



**Figure 1 - Supplement 1: Effects of social isolation on social behavior**

(A) Experimental design: WT mice were isolated for 24hrs between P34 and P35 or kept in group. After isolation, mice were subjected to free direct interaction task paradigm. (B) Time exploring social stimulus (Unpaired-samples t-test,  $t_{(18)}=0.2817$   $p=0.7814$ ,  $n=10$  mice each group). (C) Experimental design: WT mice were isolated between P28 and P35 or kept in group. After isolation, mice were subjected to 3-chamber task and habituation task (different cohorts). (D) Distance moved during the 3-chamber task related to figure 1 G-I (Social preference: unpaired samples t-test  $t_{(30)}=1.383$   $p=0.1786$ . Social novelty: unpaired samples t-test  $t_{(30)}=0.8638$   $p=0.3946$ , Grouped  $n=16$ , Isolated  $n=16$ ). (E) Time in chamber during social preference phase (Two-way RM-ANOVA followed by Tukey's multiple comparisons test. Chamber main effect  $F_{(1,168,35,03)}=156.7$   $p<0.001$ ; House condition main effect  $F_{(1,30)}=1.155$   $p=0.2911$ ; Chamber x House condition  $F_{(2,60)}=9.487$   $p>0.001$ ,  $n=16$ ). (F) Preference index calculated as object interaction time/(object+stimulus1) or stimulus1 interaction time/(object+stimulus1) (# One-sample t-test against chance level 0.5; Grouped  $t_{(15)}=4.443$   $p<0.001$ ; Isolated  $t_{(15)}=6.766$   $p<0.001$ ). (G) Time in chamber during social preference phase (Two-way RM-ANOVA followed by Tukey's multiple comparisons test. Chamber main effect  $F_{(1,5,44,99)}=97.47$   $p<0.001$ ; House condition main effect  $F_{(1,30)}=1.1376$   $p=0.2501$ ; Chamber x House condition  $F_{(2,60)}=9.938$   $p=0.061$ ,  $n=16$ ). (H) Preference index calculated as stimulus1 interaction time/(stimulus2+stimulus1) or stimulus2 interaction time/(stimulus2+stimulus1) (# One-sample t-test against chance level 0.5; Grouped  $t_{(15)}=7.104$   $p<0.001$ ; Isolated  $t_{(15)}=0.077$   $p=0.9$ ). (I) Experimental paradigm: WT mice were isolated between P28 and P29 or kept in group. After isolation, mice were subjected to habituation task consisted in 4 repeated exposure to a same social stimulus within the same day. (J) Interaction time during trail 1 (Unpaired sample t-test,  $t_{(10)}=17.01$ ,  $p<0.001$ ,  $n=6$  each group). (K) Interaction time across Trails normalized on Trial 1 (Two-way RM-ANOVA, Trial main effect  $F_{(2,007,20,07)}=18.47$ ,  $p<0.001$ , House condition main effect  $F_{(1,10)}=2.6$ ,  $p=0.1379$ , Trial x House condition  $F_{(3,30)}=1.050$ ,  $p=0.3848$ ). (L-M) Interaction time within Trial 1 and Trial 4 (Paired samples t-test, Grouped (L)  $t_{(5)}=6.020$ ,  $p=0.0018$ ; Isolated (M)  $t_{(5)}=4.735$ ,  $p=0.0052$ ). Data are represented as mean $\pm$ SEM.