

Index

Bold page numbers indicate illustrations, *italic* page numbers indicate tables/figures

- 5-choice continual performance test (5C-CPT), 270
- 5-choice serial reaction time task (5CSRT), **268–270**, 273
- 5-HT
- anxiety, 157
 - aggression, 244, 245, 246
 - depression-like behavior, 182, 183, 187
 - grooming, 195, 196
 - latent inhibition, 259
 - 5-HT receptors, *see* receptors, 5-HT
- acoustic startle, *see* startle
- ACTH, *see* adrenocorticotrophic hormone
- active avoidance, *see* avoidance, conditioned
- activity
- locomotor, *see* locomotor activity
 - physical, effect on navigation tasks, 285
- acuity
- olfactory, *see* olfaction
 - visual, *see* vision
- adenosine 1A receptor, 250
- adipose tissue, 100, 235
- adrenocorticotrophic hormone (ACTH), 246
- age effects
- acoustic startle response, 172
 - circadian rhythms, 134–135
 - olfaction, 68, 327
 - water navigation tasks, 285
- aggression, 6, 199, 221, 235–236, **242–250**
- anxiety and, 210
 - avoidance learning and, 294
 - competitive, 247
 - defensive, 12, 242, 247, 295, 319
 - female
 - toward female, 245, 248
 - toward male, 244–245, 247 - genetic correlations, 245
 - human, 250
 - male
 - toward female, 247
 - toward male, 242–244, 246–247, 248–250 - maternal, 250
 - natural habitats, in, 206
 - neuronal correlates, 246–247
 - offensive, 242
 - quantitative trait loci, 249 - pathological, 243
 - quantitative trait loci, 249
 - spontaneous, 246
- agonistic behavior, *see* aggression
- Agtbp1^{pcd}*, 83, **83**, 84
- albinism, 51, 151, 283
- alcohol, *see* ethanol
- alcoholism, **76**, 99
- allogrooming, *see* grooming, social
- amitriptyline, 182
- amphetamine, 259, 326
- amygdala, 73, 173, 220, 258, 260, 292
- amyloid precursor protein, 280
- analgesia, 58, **58–59**, **61–62**
- stress-induced, 56
- analysis of variance, *see* ANOVA
- androgen response, strain differences, 226, 225–226
- androgens, 220, 222, 224, 225
- anisomycin, 117, 261
- anogenital sniffing, 19, 89, 222
- anosmia, 67, 327
- ANOVA, 23, 31
- fixed or random effects, 25
 - interaction effect, 25, 25
 - repeated measures, **29–31**
- anteroventral periventricular nucleus, 220
- anxiety, 158, 159, 157–159
- aggression and, 210
 - disorders, prevalence, 179
 - grooming and, 196
 - definition, 155
 - interindividual differences, 159–160
 - naturalistic study, 155–157
 - neuroanatomy, 294
 - strain differences, 157–159
- Apodemus sylvaticus* (wood mouse), 281
- apomorphine, 257
- approach behavior, 211, 212–213
- arginine vasopressin, 237, 244
- artificial selection, *see* selective breeding
- Aschoff's rule, 133
- ASR, *see* startle, acoustic
- ataxia, 83, 84
- Atp1b3*, 61
- attention, 254, **268–271**
- set-shifting, **270–271**
- attentional load, 269, 270
- audition, **36–42**
- damage, 37
 - age-related, 172
 - measuring, 41
 - modeling, 36–37
 - natural responses to sounds, 41
 - psychophysical measurements, 40
- auditory brain-stem response (ABR), 37, 39, 41
- auditory processing, central, 38
- avoidance, conditioned, 66, 254, 292, **291–295**
- active avoidance, **291–292**
 - experimental interferences, 295
 - heritability and sex differences, 294
 - nature of aversive stimulus, 294
 - neural correlates, 292
 - passive avoidance, **292–293**
 - in pups, 293
 - pharmacology, 293
 - strain differences, **293–295**
- background, genetic, *see* genetic background
- barbering, 195, **198–200**, 212
- see also* grooming
 - strain differences, 199, 200
- Barnes maze, 280, **304–307**
- strain differences in performance, 305, 311
- basal ganglia, 6, 195
- bed nucleus of the stria terminalis, 73, 220
- behavior
- development, **88–94**
 - neural processes, 6
 - quantifying, 17
- behavior genetics, 1–3
- purposes, 2
- behavioral phenotypes, 1–2
- benzodiazepines, 168, 184
- beta-endorphin, 246
- bitter taste, 98, 325
- genetics, 73–75
- body temperature, 129, 135

