**Table S4. Gene ontology and gene regulation direction**. These gene ontology terms were detected by both statistical methods for Trinity genes and isoforms and are listed in alphabetical order following theoil-dispersant treatment (OD) directionality. Left column correspond to the list number, central column to the gene ontology term for downregulated features, and right column corresponds to upregulated features. The non-aerated, negative control (NC) replicates had the inverse regulation directionality.

|  |  |  |
| --- | --- | --- |
|  | **Downregulated in OD** | **Upregulated in OD** |
| # | *Gene ontology* | *Gene ontology* |
| 1 | actin binding | actin binding |
| 2 | actin cytoskeleton reorganization | condensed nuclear chromosome |
| 3 | actin filament binding | I band |
| 4 | actin filament bundle assembly | locomotion |
| 5 | activation of MAPK activity | mesoderm development |
| 6 | anaphase-promoting complex-dependent proteasomal ubiquitin-dependent protein catabolic process | microtubule associated complex |
| 7 | antigen processing and presentation of exogenous peptide antigen via MHC class I | mitotic chromosome condensation |
| 8 | antigen processing and presentation of exogenous peptide antigen via MHC class I, TAP-dependent | muscle attachment |
| 9 | antigen processing and presentation of peptide antigen via MHC class I | muscle organ development |
| 10 | apoptotic process | regulation of hemocyte proliferation |
| 11 | apoptotic signaling pathway | sarcomere |
| 12 | ATP binding | sarcomere organization |
| 13 | calcium ion binding | sister chromatid cohesion |
| 14 | carbohydrate metabolic process | skeletal muscle tissue development |
| 15 | cell adhesion | somatic muscle development |
| 16 | cell leading edge | striated muscle myosin thick filament |
| 17 | cell migration | structural constituent of muscle |
| 18 | cellular protein metabolic process | **unknown** |
| 19 | cellular response to hypoxia | visceral muscle development |
| 20 | centrosome | Z disc |
| 21 | centrosome localization |  |
| 22 | cerebral cortex radially oriented cell migration |  |
| 23 | chloroplast |  |
| 24 | cytokine-mediated signaling pathway |  |
| 25 | cytoplasm |  |
| 26 | cytoskeleton organization |  |
| 27 | cytosol |  |
| 28 | cytosolic small ribosomal subunit |  |
| 29 | dendrite morphogenesis |  |
| 30 | DNA damage response, signal transduction by p53 class mediator resulting in cell cycle arrest |  |
| 31 | DNA repair |  |
| 32 | endocytic vesicle membrane |  |
| 33 | endosomal transport |  |
| 34 | endosome |  |
| 35 | endosome membrane |  |
| 36 | epidermal growth factor receptor signaling pathway |  |
| 37 | extracellular region |  |
| 38 | extracellular space |  |
| 39 | extracellular vesicular exosome |  |
| 40 | Fc-epsilon receptor signaling pathway |  |
| 41 | fibroblast growth factor receptor signaling pathway |  |
| 42 | G1/S transition of mitotic cell cycle |  |
| 43 | G2/M transition of mitotic cell cycle |  |
| 44 | gene expression |  |
| 45 | glucose metabolic process |  |
| 46 | glycogen biosynthetic process |  |
| 47 | heart contraction |  |
| 48 | I-kappaB kinase/NF-kappaB signaling |  |
| 49 | identical protein binding |  |
| 50 | in utero embryonic development |  |
| 51 | innate immune response |  |
| 52 | integral component of membrane |  |
| 53 | intracellular signal transduction |  |
| 54 | intracellular transport of virus |  |
| 55 | ion transmembrane transport |  |
| 56 | JNK cascade |  |
| 57 | lipid particle |  |
| 58 | membrane |  |
| 59 | membrane organization |  |
| 60 | metal ion binding |  |
| 61 | microtubule associated complex |  |
| 62 | mitochondrion |  |
| 63 | mitotic cell cycle |  |
| 64 | mRNA metabolic process |  |
| 65 | muscle contraction |  |
| 66 | MyD88-dependent toll-like receptor signaling pathway |  |
| 67 | MyD88-independent toll-like receptor signaling pathway |  |
| 68 | negative regulation of apoptotic process |  |
| 69 | negative regulation of epidermal growth factor receptor signaling pathway |  |
