**Table 4. Significant gene sets negatively affected by the identified miRNAs in COPD patients and asymptomatic participants. Only the top pathways with a family-wise error rate < 0.05 in the COPD patients are shown.**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **miRNA** | **Gene sets** | **COPD** | | | **Asymptomatic** | | | **Total genes** |
| **NES** | **FWER P-value** | **Core-enriched genes** | **NES** | **FWER P-value** | **Core-enriched genes** |
| miR-203a-3p | Cytokine-Cytokine Receptor Interaction | -2.58 | 0.00E+00 | 122 | -2.78 | 0.00E+00 | 125 | 253 |
| Intestinal Immune Network For IgA Production | -2.53 | 0.00E+00 | 36 | -2.92 | 0.00E+00 | 26 | 45 |
| Focal Adhesion | -2.46 | 0.00E+00 | 78 | -2.27 | 8.00E-03 | 88 | 197 |
| Systemic Lupus Erythematosus | -2.43 | 0.00E+00 | 27 | -2.96 | 0.00E+00 | 31 | 50 |
| Autoimmune Thyroid Disease | -2.43 | 0.00E+00 | 31 | -2.71 | 0.00E+00 | 22 | 49 |
| Hematopoietic Cell Lineage | -2.42 | 0.00E+00 | 51 | -2.80 | 0.00E+00 | 49 | 83 |
| Asthma | -2.42 | 0.00E+00 | 14 | -2.54 | 0.00E+00 | 14 | 28 |
| Cell Adhesion Molecules Cams | -2.41 | 0.00E+00 | 60 | -2.58 | 0.00E+00 | 61 | 126 |
| Allograft Rejection | -2.41 | 0.00E+00 | 26 | -2.99 | 0.00E+00 | 23 | 35 |
| Complement And Coagulation Cascades | -2.32 | 0.00E+00 | 26 | -2.18 | 1.60E-02 | 36 | 67 |
| ECM Receptor Interaction | -2.29 | 0.00E+00 | 40 | -2.04 | 4.20E-02 | 43 | 83 |
| Chemokine Signaling | -2.27 | 0.00E+00 | 72 | -2.21 | 1.30E-02 | 53 | 179 |
| Leishmania Infection | -2.25 | 0.00E+00 | 37 | -2.84 | 0.00E+00 | 26 | 65 |
| miR-375 | Ribosome | -3.05 | 0.00E+00 | 53 | -2.72 | 0.00E+00 | 65 | 75 |
| Leishmania Infection | -2.75 | 0.00E+00 | 35 | -1.93 | 1.20E-02 | 38 | 65 |
| Focal Adhesion | -2.74 | 0.00E+00 | 105 | -2.04 | 0.00E+00 | 103 | 197 |
| Il2rb | -2.71 | 0.00E+00 | 25 | -2.20 | 0.00E+00 | 26 | 37 |
| MET | -2.66 | 0.00E+00 | 25 | -2.08 | 0.00E+00 | 22 | 33 |
| B Cell Receptor Signaling | -2.62 | 0.00E+00 | 44 | -1.84 | 1.03E-01 | 40 | 75 |
| PDGF | -2.60 | 0.00E+00 | 20 | -1.94 | 1.20E-02 | 23 | 28 |
| GH | -2.58 | 0.00E+00 | 16 | -2.13 | 0.00E+00 | 20 | 27 |
| FCER1 | -2.58 | 0.00E+00 | 25 | -1.93 | 1.20E-02 | 29 | 39 |
| GLEEVEC | -2.51 | 0.00E+00 | 18 | -1.94 | 1.10E-02 | 15 | 23 |
| Renal Cell Carcinoma | -2.51 | 0.00E+00 | 37 | -2.03 | 1.00E-03 | 39 | 66 |
| TCR | -2.49 | 0.00E+00 | 29 | -1.98 | 3.00E-03 | 33 | 44 |
| CTCF | -2.48 | 0.00E+00 | 18 | -2.05 | 0.00E+00 | 15 | 24 |
| Integrin | -2.46 | 0.00E+00 | 22 | -2.06 | 0.00E+00 | 21 | 34 |
| miR-31-3p | Hematopoietic Cell Lineage | -2.56 | 0.00E+00 | 44 |  |  |  | 83 |
| Intestinal Immune Network For IgA Production | -2.56 | 0.00E+00 | 24 |  |  |  | 46 |
| Cytokine-Cytokine Receptor Interaction | -2.55 | 0.00E+00 | 110 |  |  |  | 254 |
| Systemic Lupus Erythematosus | -2.46 | 0.00E+00 | 29 |  |  |  | 50 |
| Focal Adhesion | -2.44 | 0.00E+00 | 74 |  |  |  | 197 |
| Leishmania Infection | -2.43 | 0.00E+00 | 28 |  |  |  | 66 |
| ECM Receptor Interaction | -2.39 | 0.00E+00 | 45 |  |  |  | 83 |
| Cell Adhesion Molecules Cams | -2.31 | 0.00E+00 | 51 |  |  |  | 128 |
| Chemokine Signaling Pathway | -2.28 | 0.00E+00 | 65 |  |  |  | 180 |
| Autoimmune Thyroid Disease | -2.26 | 0.00E+00 | 35 |  |  |  | 49 |
| Asthma | -2.26 | 0.00E+00 | 18 |  |  |  | 28 |
| Allograft Rejection | -2.25 | 0.00E+00 | 28 |  |  |  | 35 |
| LAIR Pathway | -2.24 | 0.00E+00 | 13 |  |  |  | 16 |
| NES: normalized enrichment score; FWER P-value: family-wise error rate p-value | | | | | | | | |