Bipolar disorder associated microRNA, miR-1908-5p, regulates the expression of genes functioning in neuronal glutamatergic synapses

Yoonhee Kim, Yinhua Zhang, Kaifang Pang, Hyojin Kang, Heejoo Park, Yeunkum Lee, Bokyoung Lee, Heon-Jeong Lee, Won-Ki Kim, Dongho Geum and Kihoon Han

**Supplementary Figure 1** Conservation of the miR-1908-3p and miR-1908-5p sequences among 100 aminal genomes

**Supplementary Figure 2** Conservation of the miR-34a-3p and miR-34a-5p sequences among 100 aminal genomes

**Supplementary Figure 3** The thresholds of context++ scores for miR-1908-3p and miR-1908-5p putative target genes predicted by TargetScan

**Supplementary Figure 4** GO analysis of miR-1908-3p and miR-1908-5p target genes

**Supplementary Figure 5** Conservation of the first (770-776) and second (803-809) miR-1908-5p binding sites in the GRM4 3'UTR among 100 aminal genomes

**Supplementary Figure 6** Human brain expression of STX1A and CLSTN1, and their Spearman's correlations with miR-1908-5p

**Supplementary Table 1** Summary of statistical analyses for the experiments
Supplementary Table 1 Summary of statistical analyses for the experiments.

<table>
<thead>
<tr>
<th>Assay/Measurement</th>
<th>Values (mean±SEM, n)</th>
<th>Statistical test and P values</th>
<th>Figure</th>
</tr>
</thead>
</table>
| Luciferase assay for miR-1908-5p synaptic target genes | DLGAP4, control miR (1±0.03, 6)  
DLGAP4, miR-1908-5p (0.76±0.03, 6)  
GRIN1, control miR (1±0.04, 6)  
GRIN1, miR-1908-5p (0.63±0.02, 6)  
STX1A, control miR (1±0.04, 6)  
STX1A, miR-1908-5p (0.78±0.04, 6)  
CLSTN1, control miR (1±0.05, 6)  
CLSTN1, miR-1908-5p (0.73±0.04, 6)  
GRASP, control miR (1±0.04, 6)  
GRASP, miR-1908-5p (1.14±0.06, 6)  
GRM4, control miR (1±0.03, 6)  
GRM4, miR-1908-5p (0.62±0.03, 6) | Unpaired two-tailed Student's t-test, **P<0.01, ***P<0.001                                     | Figure 1d |
| Luciferase assay for GRM4 binding sites | GRM4 WT, control miR (1±0.04, 6)  
GRM4 WT, miR-1908-5p (0.76±0.04, 6)  
GRM4 M1, control miR (1±0.02, 6)  
GRM4 M1, miR-1908-5p (0.82±0.03, 6)  
GRM4 M2, control miR (1±0.03, 6)  
GRM4 M2, miR-1908-5p (0.88±0.04, 6)  
GRM4 M1/2, control miR (1±0.06, 6)  
GRM4 M1/2, miR-1908-5p (0.93±0.09, 6) | Unpaired two-tailed Student's t-test, *P<0.05, **P<0.01, ***P<0.001                                   | Figure 1e |
| qRT-PCR for miR-1908-5p in human NPCs | Control, vehicle (1±0.00, 3)  
Control, lithium (1.21±0.09, 3)  
Control, valproate (1.68±0.08, 3)  
BD, vehicle (1±0.00, 3)  
BD, lithium (1.00±0.15, 3)  
BD, valproate (0.43±0.09, 3) | Unpaired two-tailed Student's t-test, *P<0.05                                                  | Figure 3b |