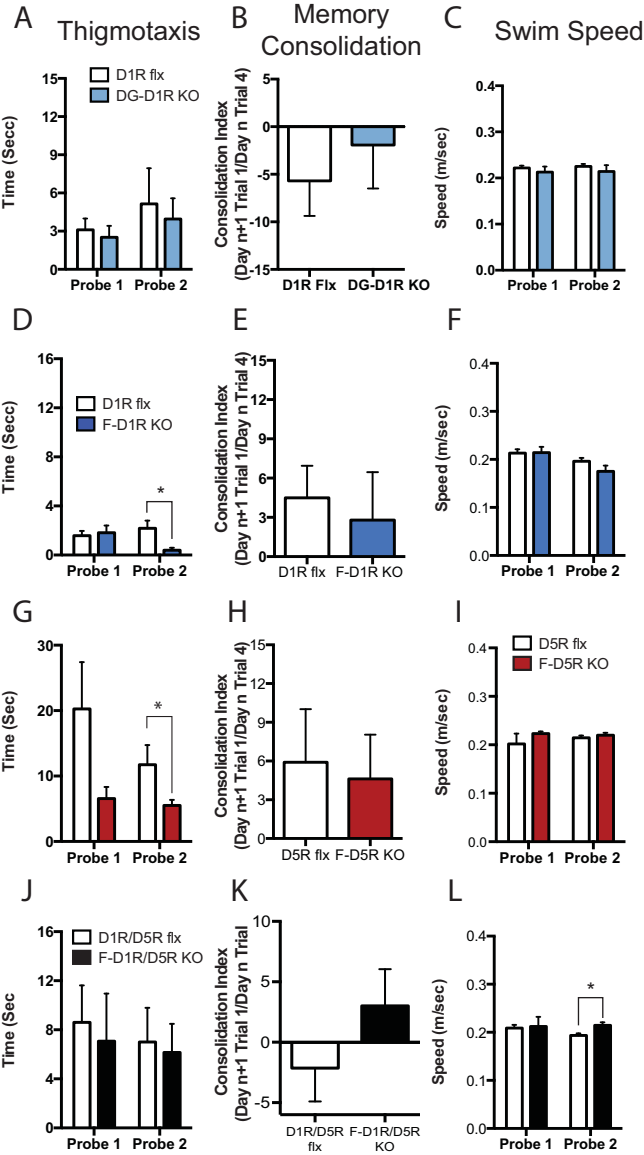
