

Table S1-1 The effects of NGB2904 and SCH23390 pretreatment on cocaine-induced dendritic complexity revealed by Sholl analysis in NAc and CPu

Distance from soma(μm)	Group	Mean \pm S.E.M	ap	$F_{(3,188)}$	P
NAc					
20	Saline/Saline	7.67 \pm 0.285	0.607	3.005	0.032
	Saline/Cocaine	7.46 \pm 0.276	-		
	NGB2904/ Cocaine	8.50 \pm 0.301	0.011		
	SCH23390/ Cocaine	7.461 \pm .957	1.000		
40	Saline/Saline	7.83 \pm 0.258	0.006	29.080	P<0.001
	Saline/Cocaine	9.54 \pm 0.394	-		
	NGB2904/ Cocaine	10.38 \pm 0.315	0.015		
	SCH23390/ Cocaine	7.38 \pm 0.222	P<0.001		
60	Saline/Saline	5.13 \pm 0.309	P<0.001	37.827	P<0.001
	Saline/Cocaine	7.31 \pm 0.255	-		
	NGB2904/ Cocaine	8.40 \pm 0.406	0.012		
	SCH23390/ Cocaine	4.17 \pm 0.346	P<0.001		
80	Saline/Saline	1.94 \pm 0.201	P<0.001	37.527	P<0.001
	Saline/Cocaine	4.40 \pm 0.334	-		
	NGB2904/ Cocaine	5.13 \pm 0.274	0.050		
	SCH23390/ Cocaine	2.13 \pm 0.247	P<0.001		
100	Saline/Saline	0.92 \pm 0.168	P<0.001	13.793	P<0.001
	Saline/Cocaine	2.23 \pm 0.239	-		
	NGB2904/ Cocaine	2.48 \pm 0.176	1.000		
	SCH23390/ Cocaine	1.25 \pm 0.220	P<0.005		
120	Saline/Saline/	0.21 \pm 0.094	P<0.001	13.846	P<0.001
	Saline//Cocaine	1.06 \pm 0.131	-		
	NGB2904/ Cocaine	1.04 \pm 0.111	1.000		
	SCH23390/ Cocaine	0.29 \pm 0.155	P<0.001		
CPu					
20	Saline/Saline	8.96 \pm 0.271	1.000	5.671	P=0.001
	Saline/Cocaine	9.5 \pm 0.357	-		
	NGB2904/ Cocaine	10.08 \pm 0.300	1.000		
	SCH23390/ Cocaine	8.40 \pm 0.279	0.066		

40	Saline/Saline	10.83 ± 408	0.006	30.225	P<0.001
	Saline/Cocaine	12.75 ± 0. 549	-		
	NGB2904/ Cocaine	14.79 ± 0. 331	0.003		
	SCH23390/ Cocaine	9.71 ± 0. 287	P<0.001		
60	Saline/Saline	7.00 ± 0. 513	P<0.001	34.011	P<0.001
	Saline/Cocaine	10.46 ± 0. 562	-		
	NGB2904/ Cocaine	11.79 ± 0. 345	0.032		
	SCH23390/ Cocaine	6.67 ± 0. 248	P<0.001		
80	Saline/Saline	3.71 ± 0. 314	P<0.001	31.674	P<0.001
	Saline/Cocaine	6.71 ± 0. 717	-		
	NGB2904/ Cocaine	8.35 ± 0.239	0.040		
	SCH23390/ Cocaine	9.42 ± 0. 228	P<0.001		
100	Saline/Saline	1.67 ± 0. 244	P<0.001	19.258	P<0.001
	Saline/Cocaine	3.75 ± 0. 533	-		
	NGB2904/ Cocaine	4.79 ± 0. 295	0.038		
	SCH23390/ Cocaine	1.67 ± 0. 227	P<0.001		
120	Saline/Saline/	0.54 ± 0. 146	P<0.001	18.108	P<0.001
	Saline//Cocaine	1.88 ± 0. 393	-		
	NGB2904/ Cocaine	2.79 ± 0. 177	0.013		
	SCH23390/ Cocaine	0.54 ± 0. 168	P<0.001		
140	Saline/Saline	0.08 ± 0. 058	0.001	4.288	0.006
	Saline/Cocaine	0.62 ± 0. 187	-		
	NGB2904/ Cocaine	0.38 ± 0. 092	0.362		
	SCH23390/ Cocaine	0.27 ± 0. 093	0.111		
160	Saline/Saline	0.04 ± 0. 029	1.000	1.635	0.183
	Saline/Cocaine	0.00 ± 0. 000	-		
	NGB2904/ Cocaine	0.13 ± 0. 087	0.340		
	SCH23390/ Cocaine	0.04 ± 0. 023	1.000		

^a*p*, compared with cocaine-treated group, bonferroni's test.

Significant levels were set at p<0.05.

