|  |  |  |  |
| --- | --- | --- | --- |
| **Table S3. Ingenuity pathways differentially enriched in COVID-19 patients vs. control subjects (related to Fig. 1)** | | | |
| **Pathways included: -log(p-value)>1.3, z-score ≥1 or ≤-1** | | | |
| **Enriched in SARS-CoV-2+ vs. control** | **-log(p-value)** | **Ratio** | **z-score** |
| Role of Pattern Recognition Receptors in Recognition of Bacteria and Viruses | 20.8 | 0.286 | 4.914 |
| Neuroinflammation Signaling Pathway | 20.2 | 0.204 | 5.798 |
| Crosstalk between Dendritic Cells and Natural Killer Cells | 19.7 | 0.371 | 5.292 |
| TREM1 Signaling | 17.9 | 0.387 | 5.014 |
| Dendritic Cell Maturation | 16.8 | 0.235 | 5.604 |
| Th1 Pathway | 16.8 | 0.289 | 3.8 |
| Systemic Lupus Erythematosus In B Cell Signaling Pathway | 15.8 | 0.189 | 4.715 |
| Interferon Signaling | 15.1 | 0.528 | 3.771 |
| Natural Killer Cell Signaling | 14.1 | 0.208 | 2.967 |
| T Cell Exhaustion Signaling Pathway | 13 | 0.211 | 2.785 |
| Th2 Pathway | 12.7 | 0.235 | 1.706 |
| Leukocyte Extravasation Signaling | 12 | 0.193 | 3.307 |
| Type I Diabetes Mellitus Signaling | 11.2 | 0.243 | 3.5 |
| Role of PKR in Interferon Induction and Antiviral Response | 10.6 | 0.231 | 2.858 |
| iCOS-iCOSL Signaling in T Helper Cells | 10.4 | 0.234 | 3.3 |
| Tec Kinase Signaling | 9.68 | 0.189 | 4.491 |
| CD28 Signaling in T Helper Cells | 8.85 | 0.208 | 3.357 |
| Production of Nitric Oxide and Reactive Oxygen Species in Macrophages | 8.18 | 0.165 | 5.014 |
| Activation of IRF by Cytosolic Pattern Recognition Receptors | 8 | 0.27 | 1.698 |
| Role of NFAT in Regulation of the Immune Response | 7.99 | 0.166 | 4.491 |
| Inflammasome pathway | 7.89 | 0.5 | 3.162 |
| Complement System | 7.79 | 0.351 | 1.265 |
| Toll-like Receptor Signaling | 7.47 | 0.237 | 3.357 |
| NF-κB Signaling | 6.95 | 0.156 | 3.024 |
| Acute Phase Response Signaling | 6.95 | 0.156 | 2.524 |
| Fcγ Receptor-mediated Phagocytosis in Macrophages and Monocytes | 6.67 | 0.202 | 3.9 |
| iNOS Signaling | 6.65 | 0.289 | 3.464 |
| Hepatic Fibrosis Signaling Pathway | 6.46 | 0.117 | 4.629 |
| MIF-mediated Glucocorticoid Regulation | 6.27 | 0.324 | 3.317 |
| Cytotoxic T Lymphocyte-mediated Apoptosis of Target Cells | 6.27 | 0.324 | 2.449 |
| NF-κB Activation by Viruses | 6.2 | 0.207 | 3.5 |
| HMGB1 Signaling | 6.01 | 0.152 | 3.5 |
| IL-8 Signaling | 5.94 | 0.14 | 3.962 |
| Coronavirus Pathogenesis Pathway | 5.67 | 0.153 | 2.294 |
| Death Receptor Signaling | 5.53 | 0.187 | 1.698 |
| IL-17A Signaling in Airway Cells | 5.5 | 0.219 | 1.155 |
| IL-9 Signaling | 5.45 | 0.303 | 2.53 |
| Colorectal Cancer Metastasis Signaling | 5.26 | 0.123 | 4.041 |