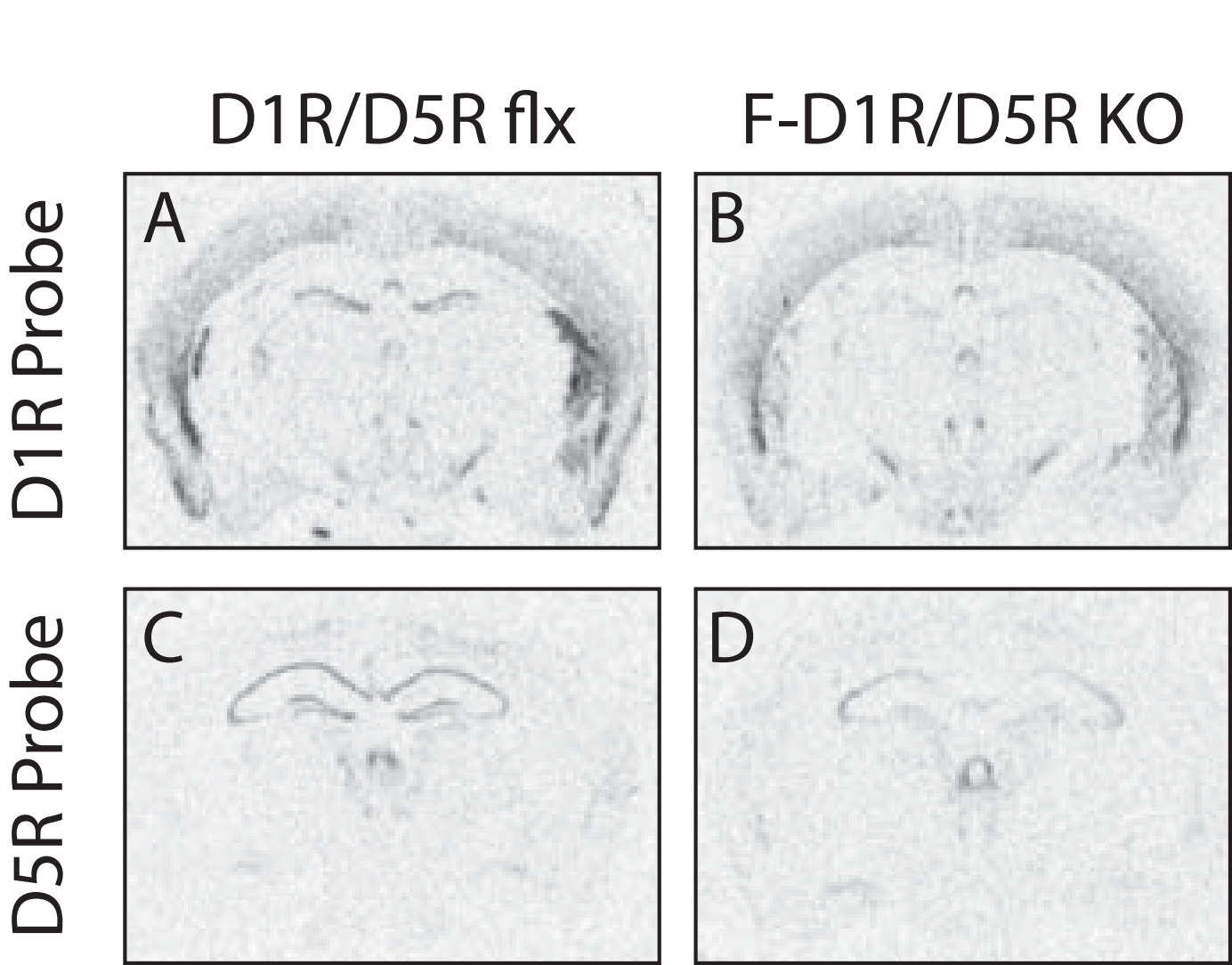
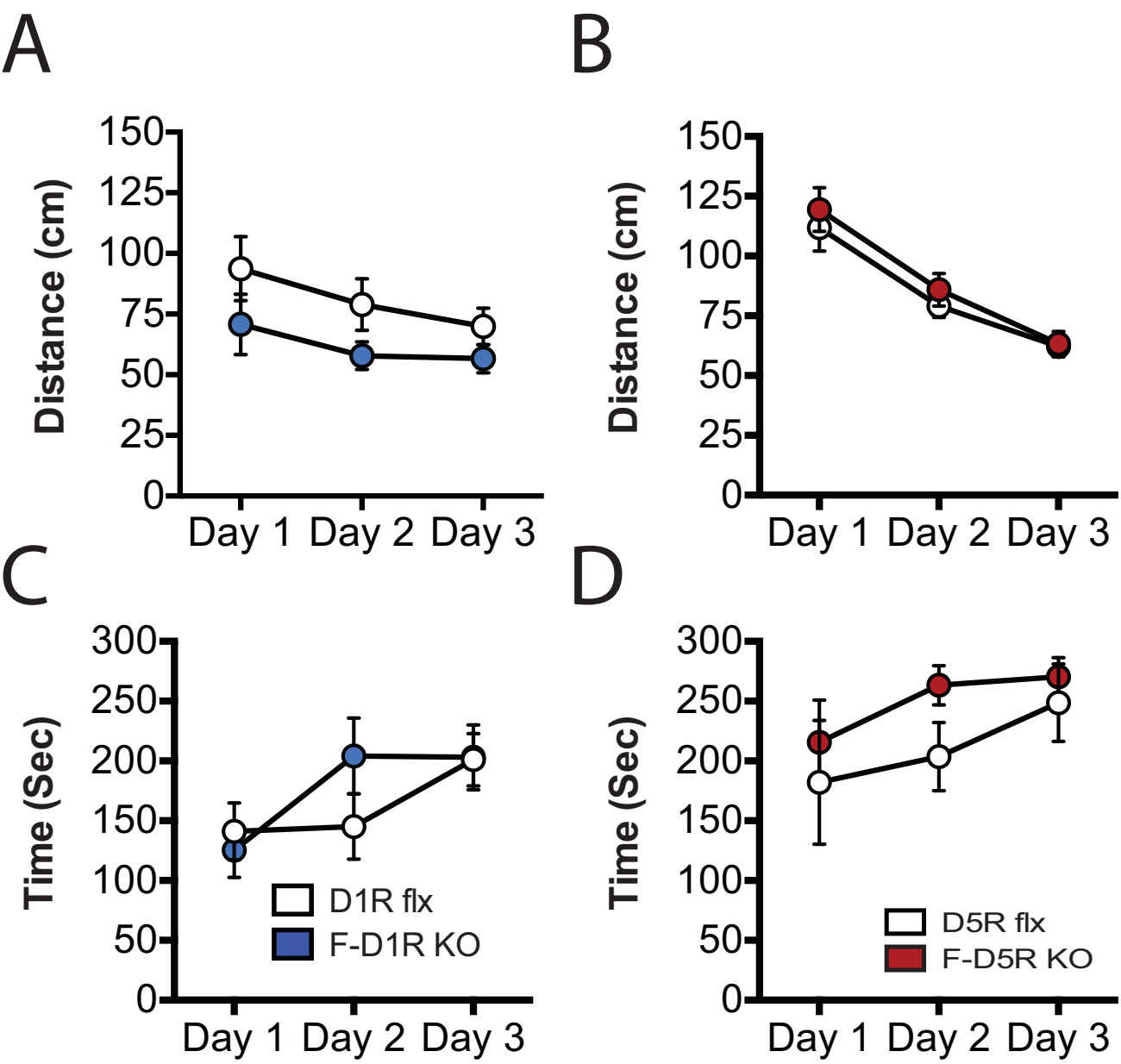
