

## GeDiPNet Cluster 49 -- Enriched Pathways

Pathway enrichment: KEGG + Reactome, upper-tail hypergeometric test, Benjamini-Hochberg FDR-corrected. Fold enrichment = (overlap / cluster gene count) / (pathway gene count / universe size). Top 15 pathways per cluster by q-value. See [scripts/build\\_cluster\\_enrichment.php](scripts/build_cluster_enrichment.php) on [gedipnet.bicnirrh.res.in](http://gedipnet.bicnirrh.res.in). Data as of: 2026-10-07 03:30:09. · Rows: 15 · Generated: 2026-10-07 12:59:00

| Pathway                                                   | Source   | Overlap Genes | Overlap Gene Names                                                                 | Pathway Gene Count | Cluster Gene Count | Fold Enrichment | P-value   | FDR Q-value |
|-----------------------------------------------------------|----------|---------------|------------------------------------------------------------------------------------|--------------------|--------------------|-----------------|-----------|-------------|
| Ras signaling pathway                                     | KEGG     | 22            | PTPN11, SOS1, SYNGAP1, HRAS, KRAS, MAP2K1, MAP2K2, NRAS, RAF1, SHOC2, SOS2, ANGPT2 | 237                | 106                | 10.52           | 8.353e-17 | 3.828e-14   |
| Proteoglycans in cancer                                   | KEGG     | 19            | PTPN11, SOS1, BRAF, HRAS, KRAS, MAP2K1, MAP2K2, NRAS, RAF1, SOS2, FZD6, ROCK2      | 204                | 106                | 10.55           | 1.241e-14 | 3.819e-12   |
| Endometrial cancer                                        | KEGG     | 12            | SOS1, BRAF, HRAS, KRAS, MAP2K1, MAP2K2, NRAS, RAF1, SOS2, PTEN, MAPK1, PIK3CA      | 59                 | 106                | 23.04           | 9.366e-14 | 2.428e-11   |
| Chronic myeloid leukemia                                  | KEGG     | 13            | PTPN11, SOS1, BRAF, HRAS, KRAS, MAP2K1, MAP2K2, NRAS, RAF1, SOS2, CBL, MAPK1       | 77                 | 106                | 19.13           | 1.067e-13 | 2.708e-11   |
| EGFR tyrosine kinase inhibitor resistance                 | KEGG     | 13            | SOS1, BRAF, HRAS, KRAS, MAP2K1, MAP2K2, NRAS, RAF1, SOS2, NF1, PTEN, MAPK1         | 80                 | 106                | 18.41           | 1.790e-13 | 4.335e-11   |
| Renal cell carcinoma                                      | KEGG     | 12            | PTPN11, SOS1, BRAF, HRAS, KRAS, MAP2K1, MAP2K2, NRAS, RAF1, SOS2, MAPK1, PIK3CA    | 70                 | 106                | 19.42           | 8.216e-13 | 1.822e-10   |
| MAPK signaling pathway                                    | KEGG     | 20            | SOS1, BRAF, HRAS, KRAS, MAP2K1, MAP2K2, NRAS, RAF1, SOS2, DUSP4, ANGPT2, FLT4      | 299                | 106                | 7.58            | 1.254e-12 | 2.694e-10   |
| Glioma                                                    | KEGG     | 12            | SOS1, BRAF, HRAS, KRAS, MAP2K1, MAP2K2, NRAS, RAF1, SOS2, PTEN, MAPK1, PIK3CA      | 76                 | 106                | 17.89           | 2.294e-12 | 4.692e-10   |
| RAS signaling downstream of NF1 loss-of-function variants | Reactome | 6             | HRAS, KRAS, NRAS, SPRED1, NF1, SPRED2                                              | 7                  | 106                | 97.12           | 2.848e-12 | 5.672e-10   |
| ErbB signaling pathway                                    | KEGG     | 12            | SOS1, BRAF, HRAS, KRAS, MAP2K1, MAP2K2, NRAS, RAF1, SOS2, CBL, MAPK1, PIK3CA       | 86                 | 106                | 15.81           | 1.051e-11 | 1.874e-9    |
| Acute myeloid leukemia                                    | KEGG     | 11            | SOS1, BRAF, HRAS, KRAS, MAP2K1, MAP2K2, NRAS, RAF1, SOS2, MAPK1, PIK3CA            | 68                 | 106                | 18.33           | 1.504e-11 | 2.580e-9    |
| Non-small cell lung cancer                                | KEGG     | 11            | SOS1, BRAF, HRAS, KRAS, MAP2K1, MAP2K2, NRAS, RAF1, SOS2, MAPK1, PIK3CA            | 73                 | 106                | 17.07           | 3.367e-11 | 5.381e-9    |
| Breast cancer                                             | KEGG     | 14            | SOS1, BRAF, HRAS, KRAS, MAP2K1, MAP2K2, NRAS, RAF1, SOS2, FLT4, FZD6, PTEN         | 148                | 106                | 10.72           | 4.005e-11 | 6.310e-9    |
| Phospholipase D signaling pathway                         | KEGG     | 14            | PTPN11, SOS1, HRAS, KRAS, MAP2K1, MAP2K2, NRAS, RAF1, SOS2, RRAS, MRAS, RRAS2      | 149                | 106                | 10.65           | 4.389e-11 | 6.856e-9    |
| Prostate cancer                                           | KEGG     | 12            | SOS1, BRAF, HRAS, KRAS, MAP2K1, MAP2K2, NRAS, RAF1, SOS2, PTEN, MAPK1, PIK3CA      | 98                 | 106                | 13.87           | 5.117e-11 | 7.861e-9    |