- see also* thermoregulation
circadian fluctuations, 236, 237
- brainstem, 6, 37, 73
- breeding success, 207, 208–209
- brown coat color*, 151, 196
- Bruce effect, 222
- bupropion, 182, 183
- buried food test, 65
- burrowing, *see* digging
- C57BL/6-Mc1re/e*, 61
- Calca*, 59–60
- calcium calmodulin kinase II, 280
- CaM kinase II, *see* calcium calmodulin kinase II
- cAMP, 261
- cAMP response element binding protein, 261, 333
- Capsq*, 60
- carbonic anhydrase 1–2*, 132
- castration, *see* gonadectomy
- catechol-O-methyl transferase, 250
- caudal pontine reticular formation, 171, 174
- Cdh23 (waltzer)*, 151
- ceiling effect, 320
- central auditory system (CAS), 38
- cerebellum, 82, 82–84, 173
- c-Fos, 250
- chasing, 19, 207, 214, 242
see also aggression
- cholinergic system,
choline acetyltransferase, 300
attention, 269
avoidance, 174, 279, 292, 293
cholinergic receptors, 279 *see* receptors, acetylcholine
latent inhibition, 259, 260
memory, spatial, 279, 283
prepulse inhibition, 174, 175
- circadian rhythms, 138, 129–143
Aschoff's rule, 133
biological clocks, 128, 130, 129–130, 131, 136
free-running, 129
body temperature, 236
development and aging, 134–135
- entrainment, 129, 132
low amplitude, 136, 137
non-photic, 134, 237
evolutionary significance, 237–238
metabolism, ethanol, 135
methods of study, 136–137
nesting, 236–238
oscillators, 130
pacemaker, 129, 130, 132, 134
paw preference, 112
phase response, 132–133
phase shift, 133
predator avoidance, 238
red light and, 136
strain differences, 131
- citalopram, 183
- Clethrionomys glareolus* (bank vole), 281
- clock*, 134, 135
- coat hanger test, 82, 84
- cognition, 8
see also latent inhibition
- cognitive flexibility, 267, 268, 270–272
- cognitive mapping theory, 299
- Collaborative Cross, 3, 189
- commensalism, 5, 205–206
- comparative psychology, 17, 21
- complex traits, 72, 109, 110, 125, 180
QTL analysis, 138
- COMT, *see* catechol-O-methyl transferase
- conditioning, associative, 40
see also latent inhibition
fear conditioning, 20, 173, 260, 261, 316, 317, 315–318, 320–323
see also startle
definition, 40, 155
strain differences, 316–322
trace conditioning, 322
suppression/avoidance procedure, 40
taste aversion, 255, 260, 325–326
extinction, 326
- consistency, internal, 28, 29, 29–31
definition, 27
- constraints, in phenotyping 5–8
- copulation, 19, 207, 223, 222–224, 225
- corpus callosum
fear conditioning, 322
handedness, 112, 124
place learning, 280
- correlation, 23, 25
- cortex, 7
cerebellar, 83
entorhinal, 256, 258
frontal, 279
insular, 73
orbitofrontal, 99, 258
prefrontal, 175, 271
- corticosterone
aggression, 244
depression-like behavior, 182, 187
learning, spatial, 280, 305
maternal behavior, 211
- corticotropin-releasing hormone, 182
- corticotropin-releasing hormone binding protein, 250
- courtship, 221–222
- CREB, 261, 333
- cross-fostering studies
aggression, 243, 246, 247
behavioral development, 88–89
grooming, 198
nesting, 230
social behavior, 208
barbering, 199
maternal, 211
vocalizations, 165
- culling, 89
- cyclic AMP, 261
- cytoskeleton genes, 249
- Dagk1*, 249
- decision, 269
- deer mouse, *see* *Peromyscus*
- defecation, 18, 150, 151
- degeneration
neural, 83
spinocerebellar, 83
- delay discounting, 272
- delayed matching-to-place task (DMP), 279, 280
- delayed non-matching to sample (DNMS), 307
strain differences, 308
- delayed reinforcement, 272
- depression
clinical syndrome, 180
depression-like behavior, 157, 159, 179–189
modeling, 180
prevalence, 179
risk factors, 179
- desipramine, 182, 198
- despair, behavioral, 183, 188
- development
behavioral, 88–94
neurobehavioral, 91, 92–94
paw preference and, 124
pup vocalizations and, 164
sexual differentiation, 218–220
- DFP (diisopropylfluorophosphate), 280
- diacylglycerol kinase, 249
- diallel cross, 11, 134, 150, 165
- diazepam, 158, 167, 168, 184
- differential reinforcement of low rates of responding (DRL) task, 273
- digging, 19, 66
- diisopropylfluorophosphate (DFP), 280
- dilute (Myo5a)*, 151
- discrimination
auditory, 40
olfactory, 65, 270, 327
taste, 72
visual, 47, 48, 279, 308
- discrimination learning, spatial, 279
- DNA, mitochondrial, 94
- dominance, behavioral 206, 209, 221, 222 (*see also* barbering, grooming)
- dominance, genetic, 230
- dopaminergic system, 175, 248, 257, 258
D2 receptors, 259
dopamine, 182, 195, 244, 259
- drinking in the dark test, 99
- DRL task, 273
- drosophila*, 114, 128, 130, 131, 134
taste studies, 72
- Dst^{dt}*, 83
- Dv11*, 38
- dystonia musculorum*, 83
- eating, *see* feeding
- ecological constraints, 12–13
- electroolfactogram, 66
- elevated plus maze, 34, 156, 158, 159, 210
replicability, 26

Index

- elevated zero maze, 159
emigration, 206
emotionality, 1, 148, 151, 294, 325
 selection studies, 149
enrichment, 137, 285, 286
entrainment, circadian, *see* circadian rhythms
environment × gene interaction, 2, 94, 109, 114, 166, 230
Eph receptor tyrosine kinase, 20, 320, 321
epigenetics, 94, 128, 199
Erg-1, 250
escape behavior, *see* fleeing
Espn (*jerker*), 151
Esr2, 249
estradiol, 220
estrogen, 219, 220, 248, 284
 in olfaction, 68
ethanol
 consumption, 99, 325, 326
 conditioned taste aversion, 326
 metabolism of, 135
 withdrawal, 99
ethology, 6, 17, 21, 148
 ethogram of the mouse, 18–20
 prospects, 21
executive function, 267–274
 humans, 267, 267
 rodents, testing, 268
exploratory behavior, 148–152, 156–334
 definition, 149
 genetic correlations, 150
 learning, 149
 strain differences, 149–150
extinction, 279

fat consumption, 97, 100, 101, 102, 326
 genetics, 102–103
fear, 150
 interpretation of behavior, 319–320
fear conditioning, *see* conditioning, associative
fear-potentiated startle, *see* startle
feeding, 19, 72, 91, 97–104
 see also taste
 circadian rhythms, 129, 134, 135, 237
 nest building and, 235
feeding and drinking preference tests, *see* preference, feeding and drinking
feminization, 219
Fgf, 250
fleeing, 19, 213, 214
flight, *see* fleeing
floor effect, 320
food
 consumption, *see* feeding
foot-shock, *see* conditioning, associative
forced swim (Porsolt) test, 159, 183, 210
 strain differences in performance, 186
forgetting, 279
formalin test, 61
foveation, 51–52, 173
freezing behavior, 18, 20, 156, 307, 315, 319
frontal lobes, 267
fyn null mice, 280

