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Main Figures: 7

Supplementary Figures: 7

Supplementary Tables: 2

Supplementary Videos:

Reporting Checklist for Nature Neuroscience

This checklist is used to ensure good reporting standards and to improve the reproducibility of published results. For more information, please read Reporting Life Sciences Research.

Please note that in the event of publication, it is mandatory that authors include all relevant methodological and statistical information in the manuscript.

Statistics reporting, by figure

- Please specify the following information for each panel reporting quantitative data, and where each item is reported (section, e.g. Results, & paragraph number).
- Each figure legend should ideally contain an exact sample size (n) for each experimental group/condition, where n is an exact number and not a range, a clear definition of how n is defined (for example x cells from x slices from x animals from x litters, collected over x days), a description of the statistical test used, the results of the tests, any descriptive statistics and clearly defined error bars if applicable.
- For any experiments using custom statistics, please indicate the test used and stats obtained for each experiment.
- Each figure legend should include a statement of how many times the experiment shown was replicated in the lab; the details of sample collection should be sufficiently clear so that the replicability of the experiment is obvious to the reader.
- For experiments reported in the text but not in the figures, please use the paragraph number instead of the figure number.

Note: Mean and standard deviation are not appropriate on small samples, and plotting independent data points is usually more informative. When technical replicates are reported, error and significance measures reflect the experimental variability and not the variability of the biological process; it is misleading not to state this clearly.

		TEST USED		n			DESCRIPTIVE STATS (AVERAGE, VARIANCE)		P VALUE		DEGREES OF FREEDOM & F/t/z/R/ETC VALUE	
	FIGURE NUMBER	WHICH TEST?	SECTION & PARAGRAPH #	EXACT VALUE	DEFINED?	SECTION & PARAGRAPH #	REPORTED?	SECTION & PARAGRAPH #	EXACT VALUE	SECTION & PARAGRAPH #	VALUE	SECTION & PARAGRAPH #
example	1a	one-way ANOVA	Fig. legend	9, 9, 10, 15	mice from at least 3 litters/group	Methods para 8	error bars are mean +/- SEM	Fig. legend	p = 0.044	Fig. legend	F(3, 36) = 2.97	Fig. legend
example	results, para 6	unpaired t-test	Results para 6	15	slices from 10 mice	Results para 6	error bars are mean +/- SEM	Results para 6	p = 0.0006	Results para 6	t(28) = 2.808	Results para 6

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		TEST USED		n			DESCRIPTIVE STATS (AVERAGE, VARIANCE)		P VALUE		DEGREES OF FREEDOM & F/t/z/R/ETC VALUE	
	FIGURE NUMBER	WHICH TEST?	SECTION & PARAGRAPH #	EXACT VALUE	DEFINED?	SECTION & PARAGRAPH #	REPORTED?	SECTION & PARAGRAPH #	EXACT VALUE	SECTION & PARAGRAPH #	VALUE	SECTION & PARAGRAPH #
+ -	results para 1 (MP) supp table 1	unpaired t-test	Results para 1 table 1	12,10	cells from 21 rats	Results para 1 table 1	mean +/- SD	Methods para 38	p = 0.1126	Results para 1 table 1	t(20)=-1.6796	Results para 1 table 1
+ -	fig1e	Measured repeated anova	Results para 1	Contra: 7,11 Ipsi: 4,4	cells from 18 rats (contra) and 8 rats (Ipsi)	Results para 1	Lines/Shading are mean+/-SD	Methods para 38	p = 0,019 (Contra) p = 0,060 (Ipsi)	Results para 1	F(1.22, 3.69) = 15,245 (Contra) F(1.07, 4.27) = 6.33 (Ipsi)	Results para 1
+ -	supp fig1b	Measured repeated anova	Supp. Fig. legend	Contra: 7,11 Ipsi: 4,4	cells from 18 rats (contra) and 8 rats (Ipsi)	Supp. Fig. legend	Lines/Shading are mean+/-SD	Methods para 38	p = 0.839 (Contra) p = 0.471 (Ipsi)	Supp. Fig. legend	F(2.12, 14.85)=0.192 (Contra) F(1.10, 4.37)=0.729	Supp. Fig. legend
+ -	1f corr	Pearson correlation	Results para 1	7,11	cells from 17 rats	Results para 1	Regression line	Methods para 38	p = 6.3551e-7	Results para 1	r(16)=89.25	Results para 1
+ -	1f x axis	unpaired t-test	Results para 1	11,10	cells from 20 rats	Results para 1	point/error bars are mean+/-SD	Methods para 38	p = 0.0041	Results para 1	t(19) = 3.2662	Results para 1
+ -	1f y axis	unpaired t-test	Results para 1	7,11	cells from 17 rats	Results para 1	point/error bars are mean+/-SD	Methods para 38	p = 0.0067	Results para 1	t(16) = 3.1086	Results para 1
+ -	1g left	unpaired t-test	Results para 1	11,10	cells from 20 rats	Results para 1	error bars are mean +/- SD	Methods para 38	p = 2.1995e-7	Results para 1	t(19) = 7.8543	Results para 1
+ -	1g right	unpaired t-test	Results para 1	7,11	cells from 17 rats	Results para 1	error bars are mean +/- SD	Methods para 38	p = 0.0001	Results para 1	t(16) = 5.0947	Results para 1
+ -	supp fig2b right	chi-2 test	Results para 2	7,7	cells from 13 rats	Results para 2	significance of correlation bet cell response to Rad Sink	Supp. Fig. legend	p=0.0012	Results para 2	X2(3,14)=10.50	Results para 2
+ -	supp fig2c right	chi-2 test	Results para 2	7,7	cells from 13 rats	Results para 2	Significance of correlation bet cell response to Pyr Source	Supp. Fig. legend	p=0.5148	Results para 2	X2(3,14)=0.42	Results para 2
+ -	supp fig2a right top	unpaired t-test	Results para 2	7,7	cells from 13 rats	Results para 2	error bars are mean +/- SD	Methods para 38	p = 0.9671	Results para 2	t(12)=-0.0421	Results para 2
+ -	supp fig2a bottom	unpaired t-test	Results para 2	7,7	cells from 13 rats	Results para 2	error bars are mean +/- SD	Methods para 38	p = 0.5651	Results para 2	t(12)=-0.5909	Results para 2

