**Table S4. GO functional enrichment analysis of SFKs and 20 related genes**

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| --- | --- | --- | --- | --- |
| Ontology | ID | Description | GeneRatio | p.adjust |
| BP | GO:0046777 | protein autophosphorylation | 19/28 | 1.27e-27 |
| BP | GO:0002429 | immune response-activating cell surface receptor signaling pathway | 17/28 | 1.96e-18 |
| BP | GO:0050870 | positive regulation of T cell activation | 11/28 | 5.93e-13 |
| BP | GO:0031295 | T cell costimulation | 8/28 | 1.24e-12 |
| BP | GO:0031294 | lymphocyte costimulation | 8/28 | 1.31e-12 |
| CC | GO:0031234 | extrinsic component of cytoplasmic side of plasma membrane | 12/28 | 8.81e-20 |
| CC | GO:0019897 | extrinsic component of plasma membrane | 13/28 | 7.18e-19 |
| CC | GO:0019898 | extrinsic component of membrane | 14/28 | 1.59e-17 |
| CC | GO:0009898 | cytoplasmic side of plasma membrane | 12/28 | 1.59e-17 |
| CC | GO:0098562 | cytoplasmic side of membrane | 12/28 | 7.57e-17 |
| MF | GO:0004713 | protein tyrosine kinase activity | 17/28 | 2.88e-28 |
| MF | GO:0005070 | SH3/SH2 adaptor activity | 10/28 | 3.74e-18 |
| MF | GO:0035591 | signaling adaptor activity | 10/28 | 3.25e-16 |
| MF | GO:0070851 | growth factor receptor binding | 5/28 | 1.67e-05 |
| MF | GO:0004709 | MAP kinase kinase kinase activity | 3/28 | 6.98e-05 |

BP, biological process; CC, cellular component; MF, molecular function.