GABAergic system, 167, 195, 244
 GABA receptors, *see* receptors, GABA
Gabra1, 249
Gabra3, 249
gas5, 250
gating, sensorimotor 38, 173 (*see also* prepulse inhibition)
genetic
 architecture, 150
 background, 137, 182, 294, 325
 survival and, 9
 correlations 150
 drift, 135, 150, 166, 268
globus pallidus, 175
glucoprivation, 100, 103–104
glucose, in conditioned taste aversion, 326
glutamate consumption, *see* monosodium glutamate
glutamatergic system, 175, 319
 glutamate receptor, 249
 Gria1, 249
 Gria3, 249
gnawing, 18
gonadectomy, 68, 219, 225, 226, 248
gonadotropin-releasing hormone, 136
Got1, 249
grafting, ovarian, 246
grid test, 34
grid2^{ho}, 83
grid2^{Lc}, 82
grooming, 19, 20, 150, 197, 195–198, 211, 212, 223, 321
 aggressive, 212, 244
 anogenital, 19, 89
 barbering, 198–200
 functions, 195
 misinterpretation, 20–21
 modeling psychiatric disorders, 196
 phases, 196, 196
 pups, 20, 211
 social, 19, 214
 strain differences, 197, 197
gustation, *see* taste

habituation, 148
 habituation–dishabituation test, 65
 scent marking, 209
 startle, 172
 stress, 182
haloperidol, 257
handedness, human, 123–124
 see also paw preference
Hargreaves test, 59
hearing, *see* audition
Hebb–Williams maze, 305, 306, 310
 sex differences, 310
 strain differences, 310, 311
helplessness, learned, 181
heritability, 3, 232–233
 narrow sense, 230
heterosis, 232, 283
hippocampal syndrome, 12
hippocampus
 aggression, 244, 246, 250
 avoidance, 292, 293, 294
 cognition, 258
 fear conditioning, 322
 function, in naturalistic environments, 11–12
 lesion studies, 12, 280
 memory, spatial, 279, 299, 300
 rodent and primate, 6–7
hippocampus-dependent behaviors, 5–6, 8, 9
 selective breeding of, 10–12
holeboard, 305, 306, 307
 strain differences in performance, 307, 311

hormones, in sexual behavior, 220
hot-foot, 83
hot-plate, 59
HPA axis, 179
Htr1b, 61, 249
huddling, 212, 214
hyponeophagia, 12, 156
hypothalamic-pituitary-adrenal axis, 179
hypothalamus, 136, 195, 219, 220, 222

imipramine, 183, 187
imprinting, 94
impulse control disorders, prevalence, 179
impulsivity, 267, 268, 273
 impulsive action, 273–274
 impulsive choice, 272–273
inbred strains, *see* strains, mice; strains, rats
innate behavior, 88
 see also reflexes
instinct, 88
 see also reflexes
insulin, 100
intelligence, 267
Intralipid, *see* fat consumption
isolation, 243, 246, 248, 249, 258
itch, 59

jerker (*Espn*), 151
jimpy, 198
jumping, 18

Kcna1, 250
Kcnj10, 62
Kcnj6, 62
Kcnj9, 62
ketamine, 260
kinetic analysis, learning and memory, 117, 118–119

lactation, aggression and, 244, 245
Lashley type III maze, 305, 306, 309–310
 strain differences in performance, 309, 311