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+ -	2e left	unpaired t-test	Results para 3	9,12	cells from 20 rats	Results para 3	error bars are mean +/- SD	Methods para 38	p = 0.0124	Results para 3	t(19) = -2.7615	Results para 3
+ -	2e right	unpaired t-test	Results para 3	9,12	cells from 20 rats	Results para 3	error bars are mean +/- SD	Methods para 38	p = 0.0147	Results para 3	t(19)=-2.6831	Results para 3
+ -	Results para 3	unpaired t-test	Results para 3	5,9	cells from 14 rats	Results para 3	each case	Methods para 38	p=0.5892	Results para 3	t(12)=0.5547	Results para 3
+ -	fig2f	Pearson correlation	Supp Fig. legend	5,9	cells from 14 rats	Supp Fig. legend	regression line	Methods para 38	p = 0.0137	Supp Fig. legend	r(12)=-0.6401	Supp Fig. legend
+ -	Results Para 4 (proximodistal dist) supp table 1	unpaired t-test	Results para 4 supp table 1	11,7	cells from 17 rats	Results para 4 supp table 1	mean +/- SD	Results para 4 Methods para 38	p = 0.6713	Results para 4	t(16)=-0.4322	Results para 4
+ -	Results Para 4 (mediolateral dist) supp table 1	unpaired t-test	Results para 4 supp table 1	11,7	cells from 17 rats	Results para 4 supp table 1	mean +/- SD	Results para 4 Methods para 38	p = 0.7262	Results para 4 supp table 1	t(16)=0.3564	Results para 4
+ -	Results para 4 supp table 1 (CA2 dist)	unpaired t-test	Results para 4 supp table 1	11,7	cells from 17 rats	Results para 4 supp table 1	mean +/- SD	Results para 4 Methods para 38	p=0.9159	Results para 4 supp table 1	t(16)=-0.1073	Results para 4
+ -	fig3b supp table 1 (rad dist)	unpaired t-test	Results para 4 supp table 1	11,7	cells from 17 rats	Results para 4 supp table 1	error bars are mean +/- SD	Methods para 38 supp table 1	p = 0.0152	supp table 1	t(16)=-2.7184	Results para 4
+ -	supp fig4d	Pearson correlation	Supp. Fig. legend	11,7	cells from 17 rats	Results para 4	regression line	Supp. Fig. legend	p = 0.04835	Results para 4	r(16)= -0.4713	Results para 4
+ -	fig3b supp fig4d supp table 1	Chi-2 test	fig3b supp fig4d supp table 1	11,7	cells from 17 rats	fig3b supp fig4d supp table 1	observed cases	fig3b supp fig4d supp table 1	p=0.0660	fig3b supp fig4d supp table 1	X2(3,18)=3,3779	Results para 4

