

Supplementary Table 1

Results of spine parameter measurements

single-synapse spines				double-synapse spines		
parameter	mean \pm SEM	F/ t/ χ^2	P	mean \pm SEM	F/ t/ χ^2	P
Volume of SA [μm^3]	C: 0.031 ± 0.004 Cd: 0.038 ± 0.012 P: 0.057 ± 0.011	F = 1.86	0.17	C: 0.065 ± 0.022 Cd: 0.042 ± 0.010 P: 0.088 ± 0.017	F = 1.83	0.18
Number of polyribosomes per sER-free spine	C: 1.9 ± 0.35 Cd: 3.5 ± 0.72 P: 3.5 ± 0.70	F = 6.14 $\chi^2 = 15.08$	<0.0001	C: 1.3 ± 0.49 Cd: 1.6 ± 0.50 P: 2.3 ± 0.45	F = 9.40 $\chi^2 = 9.79$	<0.0001
Number of polyribosomes per sER-containing spine	C: 4.4 ± 0.58 Cd: 2.1 ± 0.43 P: 2.6 ± 0.45		< 0.001 < 0.001	C: 2.3 ± 0.60 Cd: 2.3 ± 0.30 P: 2.2 ± 0.49		> 0.05 > 0.05
Number of polyribosomes per SA-containing spine	C: 6.4 ± 0.83 Cd: 5.0 ± 0.76 P: 6.3 ± 1.01		> 0.05 > 0.05	C: 3.3 ± 0.67 Cd: 6.7 ± 0.52 P: 3.6 ± 0.64		< 0.001 > 0.05
Length of sER-free spine [μm]	C: 0.54 ± 0.04 Cd: 0.64 ± 0.09 P: 0.76 ± 0.04	F = 9.24 $t_{\text{CD}} = 0.00$ $t_{\text{P}} = 0.90$	0.0002 > 0.05 > 0.05	C: 0.68 ± 0.05 Cd: 0.59 ± 0.10 P: 0.59 ± 0.05	F = 4.97 $t_{\text{CD}} = 0.92$ $t_{\text{P}} = 0.92$	0.009 > 0.05 > 0.05
Length of sER-containing spine [μm]	C: 0.54 ± 0.05 Cd: 0.56 ± 0.06 P: 0.63 ± 0.05	$t_{\text{CD}} = 0.99$ $t_{\text{P}} = 0.49$	> 0.05 > 0.05	C: 0.60 ± 0.07 Cd: 0.58 ± 0.03 P: 0.63 ± 0.07	$t_{\text{CD}} = 0.14$ $t_{\text{P}} = 0.35$	> 0.05 > 0.05
Length of SA-containing spine [μm]	C: 0.62 ± 0.04 Cd: 0.60 ± 0.07 P: 0.90 ± 0.06	$t_{\text{CD}} = 1.48$ $t_{\text{P}} = 1.73$	> 0.05 > 0.05	C: 0.80 ± 0.09 Cd: 0.66 ± 0.06 P: 0.84 ± 0.07	$t_{\text{CD}} = 1.41$ $t_{\text{P}} = 0.42$	> 0.05 > 0.05
Diameter of sER-free spine head [μm]	C: 0.43 ± 0.04 Cd: 0.53 ± 0.07 P: 0.41 ± 0.04	F = 1.83 $t_{\text{CD}} = 0.42$ $t_{\text{P}} = 0.10$	0.17 > 0.05 > 0.05	C: 0.44 ± 0.04 Cd: 0.54 ± 0.08 P: 0.39 ± 0.03	F = 112.1 $t_{\text{CD}} = 2.52$ $t_{\text{P}} = 1.10$	< 0.0001 < 0.05 > 0.05
Diameter of sER-containing spine head [μm]	C: 0.41 ± 0.04 Cd: 0.66 ± 0.10 P: 0.48 ± 0.05	$t_{\text{CD}} = 1.09$ $t_{\text{P}} = 0.29$	> 0.05 > 0.05	C: 0.49 ± 0.06 Cd: 0.61 ± 0.18 P: 0.48 ± 0.05	$t_{\text{CD}} = 2.89$ $t_{\text{P}} = 0.32$	< 0.05 > 0.05