- latent inhibition, **254–261**
 definition, 254
 genetics, 256–258
 influential factors, 255
 neural substrates, 258–259
 pharmacology, 259–261
 phases, 254
 theories, 255–256
- lateralization
 cerebral, 124
 paw preference, *see* paw preference
- leaning behavior, **18**, 150, 151
- learned helplessness, **181**
- learning
see also water navigation task
 copulation and, 224
 discrimination, spatial, 279
 exploratory, 149
 hippocampal, **315**, 316, 318
 non-hippocampal, **315**, 318
 olfactory, 325
 paw preference, 109–115, 116, 117, 118, 119, 120, 121, 116–121, 122–125
 prepulse inhibition and, 175
 quantification of, 29, 118–119
 radial maze latent inhibition avoidance, 66, **291–295**
 reversal, 271–272
- light–dark box, 156, 158, 159
- light–dark cycle, *see* photoperiodism
- limbic system, **6–7**, 73, 292
- lipoprivation, 100, 104, 103–104
- lithium chloride, 325, 326
- littermates, role in reflex development, 88
- litters
 culling, 89
 sex ratio, 89
 size, 234
- locomotor activity, 18
 circadian fluctuations, 129, **131–133**, 137
 amplitude, 133
 exploration, 149, 150, 151
 nesting and, 236
 photobeam breaks, 131, 132, 321
 wheel running, 129, 131, 132, 134, 236
- locus coeruleus, 182
- long-term potentiation, 280, 316–335
- lordosis, 223
- LTP, *see* long-term potentiation
- Lurcher*, 82, 198
- L-world, 113
see also paw preference
- major histocompatibility complex, 209, 221
- MAP2, 261
- MAPK, 249, 261
- maprotiline, 198
- masculinization, 219
- maternal behavior, 20, 88, 211, 250
- mating, *see* copulation
- Mc1r*, 61
- mCPP, 196
- mecamylamine, 260
- medial septum, 260, 293
- med^l mutation, 40
- melanocortin-1 receptor, 61
- melatonin, 131, 136
- memory
 acquisition and retention, 321–322
 consolidation, 117, 119
 episodic, 331, 332, **332**
 forgetting, 279
 olfactory, 8, **326–327**
 paw preference, 114–115
 procedural, 279
 reference, 279, 299, 307
 definition, 304
 strain differences, 308
 relational, 322
 spatial, 277, **332**
 neural basis, 279
 taste, 325, **325–326**
 strain differences, 325
 temporal order, 332
 working, 267, 268, 279, 307, **307–308**, 308–309
 definition, 299, 304
- Mendelian cross, 166–167, 250, 294
- meta-chlorophenylpiperazine, 196
- methamphetamine, 134
- mGluR8*, 319
- MHC, 209, 221
- microtubule-associated protein 1–2, 261
- Microtus*
Microtus oeconomus (root vole), 281
Microtus pennsylvanicus (meadow vole), 280, 281, 284, 286
- mitogen-activated protein kinase, 249, 261
- MK-801, 260
- monoamine oxidase A, 248
- monosodium glutamate, 99–100
 mood disorders, prevalence, 179
- Morph1–4*, 61
- Morris water maze, *see* water navigation task
- mossy fibers, hippocampal, **10**, 10–11
 aggression, 250
 avoidance, 294
 memory, 308
 paw preference, 112
- motivation, 325
- motor coordination, **81–82**
 natural mutants, **82–84**
 strain differences, **81–82**
- mounting behavior, **19**
- mPer1*, 236
- mPer2*, 137, 236
- MSG, 99–100
- multiple regression, 31, 32
- Mus*
Mus castaneus, 205
Mus domesticus, 5, 205, 208, 221, 230, 281
Mus musculus, 205
 avoidance behavior, 294
 circadian period, 129
 habitat, natural, 205, **205–206**
 laboratory studies, **206–207**
 origins, 5
 reproduction, 207
Mus musculus domesticus, *see* *Mus domesticus*
- mutagenesis, 2, 3, 42, 81
- Myo5a (dilute)*, 151
- natural selection, 8, 9, 11, 230
- naturalistic studies, 5, **9–10**, **11**, 11–12, 206
 benefits, 13
 concerns, 14
- navigation, 280, 282
 age effects, 285
 sex differences, 284, 285
 strain differences, 284
- neophobia, 334
- nervous*, 83
- nervous system,
 sex differences, 220
 strain differences, 220
- nesting, 19, 211, 221, 230, 231, 233, 238, **230–239**
 body weight and, 235
 circadian fluctuations, **236–238**
 communal, 208
 fertility and, 234
 genetics, 233
 maternal, 234
 sex differences, 231
 strain differences, 231
 variance, 233
- neurogenesis, 286
- neuropathic pain, 61
- neuropeptide Y receptor 1–2, 250
- neurotensin, 250
- neutral cage test, 246, 248, 249
- nicotine, 260, 326
 addiction, 76
- NMDA, *see* N-methyl-D-aspartate
- NMDA receptor, *see* receptors, glutamate NMDA
- N-methyl-D-aspartate 61
- nociception, **55–62**
 genetics, 55, 56, **56**, **59–62**
 inflammatory, 61
 measuring, 55, 59, 60
 neuropathic pain, 61
 sex differences, 59, 61–62
 thermal, 59–60
- Nociq1–3*, 61
- noradrenaline, *see* norepinephrine
- norepinephrine, 182, 248, 259
- novel object recognition, *see* object recognition
- novelty, social, 211
- nucleus accumbens
 aggression, 244
 latent inhibition, 257, 257, 258, 259, 334
 prepulse inhibition, 175
- nucleus basalis, 259, 280, 293
- nursing, 89, 91, 208
 communal, 208
- nurture, *see* environment × gene interaction
- nutrients, taste preference for, 326
- obesity, 97, 100
- object recognition, **331–335**
- object–place recognition, 332