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+ -	supp table 1	Chi-2 test	supp table 1	11,7	cells from 17 rats	supp table 1	observed cases	supp table 1	p = 0.0062	supp table 1	X2(3,18)=7.4805	Results para 4
+ -	fig3f deep / superficial	unpaired t-test	Results para 4	11,7	cells from 17 rats	Results para 4 fig3b	Each case, Histogram, gaussian fit	Methods para 38	p=0.0405	Results para 4	t(16)=1.86	Results para 4 fig 3f legend
+ -	fig 3f deep / superficial gaussian fit	normality shapiro wilk test	Fig3 legend	11,7	cells from 17 rats	fig 3f legend	histogram, gaussian fited line	fig 3f legend	deep: p=0.9859 super: p=0.9378	fig 3f legend	deep: W=0.99 super: W=0.97	Fig 3f legend
+ -	fig 3f Cb+/ Cb-	unpaired t-test	fig 3f legend	11,7	cells from 17 rats	fig 3f legend	histogram, gaussian fited line	fig 3f legend	p=0.0923	fig 3f legend	t(16)=1.38	Fig 3f legend
+ -	fig 3f Cb+/ Cb- gaussian fit	normality shapiro wilk test	Fig3f legend	11,7	cells from 17 rats	fig 3f legend	histogram, gaussian fited line	fig 3f legend	Cb+: p=0.1394 Cb-=0.8568	fig 3f legend	Cb+: W=0.88 Cb-: W=0.96	Fig 3f legend
+ -	fig 3g deep / superficial	Mann-Whitney test	Results para 4	11,7	cells from 17 rats	Results para 4 fig3b	Each case, Histogram, gaussian fit	Methods para 38	p=0.0135	fig 3f legend Results para 4	ranksum=140	Results para 4, fig 3g legend
+ -	fig 3g Cb+/ Cb-	Mann-Whitney test	-	11,7	cells from 17 rats	-	Each case, Histogram, gaussian fit	Methods para 38	p=0.1011	-	ranksum=114	-
+ -	fig 3g deep / superficial gaussian fit	normality shapiro wilk test	Fig3g legend	11,7	cells from 17 rats	Fig3g legend	histogram, gaussian fited line	Fig3g legend	deep: p=0.6691 superficial:0.0675	Fig3g legend	deep: 0.8142 superficial 0.9522	Fig3g legend
+ -	fig 3f Cb+/ Cb- gaussian fit	normality shapiro wilk test	Fig3g legend	11,7	cells from 17 rats	Fig3g legend	histogram, gaussian fited line	Fig3g legend	Cb+: 0.2403 Cb-: 0.0113	Fig3g legend	Cb+: 0.9103 Cb-: 0.7457	Fig3g legend
+ -	fig 4d pv boutons	Pearson correlation	Results para 5	34	cells from 4 confocal stacks from 3 rats	Results para 5	regression line, each case	Results para 5	p = 0.01626	Results para 5 Fig 4d	r(32)= 0.3979	Results para 5 Fig 4d
+ -	fig 4e cb1 boutons	Pearson correlation	Results para 5	34	cells from 4 confocal stacks from 3 rats	Results para 5	regression line, each case	Results para 5	p=0.0046	Results para 5 Fig 4d	r(32)=-0.46	Results para 5 Fig 4e
+ -	supp fig4C	Pearson correlation	Supp. Fig4 legend	129	cells from 1 confocal stack from 1 rat	Supp. Fig4 legend	regression line, each case	Supp. Fig4 legend	p=2.384e-015	Supp. Fig4, legend	r(127)=-0.6251	Supp. Fig4, legend

