| R-HSA.   | R-HSA.<br>8982491  | R-HSA<br>1474290     | R-HSA<br>`3>3>55 | immune only |           |
|--|--------------------|----------------------|------------------|-------------|-----------|
|  | 982 <sub>491</sub> | 145 <sub>4</sub> 590 | 3>3>55           | 455472      | "le only  |
| Pairwise path length in reference tree                 | 0.012              | 0.029                | 0.014            | 0.161       | 0.028     |
| Jaccard distance over extended gene set                | 0.185              | 0.398                | 0.238            | 2.246       | 0.31      |
| WM distance over summary W2V                           | 24.817             | 401.254              | 25.768           | 8212.347    | NaN       |
| WM distance over gene symbols W2V                      | 0.814              | 16.67                | 2.325            | 328.283     | 9500.508  |
| Cosine distance over over summary W2V                  | 0.886              | 6.35                 | 1.258            | 215.654     | NaN       |
| Cosine distance over over NCBI summary W2V             | 3.384              | 54.313               | 7.583            | 737.154     | 101.634   |
| Cosine distance over gene symbols W2V                  | 0.202              | 0.761                | 0.285            | 17.467      | 1.483     |
| Cosine distance GO MF description W2V                  | 9.172              | 27.654               | 24.075           | 2348.945    | 206.04    |
| Cosine distance GO CC description W2V                  | 5.542              | 52.808               | 28.758           | 2191.575    | 135.862   |
| Cosine distance GO BP description W2V                  | 11.603             | 154.268              | 124.624          | 20266.078   | 361.471   |
| GO-distance (go_type=MF, measure=Wang, combine=BMA)    | 11.884             | 2588.84              | 301.245          | 2601.024    | 1954.441  |
| GO-distance (go_type=CC, measure=Wang, combine=BMA)    | 5.406              | 72.14                | 502.832          | 3835.697    | 5870.326  |
| GO-distance (go_type=BP, measure=Wang, combine=BMA)    | 24.084             | 826.678              | 1598.533         | 77040.866   | 48340.111 |
| Overlap distance over genes                            | 0.239              | 3.488                | 0.7              | 281.89      | 11.426    |
| Overlap distance over gene traits                      | 0.22               | 6.589                | 1.77             | 326.871     | 6.641     |
| Minkowski distance (p=2) over genes                    | 0.001              | 0.003                | 0.001            | 0.221       | 0.016     |
| Minkowski distance ( $p=2$ ) over gene traits          | 0.001              | 0.007                | 0.003            | 0.276       | 0.013     |
| Minkowski distance (p=2) over gene trait frequency     | 0.001              | 0.018                | 0.006            | 0.327       | 0.192     |
| Minkowski distance (p=1) over genes                    | 0.0                | 0.003                | 0.001            | 0.161       | 0.016     |
| Minkowski distance ( $p=1$ ) over gene traits          | 0.0                | 0.007                | 0.003            | 0.204       | 0.014     |
| Minkowski distance ( $p=1$ ) over gene trait frequency | 0.001              | 0.016                | 0.005            | 0.279       | 0.192     |
| Kappa distance over genes                              | 0.326              | 1.407                | 0.485            | 38.138      | 0.97      |
| Kappa distance over gene traits                        | 0.524              | 1.664                | 0.536            | 41.809      | 0.638     |
| Jaccard distance over genes                            | 0.0                | 0.001                | 0.001            | 0.053       | 0.008     |
| Jaccard distance over gene traits                      | 0.0                | 0.004                | 0.002            | 0.066       | 0.009     |
| Cosine distance over gene trait frequency              | 0.001              | 0.013                | 0.004            | 0.115       | 0.197     |
| Random (uniform, (0,1))                                | 0.012              | 0.031                | 0.016            | 0.129       | 0.014     |