Index

- obsessive compulsive disorder, 196, 199
- Oca2* (*pink eyed dilution*), 151
- OCD, *see* obsessive compulsive disorder
- olfaction, 209
 - measurement, 65–67
 - senescence, 68
 - sex differences, 67, 68
 - sexual behavior and, 222
 - suckling and, 91
 - trigeminal detection, 68
- olfactometry, operant, 66, 67
- olfactory
 - acuity, 65, 67
 - bulb, 68, 81, 327
 - discrimination, *see* discrimination
- one-way avoidance, 291
- ontogeny, *see* development
- open field, 33, 148–152, 158, 159, 210
- Oprd1*, 59
- Oprm*, 58, 61
- optokinetic tracking, 50, 49–51
- otoacoustic emissions, 41
- outbred strains, *see* strains, mice; strains, rats
- outdoor studies, *see* naturalistic studies
- outliers, 31
- pain, *see* nociception
- pain1*, 61
- parabrachial nucleus, 73
- parrying, 19
- partition test, 210
- passive avoidance, *see* avoidance, conditioned
- paw preference, 109–125
 - constitutive, 116, 115–116, 121
 - lateralization, 111, 112
 - reaction norms, 113–114, 115
 - stochastic simulation, 121–123
 - strain differences, 119
- paw withdrawal, 59
- Pde6b^{rd1}*, 283, 306, 319, 321
- pedunculopontine tegmental nucleus, 174, 175
- Period1*, 236
- Period2*, 236
- periventricular nucleus, anteroventral, 220
- Peromyscus* (deer mouse), 131, 239
 - Peromyscus leucopus*, 136
 - Peromyscus maniculatus*, 136, 280, 284
- phase response curve, circadian, 133
- phase shift, circadian, 133
- phencyclidine, 260
- phenotype, 1–2
- phenotyping, behavioral, 5, 21
- pheromones, 68, 327
- photoperiod reversal, 136, 137
- photoperiodism, 131, 136
- pink-eyed dilution* (*Oca2*), 151, 196
- PKA, 261
- PKC, 237, 286
- place learning-set task, 279, 280
- plasticity, neuronal, 179
- Porsolt test, *see* forced swim test
- potassium channels
 - Kcna1, 250
 - Kcnj6, 62
 - Kcnj9, 62
 - Kcnj10, 62
- PPI, *see* prepulse inhibition
- preference, feeding and drinking, 74–75, 97
 - social transmission, 327
- preferred-paw entry (PPE) score, 111
- preoptic area, medial, 220
- prepulse facilitation, 173–174
- prepulse inhibition (PPI), 36, 37–38, 39, 173, 174, 173–175
 - genetics, 38–39
 - modulation, 38, 175
 - neuronal circuit, 174–175
 - sex differences, 174
 - strain differences, 38, 174
- progesterone, 220, 234
- protein kinase A, 261
- protein kinase C, 237, 286
- protein targeting, 320
- Prp*, 74
- pruritis, 59
- pseudopregnancy, 224
- psychology, comparative, 17, 21
- psychophenes, 1–2
- Purkinje cell degeneration*, 83
- Purkinje cells, 83, 84
- QTL, *see* quantitative trait loci
- quantitative trait loci,
 - audition, 41–42
 - circadian period, 131, 132, 133, 137–142
 - despair, 189
 - ethanol preference, 99
 - fear and anxiety, 158–159
 - motor coordination, 81–82
 - nociception, 58, 59–62
 - analgesia, 61, 58–62
 - inflammatory, 61
 - neuropathic pain, 61
 - thermal, 59–60
 - paw preference, 112
 - taste, 74
- radial maze, 10, 299–302, 327
 - procedural variations, 300
 - strain differences in performance, 300–301
- raphe nuclei, 259
- rapid eye movement, 334
- rearing behavior, 18, 149, 151, 321
- receptors
 - 5-HT
 - 5-HT1A, 259
 - 5-HT1B, 38, 61, 244
 - 5-HT2A, 259
 - 5-HT2C, 259
 - acetylcholine
 - muscarinic 292, 293
 - nicotinic, 260, 293
 - adenosine 1A, 250
 - GABA, 168, 189, 248, 250
 - glutamate, 249
 - NMDA, 260, 261, 279, 293
 - neuropeptide Y type 1–2, 250
 - opioid, 61
 - taste, 73, 75–76
 - trigeminal, 68
- reeler*, 67
- reflex test batteries, 89–91
- reflexes, 90, 88–94
 - cliff aversion, 90
 - grasping
 - bar/pole, 90, 91, 93
 - forelimb and hindlimb stick, 90
 - placing
 - forelimb and hindlimb, 90
 - vibrissae, 90, 93
 - postnatal, 89
 - righting, 90, 91, 92, 93
 - screen
 - climbing, 90
 - level and vertical, 90
 - startle, acoustic, 39–40, 90
 - tactile stimulation, 90
- reflexes, genetics, 92–94
- reinforcement, delayed, 272
- reliability, 27, 28, 29, 30, 27–31, 32
 - choice of subjects, 28
 - definition, 23
 - improving, 28, 29, 259
 - outliers and, 31
 - test–retest (rtt), 27–28
 - definition, 27
- replicability, 24, 26, 23–27
 - definition, 23
 - failure of, 26
 - improving, 25
- reproduction, 207
 - strategy, 221
 - success, 234
- resident–intruder test, 244, 245, 246, 247, 248, 249
- response inhibition, *see* impulsivity
- retinal degeneration, *see* *Pde6b^{rd1}*
- reversal learning, 271–272
- reverse selection, 231–232
- Rgs2*, 158
- right-paw entry score, 110–112
- risk assessment behavior, 156
- rooting, 91, 92
- Rora^{sg}*, 83
- rotarod, 23, 27, 34, 82, 82–84
- RPE (right-paw entry) score, 111, 110–112, 114, 113–123
- running wheel activity *see* locomotor activity
- R-world, 113
- Sac*, 325
- saccharin 98, 325 (*see also* sweet taste genetics)
- salt
 - consumption, 97–98, 325, 326
 - taste genetics, 76
 - strain differences, 76
- scent marking, 209–210, 221
- schizophrenia, 257, 259
- seasonal rhythms, 131, 136
- selection, natural, *see* natural selection
- selection study, *see* selective breeding
- selective breeding, 137, 150
 - aggression, 242
 - circadian rhythmicity of traits, 137

