Supplemental material for “Cdk5 Modulates Cocaine Reward, Motivation and Striatal Neuron Excitability”

Supplemental methods

PCR-based genotyping. Cdk5 allele was detected using the following oligonucleotide sequences: 5’-GCAGGCCTTCGTTCCTCCC-3’ and 5’-CCTGACACGCTTCAGAGCC-3’. These oligos amplified a 304 bp wild-type and a 376 bp fCdk5 allele. The transgenic CaMKII-Cre genotyping was conducted using the following oligonucleotides: 5’-CCACACAGTCTGCAGTATTGTG-3’ and 5’-CATCAACGTTTTCTTTTCGGATC-3’. These oligos amplified a ~1.1 kb Cre transgene product. Oligonucleotides for the control target Gdf5 were included in all transgenic Cre reactions: 5’-GGAGCACTTCCACTATGGGAC-3’ and 5’-AAAGAGTGAGGAGTTTGGGAG-3’ to amplify a 243 bp product. R26R-EYFP transgenic mice were genotyped as described (Soriano, 1999) using three oligonucleotides: 5’-AAAGTCGCTCTGAGTTGTTAT-3’, 5’-GCGAAGAGTTTGTCTCAACC-3’, and 5’-GGAGCGGGAGAAATGGATATG-3’. These oligos amplified a 550 bp wild-type and 300 bp mutant allele.

Anxiety-related behavioral tests. The elevated plus maze (EPM), open field (OF), and dark light (D/L) habituation tests were used to assess the global emotional state and anxiety of experimental subjects, and were performed as previously described (Barrot et al., 2002; Green et al., 2006). In brief, EPM and OF tests consisted of a single 5 min exposure to the testing apparatus. The EPM consisted of an apparatus with 4 arms (2 open, 2 closed); exploration was videotaped for subsequent analysis by an observer blind to the genotype of the mice. Time spent in the open and closed arms, numbers of open and closed arm entries, time spent in the middle, and numbers of explorations of the open arm were calculated. The OF test consisted of a square arena in which the latency to enter the center of the arena, time spent in center vs. periphery, and distance traveled in each area were recorded by automated video-tracking software (Ethovision). The D/L apparatus consists of MedAssociates mouse place preference box linked to MedAssociates photobeam data acquisition software (MedPC). Mice were placed in the dark side for 2 min, and then the door between the compartments was opened to allow the animal to freely explore either the light or dark side for 10 min. Anxiety-like behavior was measured based on the latency to enter the light side, time spent in light vs. dark side, exploration and activity in light and dark side.
Supplemental references


Supplemental figure legends:

Supplemental figure 1. Cdk5 cKO has no effect on acquisition of instrumental responding, weight change, hunger, or appetite in progressive ratio experiments. A, Performance for control (Con) vs. cKO mice in active (left) and inactive (right) nosepoke responses during training for instrumental responding. Day and training schedule (as described in the behavioral procedures) is denoted along the x-axis. B, Baseline and weight change in Cdk5 cKO mice over the first 5 days of food restriction prior to instrumental performance evaluation. C, Amount of food pellets consumed during 1 hr pre-feeding session prior to reinforcer-devaluation PR responding in control vs. cKO mice. Graphs depict mean ± SEM for each measure (n = 16–20 per group).

Supplemental figure 2. Cdk5 NAc-KO has no effect on anxiety-related behavior. Comparison of control (Con) and NAc-KO mice for performance in the A, Elevated plus maze; B, Open field; and C, Dark-light box. Graphs represent mean ± SEM for each measure (p > 0.05 compared to control, Student’s t-test, n = 28–48 per group).