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+ -	fig5c left	no stadistical analysis	Fig 5c legend	12	slices from 5 rats	Fig 5c legend	mean +/- SEM	-	-	-	-	-
+ -	fig5c right	unpaired t-test	Results para 6	12,8	field response for 20 slices 15 rats	Results para 6	error bars are mean +/- SEM	Methos para 38	p= 0.6831	Results para 6	t(18)=0.415	Results para 6
+ -	supp Fig 6a	unpaired t-test	Fig. legend	21,17	cells from 35 slices from 25 rats	supp Fig 6a	mean +/- SD	Methos para 38	Resting pot. p=0.0135 Tau p=0.6943 Rm p=0.4489 Cm p=0.3983	supp Fig 6a	Resting pot. t(36)=2.599 Tau t(36)=-0.396 Rm t(36)=0.279 Cm t(36)=0.084	-
+ -	fig5e left	unpaired t-test	Results para 7	12,8	cells from 20 slices from 15 rats	Results para 7	error bars are mean +/- SD	Methos para 38	p=0.0021	Results para 7	t(18)=-3.395	Results para 7
+ -	fig5f left	Pearson correlation	Results para 7	12,8	cells from 20 slices from 15 rats	Results para 7	regression line, each case	Methos para 38	p=8.59e-5	Results para 7	F(1,18)=25.358 r(18)=0.76	Results para 7
+ -	fig5e right	unpaired t-test	Results para 7	12,8	cells from 20 slices from 15 rats	Results para 7	error bars are mean +/- SD	Methos para 38	p=0.2221	Results para 7	t(18)=1.266	Results para 7
+ -	fig5f right	Pearson correlation	Results para 7	12,8	cells from 20 slices from 15 rats	Results para 7	regression line, each case	Methos para 38	p=0.0358	Results para 7	F(1,18)=5.147 r(18)=0.47	Results para 7
+ -	supp fig 6B	unpaired t-test	Fig. legend	12,8	cells from 20 slices from 15 rats	supp. fig 6b legend	error bars are mean +/- SD	Methos para 38	EPSC p=0.0671 IPSC p=0.0341	supp. fig 6b legend	EPSC t(18)=-1.949 IPSC t(18)=-2.293	supp. fig 6b legend
+ -	Results, para 7 (age correlation)	Pearson correlation	Results para 7	43	cells from 40 slices from 30 rats	-	regression coefficient	Methos para 38	EPSC p=0.3191 IPSC p=0.5894	Results para 7	EPSC F(1,41)= 1.019; r(41)=-0.15 IPSC F(1,41)=0.290; r(41)=0.08	Results para 7
+ -	supp 6d right	paired t-test	Results para 7	12,8	cells from 20 slices from 15 rats	Results para 7	error bars are mean +/- SD	Methos para 38	sup p=1.8e-5 dee p=0.0082	Results para 7	sup t(11)=-7.192 dee t(7)=-3.647	Results para 7
+ -	fig5g	unpaired t-test	Fig. 5g legend	12,8	cells from 20 slices from 15 rats	Results para 7	error bars are mean +/- SD	Methos para 38	p=0.0431	Results para 7	t(18)=2.179	Results para 7
+ -	fig5i left	unpaired t-test paired t-test	Results para 8 Fig. legend	5,4	cells from 9 slices from 5 rats	Results para 8	error bars are mean +/- SD	Methos para 38 Fig 5i legend	sup vs dee: control p=0.0061 damgo p=0.115 damgo+win p=0.118 control vs damgo sup p=0.0284 dee p=0.0055	Results para 8	sup vs dee: control t(7)=-3.872 damgo t(7)=-1.796 damgo+win t(7)=-1.780 control vs damgo sup t(4)=3.981 dee t(4)=5.449	Methos para 38 Fig 5i legend
+ -	fig 5i right	Pearson correlation	Results para 8	5,4	cells from 9 slices from 5 rats	Results para 8	regression line, each case	Results para 8	control p=7.95e-4 damgo p=0.0131 damgo+win p=0.0610	Results para 8	control F(1,7)=31.638; r(7)=82 damgo F(1,7)=10.944; r(7)=78 damgo+win F(1,7)=4.970	Results para 8 Fig. legend

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+ -	fig3l left	unpaired t-test	Results para 9	7,5	cells from 10 slices from 8 rats	Results para 9	error bars are mean +/- SD	Methos para 38	p=0.0474	Results para 9	t(10)=-2.259	Results para 9
+ -	fig3l right	unpaired t-test	Results para 9	7,5	cells from 10 slices from 8 rats	Results para 9	error bars are mean +/- SD	Methos para 38	p=7.1e-4	Results para 9	t(10)=4.813	Results para 9
+ -	supp fig6e	unpaired t-test	Supp. Fig 6e legend	7 sup, 5 dee	cells from 10 slices from 8 rats	-	error bars are mean +/- SD	Methos para 38	EPSC p=0.3529 IPSC p=0.4540	-	EPSC t(10)=-0.974 IPSC t(10)=0.779	-
+ -	supp fig6f	linear regression	supp fig6f legend	7 sup, 5 dee	cells from 10 slices from 8 rats	-	regression line, each case	-	EPSC p=0.0054 IPSC p=0.0184	supp fig6f, legend	EPSC F(1,10)=10.518 IPSC p=7.900	-
+ -	Fig6c	paired t-test	Fig4c Results para 11	4,3,6,7 (left to right)	cells from 20 rats	Fig4c Results para 11	error bars are mean +/- SD from each cell type	Fig4c Methos para 38	p=0.0464 CA3 p=0.0441 CA2 p=0.0173 CA1 sup p=0.0275 CA1 deep	Fig4c Results para 11	t(3)=-3.27 t(2)=3.13 t(5)=-3.49 t(6)=2.89	Fig4c legend
+ -	SPW part vs df fig 6d Results para 11	Pearson correlation unpaired t-test	fig 4d Results para 11	11,7	cells from 17 rats	fig 4d Results para 11	regression line blox plot	fig 4d Results para 11	p=0.0134 p=0.004	fig 4d Results para 11	r=0.66 t(11)=3.29	fig 6d Results para 11
+ -	SPW part vs str rad fig6e Results para 11	Pearson correlation Shapiro wilk test unpaired t-test	fig 6e Results para 11	6,4	cells from 10 rats	fig 6e Results para 11	regression line all cases, histogram, gaussian fit	fig 6e Results para 11	p = 0.0492 p=0.1612 deep, p=0.1607 sup p(sub vs deep)=0.0431 p=0.1749 cb+, p=0.060 cb- p(cb)=0.03	fig 6e Results para 11	r=-0.60 W=0.82 deep, W=87 sup t(8)=2.35 deep vs sup W=0.87 cb+, W=0.77 cb- t(8)=2.146	fig 6e Results para 11
+ -	SPW fr vs str rad fig6f Results para 11	Pearson correlation Shapiro wilk test unpaired t-test	fig 6f Results para 11	6,4	cells from 10 rats	fig 6f Results para 11	regression line all cases, histogram, gaussian fit	fig 6f Results para 11	p=0.0187 p=0.7804 sup; p=0.5954 deep p(sup vs deep)=0.043 p=0.5954 cb+, p=0.7804 cb- p=0.043	fig 6f Results para 11	r=-0.72 W= 0.98 sup; W= 93 deep t(8)=1.94 sup vs deep W=0.93 cb+ w=0.98 cb- t(8)=1.94	fig 6f Results para 11
+ -	supp table 1 Peak amplitude	unpaired t-test	supp. table 1	12,10	cells from 21 rats	supp. table 1	mean +/- SD	Methos para 38 supp. table 1	p=0.3135	supp. table 1	t(20)=1.0340	-

