**Supplementary Table 2.** Top 20 GO gene sets correlate with up-regulated mRNAs by GSEA

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| GO Name | SIZE | ES | NES | NOM p-val | FDR q-val |
| GO\_REGULATION\_OF\_IMMUNE\_RESPONSE | 187 | 0.52 | 3.79 | <0.001 | <0.001 |
| GO\_IMMUNE\_RESPONSE | 261 | 0.49 | 3.76 | <0.001 | <0.001 |
| GO\_IMMUNE\_SYSTEM\_PROCESS | 391 | 0.44 | 3.56 | <0.001 | <0.001 |
| GO\_POSITIVE\_REGULATION\_OF\_IMMUNE\_SYSTEM\_PROCESS | 195 | 0.48 | 3.55 | <0.001 | <0.001 |
| GO\_POSITIVE\_REGULATION\_OF\_IMMUNE\_RESPONSE | 119 | 0.53 | 3.54 | <0.001 | <0.001 |
| GO\_REGULATION\_OF\_IMMUNE\_SYSTEM\_PROCESS | 291 | 0.44 | 3.48 | <0.001 | <0.001 |
| GO\_LEUKOCYTE\_ACTIVATION | 113 | 0.5 | 3.28 | <0.001 | <0.001 |
| GO\_IMMUNE\_RESPONSE\_REGULATING\_CELL\_SURFACE\_RECEPTOR\_SIGNALING\_PATHWAY | 64 | 0.56 | 3.26 | <0.001 | <0.001 |
| GO\_DEFENSE\_RESPONSE | 267 | 0.41 | 3.21 | <0.001 | <0.001 |
| GO\_LYMPHOCYTE\_ACTIVATION | 96 | 0.51 | 3.2 | <0.001 | <0.001 |
| GO\_CELL\_ACTIVATION | 137 | 0.47 | 3.18 | <0.001 | <0.001 |
| GO\_ADAPTIVE\_IMMUNE\_RESPONSE | 80 | 0.52 | 3.17 | <0.001 | <0.001 |
| GO\_INNATE\_IMMUNE\_RESPONSE | 119 | 0.47 | 3.17 | <0.001 | <0.001 |
| GO\_POSITIVE\_REGULATION\_OF\_CELL\_ACTIVATION | 89 | 0.51 | 3.16 | <0.001 | <0.001 |
| GO\_IMMUNE\_EFFECTOR\_PROCESS | 95 | 0.49 | 3.15 | <0.001 | <0.001 |
| GO\_REGULATION\_OF\_CELL\_ACTIVATION | 133 | 0.45 | 3.13 | <0.001 | <0.001 |
| GO\_ACTIVATION\_OF\_IMMUNE\_RESPONSE | 87 | 0.51 | 3.1 | <0.001 | <0.001 |
| GO\_REGULATION\_OF\_CYTOKINE\_PRODUCTION | 107 | 0.46 | 3.02 | <0.001 | <0.001 |
| GO\_POSITIVE\_REGULATION\_OF\_CELL\_CELL\_ADHESION | 77 | 0.49 | 2.97 | <0.001 | <0.001 |
| GO\_LEUKOCYTE\_CELL\_CELL\_ADHESION | 69 | 0.51 | 2.96 | <0.001 | <0.001 |