

Mouse Phenotype Single KO

	-log10(Binomial p value)
	0102030405060708090
abnormal neuron morphology	97.82
abnormal brain morphology	77.83
abnormal nervous system development	71.51
abnormal telencephalon morphology	61.27
abnormal neurogenesis	59.07
abnormal cerebral hemisphere morphology	58.57
abnormal neuron differentiation	58.16
abnormal neurite morphology	50.61
abnormal forebrain morphology	49.87
abnormal midbrain morphology	46.86
abnormal spinal cord white matter morphology	45.97
abnormal hindbrain morphology	41.98
abnormal cell differentiation	40.37
abnormal limbic system morphology	38.36
abnormal embryonic/fetal subventricular zone morphology	37.96
abnormal temporal lobe morphology	37.79
abnormal olfactory lobe morphology	37.71
abnormal neuronal precursor proliferation	37.40
abnormal cerebellum morphology	37.26
abnormal olfactory bulb innervation	36.33
abnormal hippocampus morphology	35.55
abnormal cerebral cortex morphology	35.44
abnormal cell migration	34.78
abnormal sensory neuron morphology	33.67
abnormal thin cerebral cortex	32.69
abnormal glial cell physiology	32.16
abnormal spinal cord morphology	31.50
decreased pulmonary respiratory rate	30.55
abnormal neuron proliferation	30.39
abnormal dendrite morphology	30.19
abnormal neuron apoptosis	29.10
abnormal pulmonary respiratory rate	28.75
abnormal axon guidance	28.06
small olfactory bulb	27.89
abnormal fear/anxiety-related behavior	27.89
abnormal anxiety-related response	27.89
abnormal heart ventricle morphology	27.61
abnormal grooming behavior	27.39
limb paralysis	26.32
abnormal respiratory function	26.27
abnormal brain commissure morphology	26.21
abnormal innervation	26.20
abnormal brain development	25.96
small cerebellum	24.94
abnormal cerebellar layer morphology	24.94
abnormal dentate gyrus morphology	24.92
abnormal cerebellar cortex morphology	24.72
abnormal brain white matter morphology	24.34
hindlimb paralysis	23.92
increased neuron apoptosis	23.87
enhanced behavioral response to xenobiotic	23.80
abnormal olfactory bulb morphology	23.58
abnormal social/conspecific interaction	23.44
abnormal neuron number	23.36
abnormal heart right ventricle size	23.10
abnormal spinal cord lateral column morphology	23.06
abnormal basal ganglion morphology	22.86
abnormal respiration	22.86
abnormal basal ganglion morphology	22.57
hydrourter	22.31
abnormal glial cell apoptosis	22.22
abnormal Purkinje cell morphology	22.04
abnormal small maxilla	21.92
abnormal nervous system tract morphology	21.90
increased anxiety-related response	21.90
abnormal cerebellar Purkinje cell layer	21.89
abnormal heart right ventricle morphology	21.88
abnormal heart right ventricle morphology	21.72
abnormal polycystic kidney	21.66
abnormal cortical ventricular zone morphology	21.50
anencephaly	21.15
paralysis	21.12
perinatal lethality, complete pleon level	21.11
abnormal pons morphology	20.40
small hippocampus	20.36
abnormal hippocampus size	20.31
abnormal Purkinje cell dendrite morphology	20.22
abnormal sensory neuron innervation pattern	20.09
abnormal microglial cell physiology	20.00
abnormal olfactory tract morphology	19.95
abnormal cardiac jelly morphology	18.91
abnormal corpus callosum morphology	18.82
abnormal hippocampal commissure morphology	18.66
abnormal mesencephalic commissure morphology	18.43
increased grooming behavior	18.17
abnormal sympathetic system morphology	17.98
abnormal striatum morphology	17.76
abnormal telencephalon development	17.53
abnormal autonomic nervous system morphology	17.43
abnormal heart development	17.39
abnormal long term potentiation	16.83
abnormal sympathetic ganglion morphology	16.73
abnormal excitatory postsynaptic currents	16.50
abnormal axon myelination	16.39
abnormal maxilla morphology	16.32
increased serotonin level	16.11
abnormal behavioral response to xenobiotic	16.11
