

Legends to supplementary figures

Supplementary Figure 1. Exploration times during the familiarization phase of the novel object recognition test was not affected in NgR1 $-/-$ mice. NgR1 $-/-$ mice spent a similar amount of time looking at the two objects during the initial familiarization phase as the NgR1 $+/-$ mice. $p=0.16$.

Supplementary Figure 2. No difference between genotypes in Morris water maze during learning with visual platform. (A) NgR1 overexpressing mice learned the visual version of Morris water maze as well as controls, and (B), did not differ in swim speed. The same was true for NgR1 $-/-$ mice, that (C) found the platform, and (D), swam as fast as NgR1 $+/-$ mice.

Supplementary Figure 3. Representative dendritic segments used for spine analysis. Representative dendrite segments from all 12 conditions studied are shown. Images were generated by merging image stacks to allow focus on a maximal number of spines for each dendrite segment. Scale bar = 5 μm

Supplementary Figure 4. Brain regions selected for spine and dendrite analyses. FrA frontal association cortex, NAc nucleus accumbens, CC cingulate cortex. Adapted from Franklin et al., 2007.

Supplementary Figure 5. Outline of dendritic trees and analyzed segments. Images obtained by tracing representative dendritic segments for spine analysis and using a committed neuron analysis program (Neurolucida). Each dendritic tree has an area depicting spines, corresponding to the counted area used for spine analyses. One neuron representing each of the 12 studied conditions is depicted. Scale bar = 100 μm .

Supplementary Figure 6. Sholl analysis following cocaine treatment. (A, D, G) Comparisons of control and NgR1 overexpressing mice after cocaine treatment. (B, E, H) Comparisons of control mice with and without cocaine treatment. (C, F, I) Comparisons of NgR1 overexpressing mice with and without cocaine treatment. Sholl analysis shows that cocaine significantly alters dendritic tree complexity in control mice.

Supplementary Figure 7. Dendritic branch length analysis following cocaine treatment. Distribution of dendritic lengths was not affected by either genotype or treatment, and no significant differences were found between control and NgR1 overexpressing mice after cocaine treatment (A,D and G). Controls receiving saline or cocaine treatment B,E and H) or NgR1 overexpressing mice after saline or cocaine treatment (C,F,I).