| MIF Regulation of Innate Immunity | 5.25 | 0.262 | 3.317 |
| PI3K/AKT Signaling | 5.03 | 0.137 | 2.309 |
| TNFR2 Signaling | 4.92 | 0.3 | 1.134 |
| PKCθ Signaling in T Lymphocytes | 4.9 | 0.142 | 4.583 |
| Tumoricidal Function of Hepatic Natural Killer Cells | 4.81 | 0.333 | 1.633 |
| Gαq Signaling | 4.77 | 0.139 | 2.5 |
| Regulation Of The Epithelial Mesenchymal Transition By Growth Factors Pathway | 4.5 | 0.128 | 3.128 |
| Necroptosis Signaling Pathway | 4.32 | 0.134 | 4.583 |
| IL-6 Signaling | 4.21 | 0.144 | 3.153 |
| fMLP Signaling in Neutrophils | 4.1 | 0.147 | 1.941 |
| Cardiac Hypertrophy Signaling (Enhanced) | 4.07 | 0.0924 | 4.323 |
| Calcium-induced T Lymphocyte Apoptosis | 3.96 | 0.182 | 3.162 |
| HIF1α Signaling | 3.9 | 0.117 | 3.674 |
| TNFR1 Signaling | 3.75 | 0.2 | 1 |
| Signaling by Rho Family GTPases | 3.51 | 0.107 | 3.273 |
| Role of RIG1-like Receptors in Antiviral Innate Immunity | 3.51 | 0.205 | 1.633 |
| GP6 Signaling Pathway | 3.46 | 0.134 | 2 |
| Salvage Pathways of Pyrimidine Deoxyribonucleotides | 3.4 | 0.5 | 2 |
| FAT10 Cancer Signaling Pathway | 3.35 | 0.196 | 1.667 |
| Eicosanoid Signaling | 3.34 | 0.167 | 1.89 |
| Osteoarthritis Pathway | 3.31 | 0.109 | 3.9 |
| IL-7 Signaling Pathway | 3.26 | 0.154 | 1.508 |
| PI3K Signaling in B Lymphocytes | 3.19 | 0.123 | 2.84 |
| Phospholipase C Signaling | 3.17 | 0.101 | 3.771 |
| Th17 Activation Pathway | 3.17 | 0.143 | 3.051 |
| Cdc42 Signaling | 3.06 | 0.114 | 2.111 |
| Type II Diabetes Mellitus Signaling | 3.05 | 0.12 | 1.941 |
| CCR5 Signaling in Macrophages | 3.03 | 0.138 | 1.633 |
| Role of IL-17F in Allergic Inflammatory Airway Diseases | 2.96 | 0.19 | 2.646 |
| B Cell Receptor Signaling | 2.91 | 0.108 | 3.153 |
| IL-15 Signaling | 2.86 | 0.147 | 2.714 |
| STAT3 Pathway | 2.85 | 0.119 | 1.134 |
| Reelin Signaling in Neurons | 2.63 | 0.116 | 2.84 |
| JAK/Stat Signaling | 2.63 | 0.138 | 2.111 |
| Sphingosine-1-phosphate Signaling | 2.61 | 0.12 | 1.941 |
| Prolactin Signaling | 2.59 | 0.136 | 2.333 |
| Retinoic acid Mediated Apoptosis Signaling | 2.5 | 0.15 | 3 |
| IL-15 Production | 2.47 | 0.116 | 3.207 |
| Actin Nucleation by ARP-WASP Complex | 2.47 | 0.139 | 2.828 |
| IL-2 Signaling | 2.45 | 0.148 | 1.667 |
| Opioid Signaling Pathway | 2.41 | 0.0931 | 1.091 |
| Glioma Invasiveness Signaling | 2.38 | 0.135 | 1.667 |
| Phospholipases | 2.31 | 0.141 | 2.121 |
| Macropinocytosis Signaling | 2.3 | 0.132 | 2.646 |
| CXCR4 Signaling | 2.29 | 0.102 | 1.732 |
| LPS/IL-1 Mediated Inhibition of RXR Function | 2.28 | 0.0938 | 3.162 |
| Agrin Interactions at Neuromuscular Junction | 2.22 | 0.128 | 1.667 |