abnormal stomach pyloric region morphology	16.08
reduced long term depression	16.01
decreased corpus callosum size	15.93
aphagia	15.88
abnormal cardiac epithelial to mesenchymal transition	15.74
abnormal vestibular ganglion morphology	15.71
abnormal vestibular ganglion morphology	15.68
decreased brain size	15.65
abnormal associative learning	15.39
abnormal forebrain development	15.35
abnormal brain size	15.34
abnormal vestibular system physiology	15.24
increased circulating adrenocorticotropin level	15.05
abnormal somite shape	15.05
abnormal brainstem morphology	14.84
enhanced behavioral response to addictive substance	14.71
decreased synaptic glutamate release	14.56
sternbra fusion	14.48
decreased neuron number	14.04
abnormal xiphoid process morphology	14.03
abnormal catecholamine level	13.96
abnormal thalamus morphology	13.93
athetotic walking movements	13.74
abnormal retinal ganglion cell morphology	13.68
abnormal hippocampal mossy fiber morphology	13.58
abnormal palate morphology	13.43
abnormal mammary gland morphology	13.31
abnormal auditory evoked response	13.17
abnormal cerebellum development	13.11
abnormal cardiac outflow tract development	13.07
abnormal microglial cell activation	13.03
abnormal stomach morphology	13.01
abnormal sternbra fusion	12.99
abnormal heart and great artery attachment	12.97
decreased neurotransmitter release	12.93
abnormal somite development	12.92
abnormal heart and great vessel attachment	12.89
incomplete embryo turning	12.82
abnormal CNS glial cell morphology	12.82
abnormal lung size	12.77
increased adrenocorticotropin level	12.75
abnormal exploration in a new environment	12.55
small cochlear ganglion	12.54
abnormal lacrimal cell morphology	12.44
abnormal endocardium morphology	12.35
abnormal astrocyte morphology	12.33
small stomach	12.30
abnormal pterygoid process morphology	12.09
abnormal retinal neuronal layer morphology	12.05
abnormal cochlear VIII nucleus morphology	11.98
abnormal rostral migratory stream morphology	11.96
abnormal myelination	11.87
abnormal dopaminergic neuron morphology	11.83
abnormal spinal cord grey matter morphology	11.79
increased susceptibility to dopaminergic neuron neurotoxicity	11.75
abnormal ureter morphology	11.66
impaired limb coordination	11.64
atrium hypoplasia	11.62
abnormal fear-related response	11.59
cyanosis	11.54
abnormal retinal rod bipolar cell morphology	11.53
ventricular septal defect	11.52
kinked tail	11.40
cleft upper lip	11.38
abnormal synaptic glutamate release	11.37
abnormal cranial nerve morphology	11.35
abnormal digestive system development	11.31
abnormal response to new environment	11.20
hydronephrosis	11.16
abnormal olfactory bulb development	11.09
absent mesoderm	11.01
abnormal oligodendrocyte morphology	11.01
abnormal retinal inner plexiform layer morphology	11.01
thin external granule cell layer	10.97
abnormal adrenocorticotropin level	10.92
abnormal prepulse inhibition	10.82
abnormal parental behavior	10.80
abnormal circulating pituitary hormone level	10.79
abnormal discrimination learning	10.77
kidney cysts	10.76
abnormal upper lip morphology	10.65
abnormal spatial learning	10.64
abnormal barrel cortex morphology	10.49
abnormal cerebellar foliation	10.48
abnormal tremors	10.48
abnormal sexual interaction	10.25
decreased birth weight	10.14
abnormal birth weight	10.06
abnormal retinal bipolar cell morphology	10.04
abnormal cerebellar granule layer morphology	10.04
decreased susceptibility to bone fracture	10.02
abnormal synaptic depression	10.00
abnormal mesoderm morphology	9.97
increased susceptibility to neuronal excitotoxicity	9.96
increased thermal nociceptive threshold	9.87
abnormal mammary gland physiology	9.87
abnormal miniature excitatory postsynaptic currents	9.84
abnormal spatial working memory	9.65