- conditioned avoidance, 294
 exploration, 149
 fear and anxiety, 159
 female offensive behaviors, 245
 hippocampal traits, 10–12
 nesting, 230, 231–232
 pup vocalizations, 166
 senescence, olfaction, 68
 sensitization
 startle, 173
 stress, 182
 sensory-motor development, 88–94
 see also reflexes
 maternal contribution, 92, 94
 serial reversal task, 280
 serotonin, *see* 5-HT
 set-shifting, attentional, *see* attention, set-shifting
 sex chromosomes, *see* X chromosome; Y chromosome
 sex differences
 acoustic startle, 172
 circadian rhythms, 132
 nervous system, 220
 nest building, 231
 olfaction, 67, 68
 pain, 59, 61–62
 water navigation task, 284
 sex ratio in litter, 89
 sexual behavior, 210
 strain differences, 224–226
 sexual differentiation, 218–220
 strain differences, 224–226
 shock-probe burying test, 156
 short ear, 196
Siafql, 61
 sight, *see* vision
 signaled nose-poke task, 273
 sleep
 circadian regulation of, 131, 133–134, 135
 memory consolidation and, 334
 smell, *see* olfaction
 sniffing
 anogenital, 19
 exploratory, 18, 65
Soa, 74, 75
 social grooming, *see* grooming, social
 social interaction, 19, 199, 325, 327
 preferences, 211–212
 sour taste genetics, 76
 strain differences, 76
 spinal nucleus of the bulbocavernosus, 220
 spinocerebellar degeneration, 83
 spontaneous alternation, 308–309
 strain differences, 309
 spontaneous behavior, measuring, 331
Sry, 218, 219
 stabilizing selection, 150
staggerer, 67, 83, 198, 327
 startle, 171, 172, 175, 171–176
 acoustic, 36, 37, 39, 39–40, 90, 172, 175
 age and, 172
 heritability, 38–39
 neural pathway, 37
 strain differences, 37
 characterization, 171
 fear-potentiated, 37, 40, 39–40, 40, 159
 habituation, 172
 neural basis, 171
 sensitization of, 173
 sex differences, 172
 strain differences, 172
 stationary beam, 81, 83, 84
 stereotypy, 196, 200
 steroid sulfatase, 248
 stochastic simulation, paw preference, 121–123
 stop-signal reaction time test, 273
 strains, mice
 101Bag/R1 mice, 98
 120S, 92
 129 (strain), 37, 75, 81, 82, 199, 246
 129/Ola, 81
 129/Sv, 82, 98, 137, 269, 273, 309; 129/SvEm, 197;
 129/SvEms/J, 305, 335;
 129/SvEv, 309, 327;
 129/SvPas@ico, 82, 334
 129J, 81, 97, 98, 99, 100, 102, 182
 129P2, 81
 129P2/Ola, 283; 129P2/OlaHsd, 269, 273
 129P2/SvPas, 269, 270, 273, 283
 129P3/J: feeding, 100, 101, 103; motor coordination, 81; pain, 56; taste, 98, 99, 325, 326; water navigation task, 283
 129S1, 197, 198, 199
 129S1/s, 66
 129S1/Sv, 283; 129S1/SvIm, 97; 129S1/SvImJ; anxiety, 157; behavioral despair, 186; fear conditioning, 321; learning and memory, 272; motor coordination, 82; object recognition, 334; social interaction, 211; test reliability, 31
 129S2/Sv, 81, 82;
 129S2/SvHsd, 81, 82, 197, 272; 129S2/SvPas, 283, 306, 333; 129S2/SvPasIsoCrlBR, 272
 129S5/SvEvBrd, 283
 129S6, 199, 306, 307, 308, 309, 322; 129S6/SvEvTac; attention, 270, 271; Barnes maze, 306; behavioral despair, 184; fear conditioning, 321; impulsivity, 274; latent inhibition, 256; learning and memory, 272, 283; motor coordination, 82
 129T1/Sv-Ter+, 283
 129T2, 81, 306; 129T2/Sv, 272; 129T2/SvEms, 283;
 129T2/SvEmsJ, 249, 305
 129X1/Sv, 257;
 129X1/SvCrl, 256;
 129X1/SvJ; anxiety, 157; executive function, 274; feeding, 97, 99; latent inhibition, 256; place learning, 283; taste, 98; water navigation task, 283
 A.B6-Tyr+/J, 59
 A/Ibg, 197, 321
 A/J
 aggression, 246, 249
 behavioral despair, 182, 184, 186
 circadian rhythms, 133
 exploratory behavior, 158
 feeding, 97, 99, 101, 102
 latent inhibition, 256
 nesting, 233
 nociception, 56
 olfaction, 66, 67
 social interaction, 211
 A2G, 98, 198, 199
 ABP/Le, 196, 197
 AcB/BcA, 61
 AKR, 59, 60, 98
 AKR/J: aggression, 247; fear conditioning, 321; feeding, 97, 99, 100, 101, 102, 103; latent inhibition, 256, 257; memory, 308; nociception, 56, 59; olfaction, 66, 67; prepulse inhibition, 38; social interaction, 211; startle 37, 39
 AXB/BXA, 61
 B6AF2, 61
 B6AKRF2, 59
 B6C3-a/a, 83
 B6CF2, 59
 B6D2F1, 286, 309
 B6D2F1/J, 32
 B6D2F1/Nia, 285
 B6D2F2, 59, 61
 B6129F1/Tac, 51
 BA, 100, 300, 308, 309
 BALB, 68, 76, 233
 BALB/c: aggression, 199, 247, 248; anxiety, 157; audition, 37; barbering, 199; circadian rhythms, 132, 135; copulation, 225; grooming, 198; Hebb-Williams maze, 310; impulsivity, 272; memory, 308; motor coordination, 82; nociception, 56; object recognition, 333, 334; olfaction, 66–67; reflex development, 91, 92; T-maze, 309; vocalizations, 92
 BALB/cA, 305, 307
 BALB/cAn, 172
 BALB/cAnNCrl, 51
 BALB/cBy, 93, 98, 157, 274, 301, 306, 308, 326, 327
 BALB/cByJ: anxiety, 157; avoidance, 294; behavioral despair, 182; circadian rhythms, 131, 132, 133; fear conditioning, 321; grooming, 197; latent inhibition, 256; memory, 308; motor coordination, 83; navigation, 280; object recognition, 334; social interaction, 211; test reliability, 31; T-maze, 309; water navigation task, 283
 BALB/cBylco, 327
 BALB/cIbg, 74, 197, 232
 BALB/cJ: aggression, 247; anxiety, 157, 210; behavioral despair, 184, 186; exploration, 149, 151; feeding, 101, 102, 103, 104; maternal behavior, 211; nociception, 56; olfaction, 66, 327; radial maze, 100, 300, 301; sexual behavior, 225, 232; social interaction, 211; startle, 174; taste, 98; vocalizations, 164, 165
 BALB/cN, 308
 BPH/2, 97, 98
 BPL/1, 97, 98
 BPN/3, 97, 98
 BTBR T+ tf/J, 32, 98, 167, 211