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+ -	supp table 1 Rint	unpaired t-test	supp. table 1	12,10	cells from 21 rats	supp. table 1	mean +/- SD	Methos para 38 supp. table 1	p=0.6641	supp table 1	t(20)=0.4408	-
+ -	table 1 Duration	unpaired t-test	supp. table 1	12,10	cells from 21 rats	supp. table 1	mean +/- SD	Methos para 38 supp. table 1	p=0.2956	supp table 1	t(20)=1.0741	-
+ -	supp table 1 SPW resp	unpaired t-test	supp. table 1	12,10	cells from 21 rats	supp. table 1	mean +/- SD	Methos para 38 supp. table 1	p=1.3095e-7	supp table 1	t(20)=7.9399	-
+ -	supp table 1 SPW	unpaired t-test	supp. table 1	12,10	cells from 21 rats	supp. table 1	mean +/- SD	Methos para 38 supp. table 1	0.7420	supp table 1	t(20)=-0.3338	-
+ -	Fig 7e Results para 13	paired t-test	Results para 13 Fig 7e legend	6	cells from 6 rats	Results para 13 Fig 7e legend	error bars are mean +/- SD	Methos para 38	baseline firing rate: p=1.887 fr during SPW-r: p=0.8661 SPW-r participation: 0.0420	Results para 13 Fig 7e legend	baseline firing rate: t(5)=-1.52 fr during SPW-r: t(5)=-0.18 SPW-r participation: t(5)=-2.71	Results para 13 Fig 7e legend
+ -	Results para 13 supp table 2	Fisher-Pitman permutation test for each cell and index (100 replicates)	Methos para 33 supp table2	6	cells from 6 rats	Results para 13 Methos para 33 supp table2	p-value of significant difference between the observed value and the random distribution	Results para 13 supp table2	Rat147t1h1: p<0.001 Rat38t2h2: p=0.2574 Rat75t1h1: p=0.8119 Rat23t1h1: p=0.0494 Rat16t1h3: p=0.8119 Rat83d1t1h3: p=0.3665	supp table2	-	supp table2

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+ -	Results para 13 SPW-ripples	Fisher-Pitman permutation test for each cell and index (100 replicates)	Methos para 33	6	cells from 6 rats	Results para 13 Methos para 33	p-value of significant difference between the observed value and the random distribution	Results para 13	Rat147t1h1: p=0.4158 Rat38t2h2: p=0.7822 Rat75t1h1: p=0.0198 Rat23t1h1: p=0.4851 Rat16t1h3: p=0.6438 Rat83d1t1h3: p=0.0792	-	-	-
+ -	Fig7j Results para 13	Pearson correlation	Results para 13	6	cells from 6 rats	Results para 14 Fig 7j	regression line	Methos para 38	p=0.0134	Results para 13 Fig7j	r=0.71	Results para 13 fig 7j
+ -	Fig 7k left Results para 14	Pearson correlation	Results para 14	6	cells from 6 rats	Results para 14 Fig 7k	regression line	Methos para 38	gray: p=0.312 black=0.0423	Results para 14 Fig 7k	gray: r=-0.68 black: r=-0.82	Results para 14 Fig 7k
+ -	Fig 7k right Results para 14	Pearson correlation	Results para 14	6	cells from 6 rats	Results para 14 Fig 7k	regression line	Methos para 38	gray: p=0.3 black=0.0309	Results para 14 Fig 7k	gray: r=-0.69 black: r=-0.85	Results para 14 Fig 7k
+ -	supp table 2	no stadistical analysis	supp table 2	11, etc	cells from 11, etc rats	supp table 2	Mean +/- sd	Methos para 38	-	-	-	-

