**Nonlinear modulation of interacting between *COMT* and depression on brain function**

This supplemental materials include:

Supplemental Table 1

Supplemental Fig. 1-4

**Supplemental Table 1.** Brain areas with significant disease effect on global functional connectivity density.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Brain regions | Brodmann area | Cluster size (voxels) | MNI coordinates (x, y, z) | Peak *F*-score |
| Left rectal gyrus | 11 | 88 | -6, 33, -24 | 13.96 |
| Left fusiform gyrus | 37 | 71 | -45, -39, -18 | 29.64 |
| Right fusiform gyrus | 37 | 67 | 45, -39, -12 | 25.16 |
| Left superior temporal gyrus | 38 | 60 | -54, 3, -9 | 18.92 |
| Right postcentral gyrus | 3 | 84 | 36, -24, 45 | 19.73 |
| Left postcentral gyrus | 3 | 93 | -18, -33, 66 | 17.97 |
| Right precentral gyrus | 4 | 80 | 21, -39, 60 | 16.89 |
|  Right ventrolateral prefrontal cortex | 10 | 47 | 33, 57, -6 | 12.94 |



**Supplemental Fig 1.** The group differences of global FCD between CN and MDD groups at the connection thresholds at 0.5 **(A)** and 0.7 **(B)** (3dClustSim correction, p < 0.001). Abbreviations: FCD, functional connectivity density; CN, cognitively normal; MDD, major depressive disorder.



**Supplemental Fig. 2.** The main effect of *COMT* on global functional connectivity density at the connection thresholds at 0.6 (*p* < 0.05, uncorrected)



**Supplemental Fig. 3**. The Disease × *COMT* interaction effects on global functional connectivity density with the connection threshold of 0.5 (**A**) and 0.7 (**B**). (3dCulstSim correction, *p* < 0.05).



**Supplemental Fig. 4**. The modulation pattern of gFCD in different brain regions by the presumed dopamine signaling from high to low. Abbreviation: CN, cognitively normal; MDD, major depressive disorder; gFCD, global functional connectivity density. l\_FFA, left fusiform area; l\_SFG, left superior frontal gyrus; r\_vlPFC/ACC, right ventrolateral prefrontal cortex / anterior cingulate cortex.