

Subject Index

- AB cell 53
- abdominalA 14
- abdominalB 14
- ablation 2
 - experiments 4
- abortions, spontaneous 212
- achaete-scute complex 37
- anchor cell 65
- androgenetic embryos 204
- Angelman syndrome 211
- antennapedia genes 14
- arbitrary polymorphic genes 178
- armadillo
 - patterns 18
 - protein 29
- arrow patterns 18

- backcrosses, interspecies, early mouse development 179
- Beckwith Wiedemann syndrome 211
- blastocyst 206
 - formation 160
- blastoderm 96
- blastodisc 96
- Brachydanio rerio (zebrafish) embryo 90ff.
- brachyury 132
 - „T“ locus 125, 177
- Bradynema rigidum 68

- C cell 53
- c-kit proto-oncogene, human 181
- Caenorhabditis elegans 126, 181
 - embryonic development 49ff. cell
 - ablation 57
 - autonomous differentiation 57
 - communication 22, 69
 - death 6, 22, 55, 124
 - divisions, orientation 71
 - migration 7
 - – abnormal 122
 - selection 216
 - signaling 66
- cell-cell interactions 2, 57
- central nervous system 16
- chiasmata 215
- chiasma interference 115
- chimeric individuals 120
- chromatin 204
- chromosomal variants 175
- chromosomes
 - chromosome 17
 - chromosome t 177
 - chromosome X 176
 - diminution 64
 - epigenetic information 204
 - testing for imprinting 207
- cib-1* (changed identity of blastomeres) 78
- ciD (cubitus interruptus Dominant) 18
- circumferential ring 108
- cleavage
 - development 156, 161
 - – early mouse development 156
 - – gene activity during 161
- cleavage
 - meroblastic 93
 - plane 95
- clonal strains 113
- compartments 9, 16
- convergence (convergent extension) 98, 109
- costal-2 patterns 18
- CpG methylation 214
- cubitus interruptus Dominant (ciD) 18
- cyclops 123
- cytokinesis 81
- cytoplasm 205
 - nucleo-cytoplasmic interactions 224
- cytoplasmic
 - bridges 95
 - determinants 57, 62, 71
 - – segregation of 77
- cytosine methylated differently 62

- D cell 53
- deformed genes 14

- decapentaplegic 37
- determinants 57
 - cytoplasmic 62
 - localized 61
 - nucleus 61
 - segregation of cytoplasmic determinants 77
- diploidization 115
- discs, imaginal 6, 9, 16, 22, 37
- dishevelled patterns 18
- disomic embryos, uniparental 208
- disomy 203, 208
- DNA
 - methylation 204, 221
 - microinjection, early mouse development 184
 - repetitive 51
 - transient expression of injected DNA 138
- dosage 208
- Drosophila 126, 181, 184, 188
 - embryogenesis 12
 - melanogaster 204
- Dysdercus 4

- E. coli lacZ* gene 185
- ectoderm/ectodermal
 - cell 15
 - inside 170
 - primitive, early mouse development 163, 167
- egg
 - cylinder, early mouse development 163
 - cytoplasm 206, 222
- engrailed genes 128
- emb-29* (embryogenesis defective) 79
- embryo, midgestation 174
- embryogenesis, maternal control of early embryogenesis 74
- embryonic
 - and extraembryonic lineages, separation 158, 159
 - development in *Caenorhabditis elegans* 49ff.
 - induction 68
 - pattern formation 80
 - shield 98, 106
 - stem cells 215
- embryonic-lethal mutations 74, 80
- EMS cell 53
- En-2 gene, mouse 189
- endoderm outside 170
- endoderm-derived tissue, primitive, early mouse development 163, 166
- engrailed
 - cells 10, 189
 - gene 9
 - patterns 18
 - protein 29
- enhancer and gene traps in ES (embryonic stem) cells 187, 188
- enveloping layer 96
- environmental influences 217
- epiblast 109
- epiboly 97, 102, 106
- epidermal
 - pathway 35
 - patterning 24
- epigenetic
 - information, chromosomes 204
 - inheritance 219
 - modification 204
 - programming 224
- equivalent group 66, 68
- ES (embryonic stem) cells 186, 187
 - enhancer and gene traps 187, 188
- even-skipped pair-rule genes 11, 13
- extra-embryonic tissues 207