Representative figures

1. Are any representative images shown (including Western blots and immunohistochemistry/staining) in the paper?

   If so, what figure(s)?

Yes
Figure 1B,C,D,E
Figure 2A,B,C,D
Figure 3A,C,D,E
Figure 4 A,B,C
Figure 5A,B,C,D,H,J,K,M;
Figure 6A,B,B;
Figure 7A,B,C,D,F,G,H,I,L,M;
Supp Figure 1A,A,B,C,D,E;
Supp Figure 2A;
Supp Figure 3A,B,C;
Supp Figure 4A,C,C';
Supp Figure 5A,A',B,C;
Supp Figure 6C,C',D.
Supp Figure 7A,B,C,D,E,F,G

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2. For each representative image, is there a clear statement of how many times this experiment was successfully repeated and a discussion of any limitations in repeatability?

   If so, where is this reported (section, paragraph #)?

Repeatability not discussed. "n" reported for each.
Figure 1 and 2- Results, section 1, parag 1 (Fig1B,C,D); parag 3 (Fig2A,B,C); Fig Legend (Fig2D).
Figure 3 and 4.- Results, section 2, parag 1 (Fig3A,C,D,E); parag 2 (Fig4A,B,C).
Figure 5.- Results, section 3, parag 1 (Fig5A,B); parag 2 (Fig5D); parag 3 (Fig5H); parag 4 (Fig5J,,K,M); Fig Legend (Fig5C).
Figure 6.- Results, section 4, parag 1 (Fig6A,B).
Figure 7- Results, section 5, para 1 and 2 (Fig7A,B,C,D,E,F,G)

Supp Fig 1.- Results, section 1, parag 1 (SuppFig1A); Fig Legend (SuppFig1B); Methods, section 2, parag 1 (SuppFig1C,D,E)
Supp Fig 2.- Results, section 1, parag 2 (SuppFig2A).
Supp Fig 3.- Results, section 1, parag 3 (SuppFig3A,B,C).
Supp Fig 4.- Results, section 2, parag 1 (SuppFig4A); Fig Legend (SuppFig4C).
Supp Fig 5.- Methods, section 4, parag 1 (SuppFig5A,B,C).
Supp Fig 6.- Results, section 3, parag 2 (SuppFig6C,D).
Supp Fig 7. - Results, section5, para 2 (SuppFig7 A,B,C,D,E,F,G)

Statistics and general methods

1. Is there a justification of the sample size?

   If so, how was it justified?

   Where (section, paragraph #)?

   Even if no sample size calculation was performed, authors should report why the sample size is adequate to measure their effect size.

no sample size calculation was performed

2. Are statistical tests justified as appropriate for every figure?

   Where (section, paragraph #)?

Standard statistical test are used. See Material and methods, last section

   a. If there is a section summarizing the statistical methods in the methods, is the statistical test for each experiment clearly defined?

Yes.
Material and methods, last section

   b. Do the data meet the assumptions of the specific statistical test you chose (e.g. normality for a parametric test)?

      Where is this described (section, paragraph #)?

Normality and homocedasticity was not statistically tested due to the small sample sizes (except where it is indicated, with Shapiro-Wilk test for normality and Barlett test for homogeneity of variances), but we checked the distribution and the dispersion of all parameters before statistical analysis. We have plotted all individual values in our figures to show data variability

   c. Is there any estimate of variance within each group of data?

      Is the variance similar between groups that are being statistically compared?

      Where is this described (section, paragraph #)?