Diameter of SA-containing spine head [μm]	C: 0.62 ± 0.08 Cd: 0.82 ± 0.15 P: 0.68 ± 0.05	$t_{\text{CD}} = 0.84$ $t_{\text{P}} = 0.27$	> 0.05 > 0.05	C: 0.73 ± 0.05 Cd: 0.96 ± 0.13 P: 0.68 ± 0.08	$t_{\text{CD}} = 5.75$ $t_{\text{P}} = 1.03$	< 0.01 > 0.05
Diameter of sER-free spine neck [μm]	C: 0.27 ± 0.04 Cd: 0.27 ± 0.03 P: 0.22 ± 0.02	F = 0.40 $t_{\text{CD}} = 0.07$ $t_{\text{P}} = 1.15$	0.67 > 0.05 > 0.05	C: 0.24 ± 0.03 Cd: 0.30 ± 0.03 P: 0.23 ± 0.04	F = 1.11 $t_{\text{CD}} = 1.24$ $t_{\text{P}} = 0.21$	0.33 > 0.05 > 0.05
Diameter of sER-containing spine neck [μm]	C: 0.24 ± 0.03 Cd: 0.29 ± 0.04 P: 0.24 ± 0.03	$t_{\text{CD}} = 0.99$ $t_{\text{P}} = 0.09$	> 0.05 > 0.05	C: 0.25 ± 0.04 Cd: 0.29 ± 0.05 P: 0.24 ± 0.04	$t_{\text{CD}} = 0.73$ $t_{\text{P}} = 0.23$	> 0.05 > 0.05
Diameter of SA-containing spine neck [μm]	C: 0.27 ± 0.02 Cd: 0.29 ± 0.04 P: 0.26 ± 0.02	$t_{\text{CD}} = 0.35$ $t_{\text{P}} = 0.38$	> 0.05 > 0.05	C: 0.29 ± 0.02 Cd: 0.32 ± 0.03 P: 0.27 ± 0.03	$t_{\text{CD}} = 0.54$ $t_{\text{P}} = 0.46$	> 0.05 > 0.05
Excitatory PSD area of sER-free spine [μm^2]	C: 0.024 ± 0.006 Cd: 0.043 ± 0.027 P: 0.032 ± 0.003	F = 19.58 $t_{\text{CD}} = 1.28$ $t_{\text{P}} = 0.57$	< 0.0001 > 0.05 > 0.05	C: 0.026 ± 0.005 Cd: 0.042 ± 0.009 P: 0.052 ± 0.010	F = 15.00 $t_{\text{CD}} = 0.82$ $t_{\text{P}} = 1.31$	< 0.0001 > 0.05 > 0.05
Excitatory PSD area of sER-containing spine [μm^2]	C: 0.059 ± 0.021 Cd: 0.038 ± 0.037 P: 0.037 ± 0.009	$t_{\text{CD}} = 1.44$ $t_{\text{P}} = 1.45$	> 0.05 > 0.05	C: 0.039 ± 0.007 Cd: 0.066 ± 0.009 P: 0.064 ± 0.013	$t_{\text{CD}} = 1.31$ $t_{\text{P}} = 1.24$	> 0.05 > 0.05
Excitatory PSD area of SA-containing spine [μm^2]	C: 0.074 ± 0.008 Cd: 0.075 ± 0.012 P: 0.100 ± 0.011	$t_{\text{CD}} = 0.07$ $t_{\text{P}} = 1.81$	> 0.05 > 0.05	C: 0.087 ± 0.017 Cd: 0.098 ± 0.027 P: 0.119 ± 0.014	$t_{\text{CD}} = 0.55$ $t_{\text{P}} = 1.61$	> 0.05 > 0.05
Inhibitory PSD area of sER-free spine [μm^2]				C: 0.009 ± 0.001 Cd: 0.012 ± 0.001 P: 0.015 ± 0.003	F = 7.43 $t_{\text{CD}} = 0.60$ $t_{\text{P}} = 1.12$	0.0011 > 0.05 > 0.05
Inhibitory PSD area of sER-containing spine [μm^2]				C: 0.013 ± 0.002 Cd: 0.029 ± 0.006 P: 0.021 ± 0.004	$t_{\text{CD}} = 2.87$ $t_{\text{P}} = 1.47$	< 0.05 > 0.05
Inhibitory PSD area of SA-containing spine [μm^2]				C: 0.019 ± 0.003 Cd: 0.037 ± 0.006 P: 0.023 ± 0.005	$t_{\text{CD}} = 3.21$ $t_{\text{P}} = 0.79$	< 0.01 > 0.05

C – control mice; Cd – conditioned mice; P – pseudoconditioned mice