- fate map 100, 102, 106, 109
- fertilization 152, 154, 206
- foetal overgrowth 211
- foetus 216
- founder cell 56
 - lineage 83
- frequency mutations 116
- fundulus 96, 98, 110
- fused patterns 18
- fushi tarazu, transcription 11, 13

- G0-mutagenized fish 119
- Galleria 3, 7
- gametes 152
 - nondisjunction 208
 - structure 153
- gap genes 11, 12, 14
- gastrulation 222
 - and development of germ layers 168
- gene
 - control 219
 - expression 204
 - regulation 214
 - traps and enhancer in ES (embryonic stem) cells 187, 188
- genetic
 - background 211, 221
 - disease 211
 - disorders 222
 - functions, redundants 83
 - map of the mouse 177

- mouse developmental genetics 174
- genome/genomic
 - human 211
 - imprinting in mammals 203ff.
 - mouse genome 175
- genotype-specific modifier 222
- germ/germinal
 - band 15
 - cells 62
 - - primordial (PGCs) 173, 222
 - layers, gastrulation and development 168
 - line 62, 118, 204
 - - development 78, 173
 - - proliferation 67
 - - transmission, mutated allele 152
 - plasm 64
 - ring 97
 - vesicle 154
- glycoproteins 154
- gol-1 103
- golden-1 101
- gooseberry 13, 18
 - paradox 35
- graft 3
- grandchildless phenotype 78
- growth 208
 - factors 216
 - retardation 212
- gut granules 58
- gonogenones 204

- H19 213
- hairy pair-rule genes 11
- haploid embryos 111, 112
- hedgehog protein 13, 18, 32
- hermaphrodites 50
- heterochromatin 204
 - proteins 205
- heterozygous (T/t) condition 177
- homeobox (see Hox genes)
- homeogenetic induction 123
- homeotic
 - genes 15, 16
 - selector gene 9
 - transformation 15
- Hox genes (homeobox) 14, 126, 189
- hox-3.3 139
- hunchback 11
- hydatidiform moles 207
- hydroblast 109
- hypoblast 97

- ICM (inner cell mass) 160
- Igf2 (insulin-like growth factor 2) 204

- imaginal discs 6, 9, 16, 22, 37
- imdistal-less 37
- implantation 222
 - development 222
 - early mouse development 162
- imprinted genes 203, 212, 218
- imprinting 203
 - parental 219
 - testing chromosomes for imprinting 207
- inbred strains 206
- inner cell mass (ICM) 160
- insect segments, molecular genetic 1ff.
- insulin-like growth factor 2 (Igf2) 204
 - receptor 213
- interference 115
- interspecies backcrosses, early mouse development 179
- intra-segmental patterning system 17
- invected 128
- involution 97, 109

- knirps 11
- Krüppel 11

- labial genes 14
- lacZ* gene 185, 188
- leukemia virus, moloney murine (Mo-MuLV) 185
- lin-12 65
- lineages 54, 102
 - fixation 108
 - restriction 16, 106
 - mesodermal 213
 - P lineage 60
 - separation of embryonic and extra-embryonic lineages 158, 159
 - tracer experiments 103
- lines 18

- mammalian
 - development 203
 - diseases, human 203
 - genetics 203
 - species -218
- mammals
 - evolution of 218
 - genomic imprinting 203ff.
 - pathogenesis 203
 - placental 218
- man and mouse, syteny relationship 179
- mannose-6-phosphate receptor 218

