

**Table S3 . Properties of the Pathway Network**

| Property                                     | Cancer A Network: |                      | Cancer B Network |                        |
|--|-------------------|----------------------|------------------|------------------------|
|  | WP >0.01          | GC >0.5, and WP>0.01 | WP >0.01         | GC >0.5, and  WP >0.01 |
| Nodes  | 168               | 154                  | 176              | 176                    |
| Edges  | 4768              | 3468                 | 8526             | 5814                   |
| Edge density, connectivity                   | 0.3399            | 0.2944               | 0.5536           | 0.3775                 |
| Average of node degree                       | 56.7619           | 45.039               | 96.8863          | 66.0682                |
| Number of connected components               | 6                 | 21                   | 2                | 2                      |
| Size of the giant component                  | 161               | 133                  | 174              | 175                    |
| Average of the local clustering coefficients | 0.3125            | 0.4104               | 0.3421           | 0.3221                 |
| No. Circles with 3 Nodes                     | 44439             | 42390                | 160453           | 84557                  |

**WP= Weight of Pathway Edge, GC=Gene Correlation**