increased dopamine level	9.64
small lung	9.59
stereotypic behavior	9.56
abnormal contextual conditioning behavior	9.55
abnormal long term depression	9.54
abnormal axon extension	9.51
abnormal oligodendrocyte apoptosis	9.51
abnormal lip morphology	9.46
abnormal axon morphology	9.41
heart right ventricle hypertrophy	9.39
absent Peyer's patches	9.36
choroidal neovascularization	9.32
increased circulating pituitary hormone level	9.26
abnormal anterior commissure morphology	9.19
absent gastric milk in neonates	9.17
wavy neural tube	9.13
decreased survivor rate	9.13
decreased startle reflex	9.12
increased cell proliferation	9.10
abnormal cerebellum lobule morphology	9.07
embryonic growth arrest	8.88
abnormal temporal memory	8.86
abnormal skin adnexa physiology	8.82
abnormal cervical lymph node morphology	8.74
abnormal kidney pelvis morphology	8.73
increased gastrointestinal tumor incidence	8.69
abnormal spatial reference memory	8.67
small thoracic cage	8.64
distended ileum	8.61
abnormal cochlear ganglion morphology	8.57
abnormal somatosensory cortex morphology	8.54
abnormal suckling behavior	8.33
abnormal circadian phase	8.32
abnormal parietal lobe morphology	8.31
abnormal rostral-caudal axis patterning	8.30
abnormal anterior commissure pars posterior morphology	8.26
abnormal behavioral response to addictive substance	8.21
reduced cerebellar foliation	8.20
abnormal sensory ganglion morphology	8.20
abnormal midbrain morphology	8.14
polycythemia	8.13
abnormal nephrogenic zone morphology	8.12
increased alimentary system tumor incidence	8.06
abnormal embryonic epiblast morphology	8.01
abnormal circadian rhythm	7.98
abnormal tarsal bone morphology	7.96
abnormal hindbrain development	7.95
hypoalgesia	7.91
abnormal cranial ganglia morphology	7.91
abnormal cerebellum external granule cell layer morphology	7.90
abnormal vision	7.89
liver vascular congestion	7.88
abnormal vocalization	7.81
abnormal retinal ganglion layer morphology	7.80
abnormal neuronal precursor cell number	7.74
abnormal optic nerve morphology	7.71
pulmonary edema	7.68
abnormal erythroid progenitor cell morphology	7.64
abnormal axon fasciculation	7.64
decreased basophil cell number	7.57
abnormal germ layer morphology	7.56
abnormal nasal placode morphology	7.50
increased heart right ventricle size	7.49
absent long term depression	7.46
increased adenoma incidence	7.42
reduced long term depression	7.42
abnormal maternal behavior	7.41
impaired conditioned place preference behavior	7.35
abnormal hippocampus pyramidal cell layer	7.33
abnormal ureteric bud morphology	7.32
persistent truncus arteriosus	7.29
abnormal serotonin level	7.27
aorticopulmonary septal defect	7.23
abnormal metanephric mesenchyme morphology	7.20
decreased erythroid progenitor cell number	7.17
face hypoplasia	7.08
incomplete rostral neuropore closure	7.06
decreased dopaminergic neuron number	7.02
increased pituitary hormone level	7.00
abnormal bilaminar embryonic disc	7.00
abnormal geniculate ganglion morphology	6.99
abnormal medulla oblongata morphology	6.91
abnormal megakaryocyte morphology	6.90
abnormal brain interneuron morphology	6.89
abnormal hematopoietic stem cell morphology	6.87
abnormal neuroepithelial morphogenesis	6.87
premature neuronal precursor differentiation	6.81
abnormal kidney mesenchyme morphology	6.77
abnormal olfactory nerve morphology	6.76
abnormal liver development	6.76
abnormal cochlear inner hair cell morphology	6.73
pulmonary hypoplasia	6.70
abnormal choroid vasculature morphology	6.69
abnormal common lymphocyte progenitor cell morphology	6.68
abnormal kidney development	6.64
abnormal inhibitory postsynaptic currents	6.58
enlarged uterus	6.58
eyelids open at birth	6.47
increased fear-related response	6.39
abnormal truncus arteriosus septation	6.37
abnormal laryngeal cartilage morphology	6.35