| Integrin Signaling | 2.21 | 0.0939 | 2.982 |
| IL-1 Signaling | 2.19 | 0.121 | 2.646 |
| Fc Epsilon RI Signaling | 2.19 | 0.111 | 2.309 |
| Systemic Lupus Erythematosus In T Cell Signaling Pathway | 2.17 | 0.0838 | 4.426 |
| Nur77 Signaling in T Lymphocytes | 2.14 | 0.132 | 2.333 |
| Endothelin-1 Signaling | 2.12 | 0.0957 | 3.153 |
| HOTAIR Regulatory Pathway | 2.12 | 0.1 | 1.5 |
| Regulation of Actin-based Motility by Rho | 2.09 | 0.117 | 2.714 |
| ILK Signaling | 2.08 | 0.0947 | 3 |
| LPS-stimulated MAPK Signaling | 2.07 | 0.122 | 3.162 |
| GM-CSF Signaling | 2.06 | 0.129 | 2.121 |
| Pancreatic Adenocarcinoma Signaling | 2.03 | 0.11 | 1.897 |
| Sperm Motility | 2 | 0.0897 | 1.667 |
| Amyotrophic Lateral Sclerosis Signaling | 1.99 | 0.113 | 1.667 |
| Ephrin Receptor Signaling | 1.98 | 0.0944 | 2.5 |
| 3-phosphoinositide Biosynthesis | 1.97 | 0.0964 | 4 |
| Senescence Pathway | 1.87 | 0.0836 | 3.962 |
| 3-phosphoinositide Degradation | 1.87 | 0.0962 | 3.873 |
| D-myo-inositol (1,4,5,6)-Tetrakisphosphate Biosynthesis | 1.87 | 0.0986 | 3.742 |
| D-myo-inositol (3,4,5,6)-tetrakisphosphate Biosynthesis | 1.87 | 0.0986 | 3.742 |
| Ceramide Signaling | 1.86 | 0.114 | 1.897 |
| p38 MAPK Signaling | 1.77 | 0.102 | 2.887 |
| VDR/RXR Activation | 1.76 | 0.115 | 1 |
| IL-3 Signaling | 1.73 | 0.114 | 1.667 |
| Oncostatin M Signaling | 1.68 | 0.14 | 2.449 |
| PEDF Signaling | 1.63 | 0.11 | 1.633 |
| Superpathway of Inositol Phosphate Compounds | 1.59 | 0.0854 | 4.123 |
| Growth Hormone Signaling | 1.56 | 0.113 | 2.121 |
| D-myo-inositol-5-phosphate Metabolism | 1.53 | 0.0892 | 3.742 |
| PDGF Signaling | 1.52 | 0.105 | 3 |
| Apelin Endothelial Signaling Pathway | 1.49 | 0.0957 | 1.897 |
| Neuroprotective Role of THOP1 in Alzheimer's Disease | 1.47 | 0.0948 | 2.449 |
| Renin-Angiotensin Signaling | 1.42 | 0.0932 | 2.333 |
| Cholecystokinin/Gastrin-mediated Signaling | 1.4 | 0.0924 | 2.53 |
| Myc Mediated Apoptosis Signaling | 1.39 | 0.12 | 1.633 |
| Apelin Liver Signaling Pathway | 1.39 | 0.154 | 1 |
| Inhibition of ARE-Mediated mRNA Degradation Pathway | 1.33 | 0.0902 | 2.714 |

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| **Down in SARS-CoV-2+ vs. control** | | | |
| PD-1, PD-L1 cancer immunotherapy pathway | 12.5 | 0.264 | -2.6 |
| Antioxidant Action of Vitamin C | 5.64 | 0.174 | -3.357 |
| LXR/RXR Activation | 5.53 | 0.165 | -1.606 |
| Apelin Cardiac Fibroblast Signaling Pathway | 3.99 | 0.304 | -1.134 |
| PPAR Signaling | 2.63 | 0.125 | -3.051 |
| RhoGDI Signaling | 2.32 | 0.1 | -2.138 |
| Protein Kinase A Signaling | 1.67 | 0.0752 | -1.091 |