## Studies on the roles of gene-environment interactions in brain function and mental illness

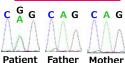
Heritability Schizophrenia ~81% ASD ~80% **Depression** ~37%







Genetic factors



Perinatal & postnatal

Poor environment Social isolation, social defeat, drug exposure, and so on

period

**Environmental Enrichment** 

Social communications.

exercise, and so on





Environmental factors

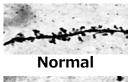


**Improvement** 



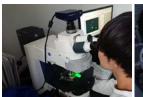
Schizophrenia · **ASD** · Depression · **Abnormal sensation** 

- ✓ Vulnerability
- ✓ Early development





SCZ mouse model





Identify the neural circuits and signaling pathways



Elucidate the molecular mechanisms



Drug development Diagnosis of disease conditions Evaluation of clinical stage Classification of disease subtypes