Index

- strains, mice (*cont.*)
 BXD recombinant inbred, 3, 42, 75, 131, 132, 133, 137, 246, 270, 326, 327
 BXD/Ty, 59, 61, 75
 BXSb, 310
 C3.BLiA^{+Pde6b}, 321
 C3H, 76, 81, 82, 92, 134, 185, 233, 293, 327
 C3H/2Ibg, 135, 232, 237
 C3H/He, 61, 91, 92, 98, 186, 189, 247, 248, 301, 333:
 C3H/HeHsd, 82;
 C3H/HeIbg, 321; C3H/HeJ;
 anxiety, 158; behavioral despair, 182, 186; fear conditioning, 321; feeding, 97, 98, 99, 101, 102, 103; latent inhibition, 257; memory, 308; nesting, 232; nociception, 56; object recognition, 334; radial maze, 100, 300; social interaction, 211; vocalizations, 164;
 C3H/HeN, 172, 175
 C3H/Ibg, 256
 C3H/J, 11
 C3HeB/FeJ, 66, 67, 75, 232, 327
 C57BL, 75, 76, 135, 233
 C57BL/6, **210–214**:
 C57BL/6By, 68, 81, 82, 93, 98, 99, 326; C57BL/6ByJ, 97, 98, 99, 100, 294;
 C57BL/6CrI, 256, 257;
 C57BL/6Fa, 225;
 C57BL/6Ibg, 74, 197, 283; C57BL/6J, **210–214**;
 C57BL/6J@ico, 82;
 C57BL/6JNmg, 301;
 C57BL/6JOlaHsd, 81, 82, 197; C57BL/6JOrl, 93, 165;
 C57BL/6Jrd/rd, 133;
 C57BL/6N, 182, 183, 272, 307; C57BL/6NCrI, 82;
 C57BL/6Nia, 285;
 C57BL/6NTac, 82, 309;
 C57BL/6Ty, 98;
 C57BL/10, 82, 149, 185, 247, 248; C57BL/10J, 56, 66, 67, 98, 99, 101, 103, 104, 165
 C57BR/a, 149
 C57BR/cdJ, 83, 99, 100, 300
 C57L/J, 99, 211
 C58, 61
 C58/J, 56, 98, 100, 211, 308
 CAST, 246
 CAST/Ei, 97, 100, 133, 281
 CAST/EiJ, 334
 CB6F1, 327
 CBA, 68, 224, 274
 CBA/Ca, 82, 98, 247, 272, 333
 CBA/Fa, 248
 CBA/H, 93, 166, 225, 246, 248, 249, 308, 309
 CBA/J: audition, 41; Barnes maze, 305, 306, 307; fear conditioning, 321; feeding, 97, 99, 101, 103, 104; latent inhibition, 257; nociception, 56, 59; object recognition, 335; olfaction, 67; radial maze, 100, 300, 301; thermoregulation, 233
 CBA/J rd/rd, 133
 CBA/Lac, 198
 CD-1
 anxiety, 159
 behavioral despair, 182, 183, 186
 depressive-like behavior, 182
 fear conditioning, 319
 feeding, 101, 103
 holeboard, 307
 learning and memory, 305
 olfaction, 66, 67, 327
 nociception, 56
 pruritis, 59
 radial maze, 100, 299, 300
 reflexes, 92
 scent marking, 209
 sexual behavior, 226, 281
 vision, 51
 water navigation, 283
 CDS/Lay, 110, 112, 113, 114, 115, 116, 119, 121, 122, 123
 CE/J, 98
 CF-1, 67, 186, 225, 232
 CFW, *see* Swiss Webster
 CFW1, 283
 CK mice, 225, 232
 Collaborative Cross, 3, 189
 CPB-K, 300, 308, 309
 CrI:CD1(ICR), *see* CD-1
 CS inbred, 135
 CS-1, 92, 134
 CXB recombinant inbred, 132, 133, 137
 CXB/By, 75
 D2, *see* DBA/2 *below*
 DBA, 66, 68, 233
 DBA/1, 248; DBA/1BG, 232; DBA/1J, 99, 232
 DBA/2: aggression, 246, 247; audition, 37; behavioral despair, 280; circadian rhythms, 132; depression-like behavior, 184; feeding, 100; motor coordination, 82, 83; nociception, 59; olfaction, 327; taste, 75, 76, 98, 325; water navigation, 283;
 DBA/2Ibg, 197, 283, 286;
 DBA/2J, **316–322**;
 aggression, 246, 247;
 anxiety, 159, 210, 232;
 behavioral despair, 186;
 exploratory behavior, 149, 158; feeding, 99, 102; latent inhibition, 256; maternal behavior, 211; natural selection, 11; nociception, 56; olfaction, 66, 67; paw preference, 110, 115, 116, 119; sexual behavior, 225; taste, 98, 101; test reliability, 31; vocalizations, 165
 DBA/2OlaHsd, 197
 DBA/2Ty, 98
 DBA/2N, 172
 ddY, 59
 FVB, 81, 82, 211, 246
 FVB/N, 137, 197, 198, 306, 307
 FVB/NJ1633, 157, 186, 211, 308, 321, 334
 FVB/Ntac, 82
 FVB/NtacBr, 225, 226, 247
 HelpLess, 187
 HS/Ibg, 233
 HsDWin:CFW1, 309
 I/LnJ, 124
 ICR, 59, 92, 184, 243, 245, 283, 286, 293, 319
 ICR/JCL, 247
 Is/Bi, 98
 JF1/Ms, 98
 KJR, 60
 KK/H1J, 98
 Long Attack Latency (LAL) line, 206, 243–245, 246, 248, 249, 250, 294
 LP/J, 257, 321
 MA/MyJ, 97
 Mas-Gro albino, 244, 245
 MF1, 158
 MOLF/Ei, 37, 38, 39, 61
 MOLF/EiJ, 334
 NIH Swiss mice, 186, 283
 NMRI
 avoidance, 293
 behavioral despair, 183, 184, 186
 grooming, 198, 199
 memory, 308
 olfaction, 68
 radial maze, 100, 300
 water navigation, 283
 NOD/LtJ, 23, 211
 Non-Learned Helpless, 187
 North Carolina 5, 243–245
 North Carolina 218–220, 243–245
 NZB, 93, 246, 248, 249, 309, 310
 NZB/B1N, 301; NZB/B1NJ, 66, 82, 93, 97, 100, 166, 211, 249, 300, 308, 309
 NZB/J, 11
 NZW/LacJ, 97
 NZW/Ola, 247
 OF1, 183, 283, 285, 334
 PERA/EiJ, 211
 PHH, 248
 PL/J, 211, 308
 PWK/PhJ, 98, 100
 RD1, 51
 RF/B, 310
 RF/J, 221
 RIIS/J, 56
 Rockland-Swiss albino, 234
 SAM (senescence-accelerated mouse), 68
 SEA/GnJ, 97
 Short Attack Latency (SAL) line, 206, 243–245, 246, 248, 249, 250, 294
 SJL, 233, 246
 SJL/J: aggression, 247; audition, 37; fear conditioning, 321; feeding, 101, 102, 103, 104; memory, 308; nesting, 233; object recognition, 334; olfaction, 66, 327; radial maze, 100, 300; sexual differentiation, 225, 232; social interaction, 211; startle, 38, 39; T-maze, 309; vocalizations, 165
 SM/J
 audition, 37
 avoidance, 293
 circadian rhythms, 133
 feeding, 97
 motor coordination, 83
 nociception, 56
 object recognition, 334
 prepulse inhibition, 38
 startle, 39
 SMXA, 137
 SPRET/Ei, 23
 SPRET/EiJ, 334
 ST, 224, 225
 SV129, *see* 129/Sv *above*
 SV129/SvPasCr1, *see* 129S2/SvPas *above*
 SW, *see* Swiss Webster
 Swiss, *see* Swiss Webster
 Swiss Webster
 aggression, 247, 248
 Barnes maze, 306
 behavioral despair, 185, 186
 exploratory behavior, 283
 grooming, 198
 holeboard, 307
 nociception, 59
 object recognition, 334
 object–place recognition, 332
 paw preference, 124
 taste, 75
 water navigation, 281
 Swiss-albino, *see* Swiss Webster