No (except where Shapiro-Wilk test for normality was made), but we report the standard deviation and dispersion for all data points.

   d. Are tests specified as one- or two-sided?

all tests were two-tailed, unless otherwise indicated

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e. Are there adjustments for multiple comparisons?	yes
3. Are criteria for excluding data points reported? Was this criterion established prior to data collection? Where is this described (section, paragraph #)?	We have no excluded data points in any figure.
4. Define the method of randomization used to assign subjects (or samples) to the experimental groups and to collect and process data. If no randomization was used, state so. Where does this appear (section, paragraph #)?	Electrophysiological analyses were performed with the whole database at once. Groups (depolarized/hyperpolarized, deep/superficial, CB+/CB-) were identified using criteria that are specified in Material and Methods (Statistical analysis and comparisons).
5. Is a statement of the extent to which investigator knew the group allocation during the experiment and in assessing outcome included? If no blinding was done, state so. Where (section, paragraph #)?	n/a-
6. For experiments in live vertebrates, is a statement of compliance with ethical guidelines/regulations included? Where (section, paragraph #)?	Yes, Methods para 1
7. Is the species of the animals used reported? Where (section, paragraph #)?	Yes. All animals were rats. Methods para 2 and 7
8. Is the strain of the animals (including background strains of KO/transgenic animals used) reported? Where (section, paragraph #)?	Yes, Wistar rats were used for all experiments. Methods, sections 2,4 and 5 first paragraph
9. Is the sex of the animals/subjects used reported? Where (section, paragraph #)?	Both male and female rats were used. Methods, sections 2,4 and 5 first paragraph
10. Is the age of the animals/subjects reported? Where (section, paragraph #)?	The age is reported for juvenile and young adults of in vitro experiments (Methods, section 4, first paragraph) The weight is reported for adults used for in vivo experiments (Methods, sections 2 and 5, first paragraph)
11. For animals housed in a vivarium, is the light/dark cycle reported? Where (section, paragraph #)?	Yes, 12 h light/dark cycle. Methods, section 5, second para
12. For animals housed in a vivarium, is the housing group (i.e. number of animals per cage) reported? Where (section, paragraph #)?	n/a

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13. For behavioral experiments, is the time of day reported (e.g. light or dark cycle)?

    Where (section, paragraph #)?

Yes, freely moving recordings were obtained on the light cycle

14. Is the previous history of the animals/subjects (e.g. prior drug administration, surgery, behavioral testing) reported?

    Where (section, paragraph #)?

n/a

    a. If multiple behavioral tests were conducted in the same group of animals, is this reported?

       Where (section, paragraph #)?

n/a

15. If any animals/subjects were excluded from analysis, is this reported?

    Where (section, paragraph #)?

Yes, the different subsets of cells used for each analysis is reported all along the ms. In particular, see Results para 2, para 3, para 4, para 11. See also methods, statistical section for group criteria.

    a. How were the criteria for exclusion defined?

       Where is this described (section, paragraph #)?

Exclusion criteria were intrinsic to this type of analysis:

i) Intracellular correlation with the CSD SPW and ripple component, with good LFP hippocampal profile and sufficient (>10) number of events at resting potential without spikes. Results para 2.

ii) For reversal and driving force analyses sufficient number of events at different holding potentials under stable recording conditions (i.e reversal correlation would be statistically significative) are required. Results para 2

iii) For intracellular subthreshold oscillations associated to ripples, sufficient number of events without spikes are required. Results para 3.

iv) For histological comparison only successfuly recovered cells are included. Results para 4.

v) For PSTH only cells recorded at the resting membrane potential with spikes for a sufficient number of events were considered. Results para 11

vi) For in vitro, only slices with clear calbindin expression, which depend on age and coordinates, were included (Methods, section 7 parag 3).

vii) For evaluation of behavioral effects on single-cell recordings in freely moving conditions only animals exhibiting sufficient number of events in sleep and awake conditions were considered (Methods, section 11)

viii) For evaluation of spatial effects on single-cell recordings in freely moving conditions only animals exhibiting sufficient number of events along more than 2 locations in awake conditions were considered (Methods, section 11)

    b. Specify reasons for any discrepancy between the number of animals at the beginning and end of the study.

       Where is this described (section, paragraph #)?

n/a

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Reagents

1. Have antibodies been validated for use in the system under study (assay and species)?	yes
a. Is antibody catalog number given? Where does this appear (section, paragraph #)?	yes. Methods, para 10 and 11
b. Where were the validation data reported (citation, supplementary information, Antibodypedia)? Where does this appear (section, paragraph #)?	Methods, para 12
2. Cell line identity a. Are any cell lines used in this paper listed in the database of commonly misidentified cell lines maintained by ICLAC and NCBI Biosample? Where (section, paragraph #)?	n/a
b. If yes, include in the Methods section a scientific justification of their use--indicate here in which section and paragraph the justification can be found.	n/a
c. For each cell line, include in the Methods section a statement that specifies: - the source of the cell lines - have the cell lines been authenticated? If so, by which method? - have the cell lines been tested for mycoplasma contamination? Where (section, paragraph #)?	n/a

Data deposition

Data deposition in a public repository is mandatory for:

a. Protein, DNA and RNA sequences
b. Macromolecular structures
c. Crystallographic data for small molecules
d. Microarray data

Deposition is strongly recommended for many other datasets for which structured public repositories exist; more details on our data policy are available here. We encourage the provision of other source data in supplementary information or in unstructured repositories such as Figshare and Dryad.

