Altering glutamate transmission in combination with an early post-natal stress to mimic schizophrenia in male and female mice

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Schizophrenia
1% population, onset 15-25 years
Multifactorial: genetic x environmental factors
Symptoms: positive, negative, cognitive
Debilitating disease → heavy costs
Treatments: not efficient on negative and cognitive symptoms, multiple side-effects
Crucial need to refine treatments
- Improving validity of animal models of schizophrenia
- Combining genetic x environmental factors

CS7Bl6 male and female mice
Altered glutamate transmission:
- Serine racemase KO mice SRKO
Early stress:
- Maternal separation MS

Summary of the results
1-hit SR
- Locomotor activity in all experiments
- Place recognition
- Social recognition

1-hit MS
- Place recognition
- Prepulse Inhibition

2-hit animal models gathers several deficits considered as hallmarks of schizophrenia.
Serine racemase deletion induces an increase in activity, promotes social memory troubles, and contributes to a higher sensitivity to maternal separation.
Maternal separation mostly contributes to sensorimotor gating deficits.

2-hit model differentially affect males and females.
Because some deficits (working memory, object recognition, social recognition) appears only in 2-hit mice, combining factors may help in improving validity of animal models of schizophrenia.
Moreover, combining factors reveals differences between males and females, probably accounting for gender vulnerability/resilience differences.