SWR, 98 SWR.B6, 98 SWR/J: feeding, 99, 100, 101, 102, 103, 104; memory, 308; olfaction, 66, 67, 327; social interaction, 211; taste, 97, 98 SWV, 110, 115, 116, 119, 121 Tuck Ordinary, 247, 248 Turku aggressive, 198, 242–245 Turku non-aggressive, 198, 242–245 WSC, 99 XLII, 308, 309 XLII/Orl, 165	synaptic plasticity, 325, 335 syndromes, 1 tail rattling, 19, 244, 249 tail suspension test, 159, 183, 185–187 hyperthermia, 184 strain differences, 186 tail withdrawal, 60 taste, 73, 72–77 see also bitter taste; salt; sour taste; sweet taste; umami genetics buds, 72 neural pathways, 73 preference, nutrient, 326 receptors, 72–73, 73, 75 territory, 207, 221, 222 testosterone, 219, 220, 248 in olfaction, 68 in sexual behavior, 220 therapeutic lag, modeling, 186 thermoregulation, 135, 230–239 thigmotaxis, 12, 280 threat, 244 three-alternative forced-choice task, 47 thyroxine, 68 T-maze, 305, 306, 307 strain differences in performance, 311 Tower of Hanoi test, 268 <i>Tph2</i> , 157 <i>Tpnr1</i> , 59 triazolam, 168 trichotillomania, 195, 199 trigeminal nerve, 171 trkB, 12 <i>Trpv1</i> , 60	tryptophan hydroxylase 1–2, 248 twin studies, 179 two-bottle intake/aversion test, 74–75 see also preference, feeding and drinking two-way avoidance, 10, 291 <i>Tyrp1</i> (brown), 151 umami taste genetics, 75–76, 99–100, 325 urinary proteins, 209, 222 urination, 18 see also scent marking U-world, 110 variability genetic, 2, 55, 256, 315, 333 vasopressin see arginine vasopressin venlafaxine, 183 ventral tegmental area, 175 vertical grid, 81, 84, 84 visible burrow system, 212, 213, 212–213, 214 vision, 49, 45–53 acuity, 51, 52, 46–334 impairment, 319–320 measuring, 45–53 reflex-based tasks, 49–53 reinforcement-based tasks, 47–49 visual water task, 48, 48, 49 vocalizations courtship, 221, 222, 224 pain, 56 pup, 41, 92, 91–92, 159, 163–168 classification, 163 ethology, 163–164 genetics, 164–167	heritability, 166, 167 measuring, 163 ontogeny, 92 strain differences, 164 Vogel conflict test, 156 vole bank, see <i>Clethrionomys glareolus</i> meadow, see <i>Microtus pennsylvanicus</i> root, see <i>Microtus oeconomus</i> waltzer (<i>Cdh23</i>), 151 water escape, 34, 48 water maze, see water navigation task water navigation task, 12, 47, 159, 271, 277 age and, 285 congenic populations, 283 cued platform, 47–48, 280 data analysis, 281 environmental conditions and, 286 procedure, 277 sex differences, 284 strain differences, 281–283 weaver, 198 Wisconsin card sorting test, 268 withdrawal response, 56, 59 wood mouse, see <i>Apodemus sylvaticus</i> X chromosome, 219, 220, 248, 249 Y chromosome, 218, 220, 236, 246, 248 Y-maze, 33, 271, 306, 305–307 strain differences in performance, 311 zolpidem, 168
--	---	---	---