### Top 10 GO Biological Process Gene Sets Ranked by Potency of Perturbation (Sorted by BMD Median)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Category Name** | Input Genes/Platform Genes in Gene Set | % Gene Set Coverage | Active Genes | BMD1std Median of Gene Set Transcripts (mg/kg) | Median BMDL1Std-BMDU1Std (mg/kg) | Genes with Changed Direction Up | Genes with Changed Direction Down |
| **GO:0005978**glycogen biosynthetic process | 3/17 | 18% | Gck; Nr1d1; Per2 | <25.7 | NR | 2 | 1 |
| **GO:0009250**glucan biosynthetic process | 3/17 | 18% | Gck; Nr1d1; Per2 | <25.7 | NR | 2 | 1 |
| **GO:0043401**steroid hormone mediated signaling pathway | 5/95 | 5% | Fkbp4; Esrrg; Ppard; Nr1d1; Nr1d2 | <25.7 | NR | 3 | 2 |
| **GO:0055007**cardiac muscle cell differentiation | 3/36 | 8% | Sox6; Tbx3; Syne1 | <25.7 | NR | 2 | 1 |
| **GO:0048641**regulation of skeletal muscle tissue development | 4/50 | 8% | Tcf7l2; Nr1d2; Arntl; Tsc22d3 | <25.7 | NR | 2 | 2 |
| **GO:0051146**striated muscle cell differentiation | 5/67 | 7% | Sox6; Tbx3; Chuk; Syne1; Avpr1a | <25.7 | NR | 3 | 2 |
| **GO:0043470**regulation of carbohydrate catabolic process | 3/47 | 6% | Gck; Avpr1a; Ddit4 | <25.7 | NR | 1 | 2 |
| **GO:0010907**positive regulation of glucose metabolic process | 3/41 | 7% | Gck; Tcf7l2; Avpr1a | <25.7 | NR | 1 | 2 |
| **GO:0051412**response to corticosterone | 3/41 | 7% | Junb; Cdkn1a; Avpr1a | <25.7 | NR | 0 | 3 |
| **GO:0090398**cellular senescence | 4/30 | 13% | Cdkn1a; Tbx3; Arntl; Lmna | <25.7 | NR | 2 | 2 |

Official gene symbols from the Rat Genome Database are shown in the “Active Genes” column. Definitions of Gene Ontology terms were provided by the Gene Ontology Resource (http://geneontology.org/).

<25.7 = A best-fit model as identified calculated a BMD that was less than 1/3 of the lowest tested dose in this study.

NR = The BMDL-BMDU range is not reportable because the BMD median is below the lower limit of extrapolation (less than 1/3 of the lowest tested dose in this study).

**GO process description version:** https://cebs.niehs.nih.gov/cebs/study/002-00600-0002-000-0 V04132020

**GO:0005978 glycogen biosynthetic process:** The chemical reactions and pathways resulting in the formation of glycogen, a polydisperse, highly branched glucan composed of chains of D-glucose residues.

**GO:0009250 glucan biosynthetic process:** The chemical reactions and pathways resulting in the formation of glucans, polysaccharides consisting only of glucose residues.

**GO:0043401 steroid hormone mediated signaling pathway:** A series of molecular signals mediated by a steroid hormone binding to a receptor.

**GO:0055007 cardiac muscle cell differentiation:** The process in which a cardiac muscle precursor cell acquires specialized features of a cardiac muscle cell. Cardiac muscle cells are striated muscle cells that are responsible for heart contraction.

**GO:0048641 regulation of skeletal muscle tissue development:** Any process that modulates the frequency, rate or extent of skeletal muscle tissue development.

**GO:0051146 striated muscle cell differentiation:** The process in which a relatively unspecialized cell acquires specialized features of a striated muscle cell; striated muscle fibers are divided by transverse bands into striations, and cardiac and voluntary muscle are types of striated muscle.

**GO:0043470 regulation of carbohydrate catabolic process:** Any process that modulates the frequency, rate, or extent of the chemical reactions and pathways resulting in the breakdown of carbohydrates.

**GO:0010907 positive regulation of glucose metabolic process:** Any process that increases the rate, frequency or extent of glucose metabolism. Glucose metabolic processes are the chemical reactions and pathways involving glucose, the aldohexose gluco-hexose.

**GO:0051412 response to corticosterone:** Any process that results in a change in state or activity of a cell or an organism (in terms of movement, secretion, enzyme production, gene expression, etc.) as a result of a corticosterone stimulus. Corticosterone is a 21 carbon steroid hormone of the corticosteroid type, produced in the cortex of the adrenal glands. In many species, corticosterone is the principal glucocorticoid, involved in regulation of fuel metabolism, immune reactions, and stress responses.

**GO:0090398 cellular senescence:** A cell aging process stimulated in response to cellular stress, whereby normal cells lose the ability to divide through irreversible cell cycle arrest.