Table S1-2 The effects of MK801 pretreatment on cocaine-induced dendritic complexity revealed by Sholl analysis in NAc and CPu

Distance from soma(μm)	Group	Mean \pm S.E.M	ap	$F_{(2,141)}$	P
NAc					
20	Saline/Saline	7.67 \pm 0.285	0.588	4.787	0.010
	Saline/Cocaine	7.46 \pm 0.276	-		
	MK801/ Cocaine	6.54 \pm 0.259	0.021		
40	Saline/Saline	7.83 \pm 0.258	0.001	10.095	P<0.001
	Saline/Cocaine	9.54 \pm 0.394	-		
	MK801/ Cocaine	7.75 \pm 0.286	P<0.001		
60	Saline/Saline	5.13 \pm 0.309	P<0.001	26.549	P<0.001
	Saline/Cocaine	7.31 \pm 0.255	-		
	MK801/ Cocaine	4.63 \pm 0.266	P<0.001		
80	Saline/Saline	1.94 \pm 0.201	P<0.001	42.205	P<0.001
	Saline/Cocaine	4.40 \pm 0.334	-		
	MK801/ Cocaine	1.44 \pm 0.163	P<0.001		
100	Saline/Saline	0.92 \pm 0.168	P<0.001	44.218	P<0.001
	Saline/Cocaine	2.23 \pm 0.239	-		
	MK801/ Cocaine	0.00 \pm 0.000	P<0.001		
120	Saline/Saline	0.21 \pm 0.094	P<0.001	36.530	P<0.001
	Saline/Cocaine	1.06 \pm 0.131	-		
	MK801/ Cocaine	0.00 \pm 0.000	P<0.001		
CPu					
20	Saline/Saline	8.96 \pm 0.271	0.548	14.285	P<0.001
	Saline/Cocaine	9.5 \pm 0.357	-		
	MK801/ Cocaine	7.42 \pm 0.210	P<0.001		
40	Saline/Saline	10.83 \pm 408	0.006	13.565	P<0.001
	Saline/Cocaine	12.75 \pm 0.549	-		
	MK801/ Cocaine	9.63 \pm 0.285	P<0.001		
60	Saline/Saline	7.00 \pm 0.513	P<0.001	14.663	P<0.001
	Saline/Cocaine	10.46 \pm 0.562	-		
	MK801/ Cocaine	8.00 \pm 0.263	0.001		

80	Saline/Saline	3.71 ± 0.314	$P < 0.001$	11.736	$P < 0.001$
	Saline/Cocaine	6.71 ± 0.717	-		
	MK801/ Cocaine	4.21 ± 0.219	0.001		
100	Saline/Saline	1.67 ± 0.244	$P < 0.001$	8.602	$P < 0.001$
	Saline/Cocaine	3.75 ± 0.533	-		
	MK801/ Cocaine	2.38 ± 0.218	0.024		
120	Saline/Saline	0.54 ± 0.146	0.001	8.498	$P < 0.001$
	Saline/Cocaine	1.88 ± 0.393	-		
	MK801/ Cocaine	0.67 ± 0.124	0.003		
140	Saline/Saline	0.08 ± 0.058	0.001	5.926	0.003
	Saline/Cocaine	0.62 ± 0.187	-		
	MK801/ Cocaine	0.31 ± 0.074	0.120		
160	Saline/Saline	0.04 ± 0.029	0.246	2.043	0.133
	Saline/Cocaine	0.00 ± 0.000	-		
	MK801/ Cocaine	0.00 ± 0.000	1.000		

^a*p*, compared with cocaine-treated group, bonferroni's test

Significant levels were set at $p < 0.05$.

Table S1-3 The effects of SL327 pretreatment on cocaine-induced dendritic complexity revealed by Sholl analysis in NAc and CPu

Distance from soma(μm)	Group	Mean \pm S.E.M	^a <i>p</i>	<i>F</i> _(2,141)	<i>P</i>
NAc					
20	Saline/Saline	7. 67 \pm 0. 285	1.000	0.604	0.548
	Saline/Cocaine	7.46 \pm 0. 276	-		
	SL327/ Cocaine	7.92 \pm 0. 323	0.823		
40	Saline/Saline	7.83 \pm 0. 258	0.002	6.199	0.003
	Saline/Cocaine	9.54 \pm 0. 394	-		
	SL327/ Cocaine	8.77 \pm 0. 364	0.167		
60	Saline/Saline	5.13 \pm 0. 309	P<0.001	13.127	P<0.001
	Saline/Cocaine	7.31 \pm 0. 255	-		
	SL327/ Cocaine	5.94 \pm 0. 345	0.005		
80	Saline/Saline	1.94 \pm 0. 201	P<0.001	20.791	P<0.001
	Saline/Cocaine	4.40 \pm 0. 334	-		
	SL327/ Cocaine	2.54 \pm 0. 292	P<0.001		
100	Saline/Saline	0.92 \pm 0. 168	P<0.001	19.166	P<0.001
	Saline/Cocaine	2.23 \pm 0. 239	-		
	SL327/ Cocaine	0.71 \pm 0. 146	P<0.001		
120	Saline/Saline	0.21 \pm 0. 094	P<0.001	21.289	P<0.001
	Saline/Cocaine	1.06 \pm 0. 131	-		
	SL327/ Cocaine	0.25 \pm 0. 082	P<0.001		
CPu					
20	8.96 \pm 0. 271	0.571	8.96 \pm 0. 271	8.765	P<0.001
	9.5 \pm 0. 357	-	9.5 \pm 0. 357		
	7.81 \pm 0. 230	P<0.001	7.81 \pm 0. 230		
40	Saline/Saline	10.83 \pm 408	0.013	5.191	0.007
	Saline/Cocaine	12.75 \pm 0. 549	-		
	SL327/ Cocaine	11.00 \pm 0. 428	0.026		
60	Saline/Saline	7.00 \pm 0. 513	P<0.001	12.670	P<0.001
	Saline/Cocaine	10.46 \pm 0. 562	-		
	SL327/ Cocaine	8.79 \pm 0. 385	0.050		

