# Graphic Lasso: Data analysis

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## 1   Gtex with top variance-variance genes

Table 1 is the result for Gtex data with top variance-variance genes with $r = 3, \rho = 1500$.

| $A_0 : u_{kl} = 0$ | Brain - Amygdala |
|---|---|
| $A_{11} : u_{k1} > 0$ | Brain - Hippocampus, Brain - Hypothalamus Brain - Spinal cord (cervical c-1) |
| $A_{12} : u_{k1} < 0$ | Brain - Cortex Brain - Anterior cingulate cortex (BA24) Brain - Frontal Cortex (BA9) |
| $A_{21} : u_{k2} > 0$ | Brain - Cerebellum Brain - Cerebellar Hemisphere |
| $A_{21} : u_{k2} < 0$ | Brain - Caudate (basal ganglia) Brain - Nucleus accumbens (basal ganglia) Brain - Putamen (basal ganglia) |
| $A_3 : u_{k3} \neq 0$ | Brain - Substantia nigra |

Table 1: Membership result for 13 brain tissues with $r = 3, \rho = 1000$ of Gtex data with var-var genes.

Similar results are given under the setting $r = 3, \rho = 2000$ and $r = 2, rho = 1500, 2000$. But the clustering results do not hold when $\rho$ is small, such as $\rho = 1000, \rho = 500$.

## 2   Gtex with top mean-variance genes