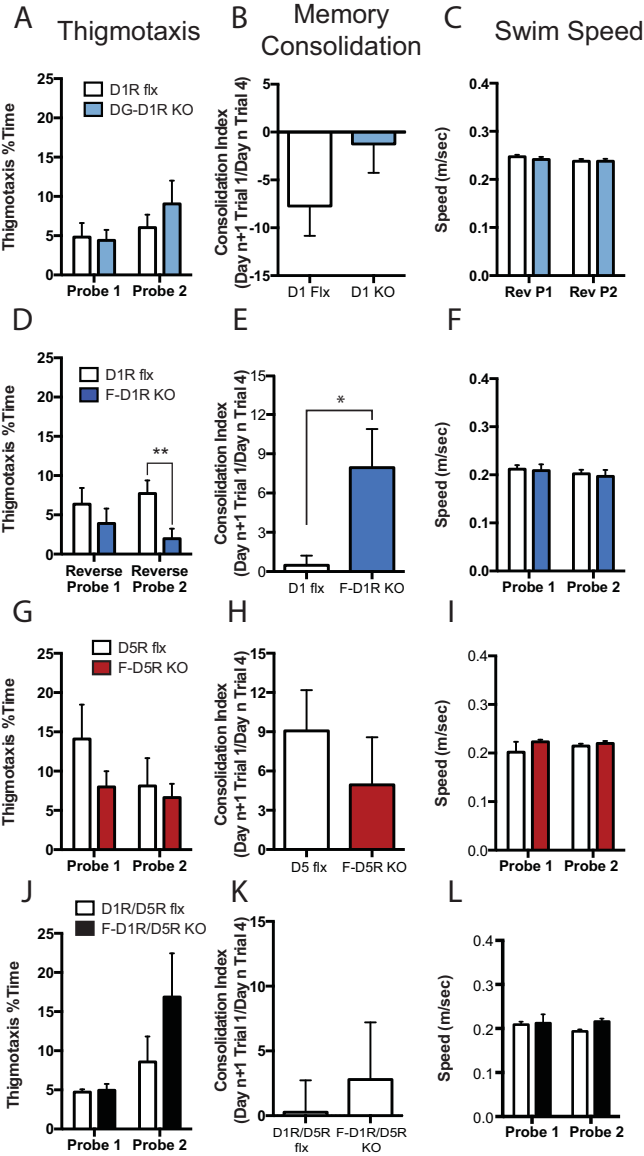