80	Saline/Saline	3.71 ± 0.314	$P < 0.001$	9.581	$P < 0.001$
	Saline/Cocaine	6.71 ± 0.717	-		
	SL327/ Cocaine	4.83 ± 0.327	0.023		
100	Saline/Saline	1.67 ± 0.244	$P < 0.001$	9.421	$P < 0.001$
	Saline/Cocaine	3.75 ± 0.533	-		
	SL327/ Cocaine	2.00 ± 0.234	0.003		
120	Saline/Saline	0.54 ± 0.146	0.002	7.037	0.001
	Saline/Cocaine	1.88 ± 0.393	-		
	SL327/ Cocaine	0.79 ± 0.195	0.014		
140	Saline/Saline	0.08 ± 0.058	0.002	5.181	0.007
	Saline/Cocaine	0.62 ± 0.187	-		
	SL327/ Cocaine	0.35 ± 0.105	0.261		
160	Saline/Saline	0.04 ± 0.029	0.246	2.043	0.133
	Saline/Cocaine	0.00 ± 0.000	-		
	SL327/ Cocaine	0.00 ± 0.000	1.000		

^a*p*, compared with cocaine-treated group, bonferroni's test

Significant levels were set at $p < 0.05$.

Table S2 The effects of different dosage of NGB2904 on cocaine-induced increase of the number of dendrites and spines of MSNs

Group	Mean±S.E.M	^a <i>p</i>	^b <i>p</i>	<i>F</i> _(5,282)	<i>P</i>
The total branches (CPu)					
Sal+Cocaine(Coc)	30.08±0.862	-	0.006	12.779	P<0.001
0.1mg/kgNGB/Coc	30.71±0.735	1.000	0.041		
0.5mg/kgNGB/Coc	31.88±0.885	1.000	0.722		
1mg/kgNGB/Coc	34.10±0.823	0.006	-		
3mg/kgNGB/Coc	34.75±0.765	0.001	1.000		
5mg/kgNGB/Coc	37.6±0.674	P<0.001	0.03		
The total branches (NAc)					
Sal+Cocaine(Coc)	23.10±0.63	-	0.006	13.806	P<0.001
0.1mg/kgNGB/Coc	23.52±0.619	1.000	0.024		
0.5mg/kgNGB/Coc	24.38±0.614	1.000	1.000		
1mg/kgNGB/Coc	26.19±0.576	0.006	-		
3mg/kgNGB/Coc	27.17±0.687	P<0.001	1.000		
5mg/kgNGB/Coc	28.9±0.607	P<0.001	0.025		
The spine density (CPu)					
Sal+Cocaine(Coc)	12.60±0.232	-	0.009	11.911	P<0.001
0.1mg/kgNGB/Coc	12.78±0.19	1.000	0.043		
0.5mg/kgNGB/Coc	13.44±0.249	0.435	1.000		
1mg/kgNGB/Coc	13.93±0.325	0.009	-		
3mg/kgNGB/Coc	14.24±0.292	P<0.001	1.000		
5mg/kgNGB/Coc	15.09±0.318	P<0.001	0.044		
The spine density (NAc)					
Sal+Cocaine(Coc)	12.22±0.344	-	0.003	13.107	P<0.001
0.1mg/kgNGB/Coc	12.51±0.359	1.000	0.029		
0.5mg/kgNGB/Coc	13.29±0.32	1.000	0.282		
1mg/kgNGB/Coc	13.96±0.313	0.003	-		
3mg/kgNGB/Coc	14.18±0.315	0.001	1.000		
5mg/kgNGB/Coc	15.33±0.242	P<0.001	0.045		

^a*p*, compared with cocaine-treated group, bonferroni's test.

^b*p*, compared with 1mg/kg NGB 2904 group, bonferroni's test.

Significant levels were set at p<0.05.