| 70 | negative regulation of neuron apoptotic process |  |
| 71 | negative regulation of transcription from RNA polymerase II promoter |  |
| 72 | negative regulation of transforming growth factor beta receptor signaling pathway |  |
| 73 | negative regulation of type I interferon production |  |
| 74 | negative regulation of ubiquitin-protein ligase activity involved in mitotic cell cycle |  |
| 75 | neuron projection |  |
| 76 | neuronal cell body |  |
| 77 | neurotrophin TRK receptor signaling pathway |  |
| 78 | Notch receptor processing |  |
| 79 | Notch signaling pathway |  |
| 80 | nuclear speck |  |
| 81 | nuclear-transcribed mRNA catabolic process, nonsense-mediated decay |  |
| 82 | nucleolus |  |
| 83 | nucleoplasm |  |
| 84 | nucleotide binding |  |
| 85 | nucleotide-binding domain, leucine rich repeat containing receptor signaling pathway |  |
| 86 | nucleotide-binding oligomerization domain containing signaling pathway |  |
| 87 | nucleus |  |
| 88 | oogenesis |  |
| 89 | perinuclear region of cytoplasm |  |
| 90 | plasma membrane |  |
| 91 | poly(A) RNA binding |  |
| 92 | polysomal ribosome |  |
| 93 | positive regulation of apoptotic process |  |
| 94 | positive regulation of I-kappaB kinase/NF-kappaB signaling |  |
| 95 | positive regulation of NF-kappaB transcription factor activity |  |
| 96 | positive regulation of transcription from RNA polymerase II promoter |  |
| 97 | positive regulation of type I interferon production |  |
| 98 | positive regulation of ubiquitin-protein ligase activity involved in regulation of mitotic cell cycle transition |  |
| 99 | postsynaptic membrane |  |
| 100 | protein complex |  |
| 101 | protein phosphorylation |  |
| 102 | protein polyubiquitination |  |
| 103 | protein serine/threonine kinase activity |  |
| 104 | protein stabilization |  |
| 105 | proteolysis |  |
| 106 | regulation of apoptotic process |  |
| 107 | regulation of transcription from RNA polymerase II promoter in response to hypoxia |  |
| 108 | regulation of transcription, DNA-templated |  |
| 109 | regulation of type I interferon production |  |
| 110 | regulation of ubiquitin-protein ligase activity involved in mitotic cell cycle |  |
| 111 | response to antibiotic |  |
| 112 | ribonucleoprotein complex |  |
| 113 | ribosome biogenesis |  |
| 114 | RNA binding |  |
| 115 | RNA metabolic process |  |
| 116 | rRNA processing |  |
| 117 | ruffle |  |
| 118 | sequence-specific DNA binding transcription factor activity |  |
| 119 | serine-type endopeptidase activity |  |
| 120 | small molecule metabolic process |  |
| 121 | small ribosomal subunit |  |
| 122 | SRP-dependent cotranslational protein targeting to membrane |  |
| 123 | stress-activated MAPK cascade |  |
| 124 | structural constituent of ribosome |  |
| 125 | T cell receptor signaling pathway |  |
| 126 | toll-like receptor 10 signaling pathway |  |
| 127 | toll-like receptor 2 signaling pathway |  |
| 128 | toll-like receptor 3 signaling pathway |  |
| 129 | toll-like receptor 4 signaling pathway |  |
| 130 | toll-like receptor 5 signaling pathway |  |
| 131 | toll-like receptor 9 signaling pathway |  |
| 132 | toll-like receptor signaling pathway |  |
| 133 | toll-like receptor TLR1:TLR2 signaling pathway |  |
| 134 | toll-like receptor TLR6:TLR2 signaling pathway |  |
| 135 | trans-Golgi network |  |
| 136 | transcription initiation from RNA polymerase II promoter |  |
| 137 | transcription, DNA-templated |  |
| 138 | transforming growth factor beta receptor signaling pathway |  |
| 139 | translation |  |
| 140 | translational elongation |  |
| 141 | translational initiation |  |
| 142 | translational termination |  |
| 143 | transmembrane transport |  |
| 144 | TRIF-dependent toll-like receptor signaling pathway |  |
| 145 | **unknown** |  |
| 146 | viral life cycle |  |
| 147 | viral process |  |
| 148 | viral protein processing |  |
| 149 | viral transcription |  |
| 150 | virion assembly |  |
| 151 | wing disc development |  |
| 152 | zinc ion binding |  |