A
Thigmotaxis
B
Memory Consolidation
C
Swim Speed
D1R flx
DG-D1R KO
Time (Secc)
Consolidation Index (Day n+1 Trial 1/Day n Trial 4)
Speed (m/sec)
Probe 1
Probe 2
D1R Flx
DG-D1R KO
D
E
F
F-D1R KO
D1R flx
F-D1R KO
G
H
I
Time (Sec)
D5R flx
F-D5R KO
J
K
L
D1R/D5R flx
F-D1R/D5R KO
Consolidation Index (Day n+1 Trial 1/Day n Trial
*


D1R/D5R flx
F-D1R/D5R KO
D1R Probe
D5R Probe
A
B
C
D


A
B
C
D
Distance (cm)
Time (Sec)
150
125
100
75
50
25
0
300
250
200
150
100
50
0
Day 1
Day 2
Day 3
D1R flx
F-D1R KO
D5R flx
F-D5R KO


A
Thigmotaxis
B
Memory Consolidation
C
Swim Speed
D1R flx
DG-D1R KO
Thigmotaxis %Time
Consolidation Index (Day n+1 Trial 1/Day n Trial 4)
Speed (m/sec)
Probe 1
Probe 2
D1 Flx
D1 KO
Rev P1
Rev P2
D
E
F
D1R flx
F-D1R KO
**
*
Reverse Probe 1
Reverse Probe 2
D1 flx
F-D1R KO
G
H
I
D5R flx
F-D5R KO
D5 flx
F-D5R KO
J
K
L
D1R/D5R flx
F-D1R/D5R KO
D1R/D5R flx
F-D1R/D5R KO

Supplemental Figure 1. Regular training probes 1 and 2 thigmotaxis, memory consolidation, and swim speed for all mouse lines. (A, D, G, J) Thigmotaxis. (B, E, H, K) Memory consolidation. (C, F, I, L) Swim speed. Probe 1 - (D1R flx, n = 16, DG-D1R KO = 15; D1R flx, n = 11; F-D1R KO = 10; D5R flx, n = 8, F-D5R KO = 10; D1R/D5R flx, n = 7; FD1R/D5R KO = 8). Probe 2 – (D1R flx, n = 16, DG-D1R KO = 15; D1R flx, n = 11; F-D1R KO = 10; D5R flx, n = 8, F-D5R KO = 10; D1R/D5R flx, n = 8; F-D1R/D5R KO = 8).

Supplemental Figure 2. *In Situ* Hybridization. (A and B) D1R mRNA Probe for D1R/D5R flx and F-D1R/D5R KO mouse, respectively. (C and D) D5R mRNA Probe for D1R/D5R flx and F-D1R/D5R KO mouse, respectively.

Supplemental Figure 3. Gross motor activity in flx (D1R or D5R) controls and forebrain KO (D1R or D5R) animals. (A and B) Open field total distance (D1R flx, n = 7; F-D1R KO = 9; D5R flx, n = 15, F-D5R KO = 17). (C and D) Rotarod motor test (D1R flx, n = 7; F-D1R KO = 9; D5R flx, n = 7, F-D5R KO =9).

Supplemental Figure 4. Reversal probes 1 and 2 thigmotaxis, memory consolidation, and swim speed for all mouse lines. (A, D, G, J) Thigmotaxis. (B, E, H, K) Memory consolidation. (C, F, I, L) Swim speed. Probe 1 - (D1R flx, n = 16, DG-D1R KO = 15; D1R flx, n = 11; F-D1R KO = 10; D5R flx, n = 8, F-D5R KO = 10; D1R/D5R flx, n = 7; F-D1R/D5R KO = 7). Probe 2 – (D1R flx, n = 16, DG-D1R KO = 15; D1R flx, n = 11; F-D1R KO = 10; D5R flx, n = 8, F-D5R KO = 10; D1R/D5R flx, n = 7; F-D1R/D5R KO = 8).