We encourage publication of Data Descriptors (see Scientific Data) to maximize data reuse.

1. Are accession codes for deposit dates provided? Where (section, paragraph #)?	n/a

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Computer code/software

Any custom algorithm/software that is central to the methods must be supplied by the authors in a usable and readable form for readers at the time of publication. However, referees may ask for this information at any time during the review process.

1. Identify all custom software or scripts that were required to conduct the study and where in the procedures each was used.	Scripts were written in Matlab
2. If computer code was used to generate results that are central to the paper's conclusions, include a statement in the Methods section under "**Code availability**" to indicate whether and how the code can be accessed. Include version information as necessary and any restrictions on availability.	A section is included in Material and Methods. Routines are available upon request

Human subjects

1. Which IRB approved the protocol? Where is this stated (section, paragraph #)?	n/a
2. Is demographic information on all subjects provided? Where (section, paragraph #)?	n/a
3. Is the number of human subjects, their age and sex clearly defined? Where (section, paragraph #)?	n/a
4. Are the inclusion and exclusion criteria (if any) clearly specified? Where (section, paragraph #)?	n/a
5. How well were the groups matched? Where is this information described (section, paragraph #)?	n/a
6. Is a statement included confirming that informed consent was obtained from all subjects? Where (section, paragraph #)?	n/a
7. For publication of patient photos, is a statement included confirming that consent to publish was obtained? Where (section, paragraph #)?	n/a

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fMRI studies

For papers reporting functional imaging (fMRI) results please ensure that these minimal reporting guidelines are met and that all this information is clearly provided in the methods:

1. Were any subjects scanned but then rejected for the analysis after the data was collected?	n/a
a. If yes, is the number rejected and reasons for rejection described? Where (section, paragraph #)?	n/a
2. Is the number of blocks, trials or experimental units per session and/or subjects specified? Where (section, paragraph #)?	n/a
3. Is the length of each trial and interval between trials specified?	n/a
4. Is a blocked, event-related, or mixed design being used? If applicable, please specify the block length or how the event-related or mixed design was optimized.	n/a
5. Is the task design clearly described? Where (section, paragraph #)?	n/a
6. How was behavioral performance measured?	n/a
7. Is an ANOVA or factorial design being used?	n/a
8. For data acquisition, is a whole brain scan used? If not, state area of acquisition.	n/a
a. How was this region determined?	n/a
9. Is the field strength (in Tesla) of the MRI system stated?	n/a
a. Is the pulse sequence type (gradient/spin echo, EPI/spiral) stated?	n/a
b. Are the field-of-view, matrix size, slice thickness, and TE/TR/flip angle clearly stated?	n/a
10. Are the software and specific parameters (model/functions, smoothing kernel size if applicable, etc.) used for data processing and pre-processing clearly stated?	n/a

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11. Is the coordinate space for the anatomical/functional imaging data clearly defined as subject/native space or standardized stereotaxic space, e.g., original Talairach, MNI305, ICBM152, etc? Where (section, paragraph #)?	n/a
12. If there was data normalization/standardization to a specific space template, are the type of transformation (linear vs. nonlinear) used and image types being transformed clearly described? Where (section, paragraph #)?	n/a
13. How were anatomical locations determined, e.g., via an automated labeling algorithm (AAL), standardized coordinate database (Talairach daemon), probabilistic atlases, etc.?	n/a
14. Were any additional regressors (behavioral covariates, motion etc) used?	n/a
15. Is the contrast construction clearly defined?	n/a
16. Is a mixed/random effects or fixed inference used?	n/a
a. If fixed effects inference used, is this justified?	n/a
17. Were repeated measures used (multiple measurements per subject)?	n/a
a. If so, are the method to account for within subject correlation and the assumptions made about variance clearly stated?	n/a
18. If the threshold used for inference and visualization in figures varies, is this clearly stated?	n/a
19. Are statistical inferences corrected for multiple comparisons?	n/a
a. If not, is this labeled as uncorrected?	n/a
20. Are the results based on an ROI (region of interest) analysis?	n/a
a. If so, is the rationale clearly described?	n/a
b. How were the ROI's defined (functional vs anatomical localization)?	n/a
21. Is there correction for multiple comparisons within each voxel?	n/a
22. For cluster-wise significance, is the cluster-defining threshold and the corrected significance level defined?	n/a

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Additional comments

Additional Comments

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