abnormal optic nerve innervation	6.34
abnormal cerebral cortex pyramidal cell morphology	6.33
abnormal hippocampus layer morphology	6.27
small ears	6.27
abnormal interleukin-10 secretion	6.23
decreased fatty acid beta-oxidation	6.20
abnormal spinal cord interneuron morphology	6.20
tau protein deposits	6.18
abnormal liquid preference	6.15
decreased common myeloid progenitor cell number	6.13
abnormal neurotransmitter secretion	6.13
abnormal spinal nerve morphology	6.12
weakness	6.10
abnormal pregnancy	6.09
lethality at weaning	6.07
impaired righting response	6.05
decreased fear-related response	5.97
abnormal larynx morphology	5.96
small trigeminal ganglion	5.95
abnormal megakaryocyte progenitor cell morphology	5.93
abnormal hepatobiliary system development	5.89
abnormal macrophage chemotaxis	5.86
abnormal airway responsiveness	5.85
abnormal granulosa cell morphology	5.84
abnormal hard palate morphology	5.82
short maxilla	5.80
abnormal cerebellar granule cell morphology	5.76
abnormal hippocampus pyramidal cell morphology	5.69
abnormal operant conditioning behavior	5.66
abnormal bone marrow hematopoietic cell morphology	5.66
decreased cerebral infarction size	5.65
abnormal abdominal wall morphology	5.64
increased bone mineral density	5.62
lowered ear position	5.62
abnormal rostral-caudal patterning of the somites	5.61
abnormal hyoid bone morphology	5.61
abnormal heart left ventricle size	5.53
abnormal palatal shelf fusion at midline	5.52
abnormal exocrine gland physiology	5.51
abnormal bronchial provocation	5.50
abnormal adrenaline level	5.49
decreased microglial cell activation	5.49
abnormal tail movements	5.48
abnormal tracheal cartilage morphology	5.42
increased neuron number	5.41
atherosclerotic lesions	5.40
abnormal semicircular canal morphology	5.37
abnormal hippocampus neuron morphology	5.37
impaired granulosa cell differentiation	5.35
increased mast cell degranulation	5.35
altered response to CNS ischemic injury	5.34
increased sensory neuron number	5.32
abnormal dendritic spine morphology	5.31
cleft hard palate	5.30
absent corpus callosum	5.26
abnormal intestinal goblet cell morphology	5.26
abnormal vascular smooth muscle physiology	5.24
abnormal glutamatergic neuron morphology	5.21
increased megakaryocyte cell number	5.19
abnormal olfactory system morphology	5.19
abnormal olfactory bulb morphology	5.19
abnormal tracheal cartilage rings	5.13
abnormal inner ear canal morphology	5.11
abnormal visual evoked potential	5.09
short sternum	5.07
decreased susceptibility to ischemic brain injury	5.05
decreased megakaryocyte cell number	5.03
abnormal mast cell degranulation	5.02
abnormal dopamine level	4.97
fusion of middle ear ossicles	4.94
forelimb paralysis	4.91
spasticity	4.89
abnormal foregut morphology	4.88
bowed radius	4.87
abnormal cell chemotaxis	4.87
small nodose ganglion	4.87
abnormal petrosal ganglion morphology	4.85
increased aggression	4.85
abnormal vestibulocochlear nerve morphology	4.80
ectopic neuron	4.78
decreased neuron apoptosis	4.75
abnormal subplate morphology	4.73
bowed ulna	4.72
abnormal myocardium compact layer morphology	4.71
abnormal optic chroid morphology	4.68
abnormal trigeminal ganglion morphology	4.68
abnormal enteric nervous system morphology	4.60
abnormal common myeloid progenitor cell morphology	4.59
abnormal increased alcohol consumption	4.59
absent cerebellar foliation	4.59
increased aggression towards mice	4.59
liver hemorrhage	4.57
abnormal trigeminal nerve morphology	4.56
absent lymphocyte	4.49
abnormal lateral plate mesoderm morphology	4.47
abnormal ear position	4.46
abnormal facial nerve morphology	4.45
abnormal telencephalon hypoplasia	4.44
increased hematopoietic progenitor cell number	4.41
abnormal motor neuron innervation pattern	4.42
impaired conditioning behavior	4.41
