
161	Supp Fig. 5Z	Chi-square	Interaction	(17, 1003)	F-statistic	1.136	0.1261			7 mice
			Sex	(3,17)		0.327	0.8059			
162	Supp Fig. 6A	Chi-square	Time	(59, 1003)	F-statistic	1.255	0.0973			7 mice
			Interaction	(17, 1003)		1.136	0.1261			
163	Supp Fig. 6B	Chi-square	Sex	(3,17)	F-statistic	0.327	0.8059			7 mice
			Time	(59, 1003)		1.255	0.0973			
164	Supp Fig. 6C	Chi-square	Interaction	(17, 1003)	F-statistic	1.136	0.1261			7 mice
			Sex	(3,17)		0.327	0.8059			
165	Supp Fig. 6D	Chi-square	Time	(59, 1003)	F-statistic	1.255	0.0973			7 mice
			Interaction	(17, 1003)		1.136	0.1261			
166	Supp Fig. 6E	Chi-square	Sex	(3,17)	F-statistic	0.327	0.8059			7 mice
			Time	(59, 1003)		1.255	0.0973			
167	Supp Fig. 6F	Chi-square	Interaction	(17, 1003)	F-statistic	1.136	0.1261			7 mice
			Sex	(3,17)		0.327	0.8059			
168	Supp Fig. 6G	Chi-square	Time	(59, 1003)	F-statistic	1.255	0.0973			7 mice
			Interaction	(17, 1003)		1.136	0.1261			
169	Supp Fig. 6H	Chi-square	Sex	(3,17)	F-statistic	0.327	0.8059			7 mice
			Time	(59, 1003)		1.255	0.0973			
170	Supp Fig. 6I	Chi-square	Interaction	(17, 1003)	F-statistic	1.136	0.1261			7 mice
			Sex	(3,17)		0.327	0.8059			
171	Supp Fig. 6J	Chi-square	Time	(59, 1003)	F-statistic	1.255	0.0973			7 mice
			Interaction	(17, 1003)		1.136	0.1261			
172	Supp Fig. 6K	Chi-square	Sex	(3,17)	F-statistic	0.327	0.8059			7 mice
			Time	(59, 1003)		1.255	0.0973			
173	Supp Fig. 6L	Chi-square	Interaction	(17, 1003)	F-statistic	1.136	0.1261			7 mice
			Sex	(3,17)		0.327	0.8059			
174	Supp Fig. 6M	Chi-square	Time	(59, 1003)	F-statistic	1.255	0.0973			7 mice
			Interaction	(17, 1003)		1.136	0.1261			
175	Supp Fig. 6N	Chi-square	Sex	(3,17)	F-statistic	0.327	0.8059			7 mice
			Time	(59, 1003)		1.255	0.0973			
176	Supp Fig. 6O	Chi-square	Interaction	(17, 1003)	F-statistic	1.136	0.1261			7 mice
			Sex	(3,17)		0.327	0.8059			
177	Supp Fig. 6P	Chi-square	Time	(59, 1003)	F-statistic	1.255	0.0973			7 mice
			Interaction	(17, 1003)		1.136	0.1261			
178	Supp Fig. 6Q	Chi-square	Sex	(3,17)	F-statistic	0.327	0.8059			7 mice
			Time	(59, 1003)		1.255	0.0973			
179	Supp Fig. 6R	Chi-square	Interaction	(17, 1003)	F-statistic	1.136	0.1261			7 mice
			Sex	(3,17)		0.327	0.8059			
180	Supp Fig. 6S	Chi-square	Time	(59, 1003)	F-statistic	1.255	0.0973			7 mice
			Interaction	(17, 1003)		1.136	0.1261			
181	Supp Fig. 6T	Chi-square	Sex	(3,17)	F-statistic	0.327	0.8059			7 mice
			Time	(59, 1003)		1.255	0.0973			
182	Supp Fig. 6U	Chi-square	Interaction	(17, 1003)	F-statistic	1.136	0.1261			7 mice
			Sex	(3,17)		0.327	0.8059			
183	Supp Fig. 6V	Chi-square	Time	(59, 1003)	F-statistic	1.255	0.0973			7 mice
			Interaction	(17, 1003)		1.136	0.1261			
184	Supp Fig. 6W	Chi-square	Sex	(3,17)	F-statistic	0.327	0.8059			7 mice
			Time	(59, 1003)		1.255	0.0973			
185	Supp Fig. 6X	Chi-square	Interaction	(17, 1003)	F-statistic	1.136	0.1261			7 mice
			Sex	(3,17)		0.327	0.8059			
186	Supp Fig. 6Y	Chi-square	Time	(59, 1003)	F-statistic	1.255	0.0973			7 mice
			Interaction	(17, 1003)		1.136	0.1261			
187	Supp Fig. 6Z	Chi-square	Sex	(3,17)						

Row	Figure	Statistical Model	Variable	Degrees of Freedom (DFn, DFd)	Parameter(s)	Parameter value	p-value	Multiple comparisons? (Sidak test)	p-value	n per group
143	Supp Fig. 5H	Two Way RM ANOVA	Time	(1, 227)	F-statistic	0.1684	0.6819			151 saline, 78 non-shock neurons
			Interaction	(1, 227)		0.08495	0.771			
144	Supp Fig. 5I	Two Way RM ANOVA	Group	(1, 224)	F-statistic	2.25	0.238			158 saline, 69 non-shock neurons
			Time	(1, 224)		1.135	0.2879			
			Interaction	(1, 224)		2.25	0.135			
145	Supp Fig. 5J	Two Way RM ANOVA	Group	(1, 256)	F-statistic	1.551	0.1948			175 saline, 83 non-shock neurons
			Time	(1, 256)		76.18	<0.0001			
			Interaction	(1, 256)		6.403	0.0201	Sal vs. Nonshock	Ext1: 0.9611, Ext3: 0.0337	
146	Supp. Fig. 6H, left	Two Way RM ANOVA	Group	(2, 479)	F-statistic	12.11	<0.0001	Ext1, Ext3	Ext1: Res vs. Non 0.0003; Res vs. Sal < 0.0001 Non vs. Sal 0.3995 Ext3: Res vs. Non 0.8865; Res vs. Sal 0.0034; Non vs. Sal 0.0322	142 neurons (R), 131 neurons (N), 167 neurons (S)
			Time	(1, 479)		14.01	0.0002	Res, Non-Res, Sal	Res: < 0.0001; Non: >0.9999 ; Sal: 0.2474	
			Interaction	(2, 479)		6	0.0022			
147	Supp. Fig. 6H, middle	Two Way RM ANOVA	Group	(2, 481)	F-statistic	0.3818	0.6829			178 neurons (R), 148 neurons (N), 158 neurons (S)
			Time	(1, 481)		0.2102	0.6468			
			Interaction	(2, 481)		2.424	0.0896			
148	Supp. Fig. 5H, right	Two Way RM ANOVA	Group	(2, 484)	F-statistic	2.864	<0.0001	Ext1, Ext3	Ext1: Res vs. Non 0.9469; Res vs. Sal 0.9972 Non vs. Sal 0.9840 Ext3: Res vs. Non <0.0001; Res vs. Sal 0.0374; Non vs. Sal 0.1111	171 neurons (R), 144 neurons (N), 171 neurons (S)
			Time	(1, 484)		122.8	<0.0001	Res, Non-Res, Sal	Res: < 0.0001; Non: 0.0076 ; Sal: < 0.0001	
			Interaction	(2, 484)		10.13	0.058			