abnormal glossopharyngeal ganglion morphology	4.36
decreased chemically-elicited antinociception	4.36
abnormal osteoclast physiology	4.35
abnormal total fat pad weight	4.35
failure to gastrulate	4.35
decreased susceptibility to neuronal excitotoxicity	4.33
cardiac valve regurgitation	4.33
abnormal fornicate canal morphology	4.27
abnormal olfactory epithelium morphology	4.26
abnormal erythropoiesis	4.24
enlarged lung	4.23
small enucleated ganglion	4.22
adenohypophyseal hyperplasia	4.20
small petrosal ganglion	4.19
abnormal vestibular hair cell number	4.16
abnormal lumbar dorsal root ganglion morphology	4.15
congestive heart failure	4.11
cryptorchidism	4.08
abnormal stratification in cerebral cortex	4.07
bowed tibia	4.01
abnormal gastrointestinal motility	4.00
abnormal nest building behavior	3.98
abnormal nodose ganglion morphology	3.94
ectopic tone	3.92
abnormal retinal inner nuclear layer morphology	3.90
decreased hematopoietic stem cell number	3.86
abnormal corneal epithelium morphology	3.86
small embryonic telencephalon	3.82
impaired passive avoidance behavior	3.78
abnormal vasoconstriction	3.73
absent hypaxial muscle	3.71
decreased superior semicircular canal size	3.69
vascular ring	3.61
myometrium hypoplasia	3.60
decreased tumor incidence	3.59
decreased susceptibility to dopaminergic neuron neurotoxicity	3.58
abnormal neuroblastoma	3.56
abnormal ureter smooth muscle morphology	3.51
abnormal abdominal vasodilation	3.50
small L4 dorsal root ganglion	3.45
abnormal Rathke's pouch development	3.44
adrenal cortical hyperplasia	3.43
abnormal L4 dorsal root ganglion morphology	3.41
alcohol aversion	3.41
increased vestibular hair cell number	3.36
abnormal parasympathetic ganglion morphology	3.35
abnormal zygomatic bone morphology	3.31
abnormal synaptic plasticity	3.31
abnormal parasympathetic postganglionic fiber morphology	3.30
degeneration of organ of Corti supporting cells	3.30
abnormal cochlear OHC afferent innervation pattern	3.28
increased cochlear inner hair cell number	3.27
abnormal chemically-elicited antinociception	3.25
increased total fat pad weight	3.25
increased cochlear outer hair cell number	3.19
increased metanephric mesenchyme apoptosis	3.14
abnormal mitral valve cusp morphology	3.12
cataplexy	3.10
abnormal passive avoidance behavior	3.10
abnormal proerythroblast morphology	3.09
abnormal pubis morphology	3.07
abnormal Bruch membrane morphology	3.06
abnormal vestibular hair cell morphology	3.05
abnormal strial intermediate cell morphology	3.04
decreased renal glomerulus number	2.99
small endolymphatic duct	2.99
abnormal tympanic membrane morphology	2.98
abnormal malleus morphology	2.92
abnormal uterine horns	2.90
uterus cysts	2.90
decreased Cajal-Retzius cell number	2.89
abnormal secretory circumventricular organ morphology	2.87
small inguinal lymph nodes	2.84
hepatic necrosis	2.83
abnormal heart shape	2.83
abnormal enteric neuron morphology	2.81
thick mitral valve cusps	2.81
absent pancreatic alpha cells	2.80
abnormal cochlear inner hair cell development	2.80
nervous system inclusion bodies	2.78
sacral vertebral fusion	2.78
cerebellum hypoplasia	2.76
abnormal cortical marginal zone morphology	2.75
preaural effusion	2.74
decreased nephron number	2.72
impaired avoidance learning behavior	2.71
rib fusion	2.71
abnormal circumventricular organ morphology	2.69
abnormal neural crest cell migration	2.66
split xiphoid process	2.65
ectopic Purkinje cell	2.65
abnormal Cajal-Retzius cell morphology	2.61
abnormal myometrium morphology	2.59
abnormal prevertebral ganglion morphology	2.58
abnormal pulmonary vein morphology	2.58
decreased circulating adrenalinine level	2.57
increased pulmonary respiratory rate	2.56
absent gallbladder	2.55
abnormal nephron number	2.54
increased cochlear hair cell number	2.50
enlarged esoph	