- mapping genes 114
- marsupials 218
- maternal
 - control of early embryogenesis 74
 - effect 74
 - – dominant 222
 - – mutations 67, 77, 78
 - – T maternal 213
 - genes 14
 - – maternal effects 81
 - mei-1* (meiosis defective) 78
 - mel-26* (maternal-effect lethal) 78
- meroblastic cleavage 93
- mesoderm/mesodermal
 - cells 171
 - lineage 213
 - presomitic 171
- metamerization 16
- methylase enzyme 221
- micropile 93
- midblastula transition 96
- midgestation embryo 174
- mirror-image
 - duplications 5, 6
 - pattern 9
- mirrow-image
 - orientation 68
 - pattern duplications 22
- Mo-MuLV (moloney murine leukemia virus) 185
- modifier
 - alleles 222
 - genes 206
- moloney murine leukemia virus (Mo-MuLV) 185
- morphogen 7–9, 38
 - gradient 8, 9
- morphogenetic field 66
 - definition 1
- mosaic
 - analysis 22, 24, 101, 103, 116
 - development 57
 - F1 individuals 117
 - germ line 136
- mosaicism 119
 - germ line 119
- motility mutants 124
- mouse
 - developmental genetics 174
 - early mouse development 151ff.
 - embryonic stem cells 186
 - genetic map 177
 - genome 175
 - – new genetic material 182
 - and man, synteny relationship 179
 - preimplantation development 156, 157
- mRNAs 161
- mutagenesis 116
- mutated allele, germ line transmission 152
- mutations/mutational
 - early mouse development 181
 - embryonic-lethal 74, 80
 - frequency 116
 - maternal-effect 67, 77, 78
 - undulated 189
 - zygotic-lethal 76, 80
- naked patterns 17
- nervous system (see also central nervous system) 24
- neural
 - crest 172
 - degeneration (net) mutants 123
 - tube 172
- neuroblasts 16, 35
- neuroectodermal tissues 216
- neurogenic genes 35
- nondisjunction/nondisjunctional
 - events 50
 - in gametes 208
- nuage 62, 64
- nucleo-cytoplasmic interactions 224
- nucleus determinants 61
- nutrient transfer 207
- nutritional resources 217

- Oncopeltus 4
- oocytes 154
- oogenesis 221
- organizing centers 10
- ovulation 154

- P granules 62, 70
- P lineage 60
- P₁ cell 53
- pair-rule genes 11–14, 26
 - even-skipped 11, 13
 - fushi tarazu 11, 13
 - hairy 11, 13
 - paired 11–13
 - runt 11
- paired-box (Pax)-containing genes 130, 189
- paired-gene 11 – 13, 130
- Parascaris 62
- parasegments 15, 16
 - parasegment border 25, 27, 32
- parental
 - descent 221

- effects 222
- genomes 207
- imprinting 219
- origin 204, 222
- parthenogenetic embryos 112
- parthenogenones 204
- partitioning defective 77
- patched
 - patterns 18
 - protein 34
- paternal
 - effects 79
 - imprints 206
- patterns 17, 18
 - duplications, mirror-image 22
 - epidermal patterning 24
 - formation 2
 - intrasegmental patterning system 17
 - long-range patterning 69
 - regulation 1
 - definition 1
 - strain distribution (SDP) 179
- pax genes 130
- pelluzida, zona pelluzida 154, 155
- PGCs (primordial germ cells) 173
- pha-1* (pharynx defective) 79
- phenotype 204
- placental mammals 218
- placentation 207
- polar coordinates 5, 6
- polarity 1, 2, 6
 - definition 1
 - genes, segment polarity genes 10, 13, 14, 16, 18, 19, 24 - 26, 31
 - reversal 61
- porcupine 18
- position effect variegation 224
- positional information 1, 2, 7, 38, 69
 - definition 1
- postimplantation development 162
- Prader Willi syndrome 211
- pre-programming 57, 62
- precursor cells, vulval 65
- pregnancy, human 212
- preimplantation development, early
 - mouse development 156, 157
- presomitic mesoderm 171
- primitive
 - ectoderm, early mouse development 163, 167
 - endoderm-derived tissue, early mouse development 163, 166
- primordial germ cells 222
- proliferation 216
- pronuclear transplantation 204
- reciprocal crosses 222
- recombinant inbred (RI) strains 177
- regeneration 6
- regulative development 57
- rel oncogene 15
- repetitive DNA 51
- resource transfer 218
- respecification 6
- restrictions
 - fragment length polymorphisms (RFLPs) 179
 - lineage 16
- retinal primordium 101
- retroviral infection, early mouse
 - development 185
- RFLPs (restriction fragment length polymorphisms) 179
- Rhodnius 3
- RI (recombinant inbred) strains 177
- RNA, stored maternal 161
- runt pair-rule genes 11
- Salmo 97, 110
- SDP (strain distribution patterns) 179
- segments/segmentation 15, 99
 - borders 4
 - genes 10
 - intrasegmental patterning system 17
 - model of 14
 - polarity genes 10, 13, 14, 16, 18, 19, 24-26, 31
- selector gene 9
 - homeotic 9
- semi-sterility 176
- serine proteases 15
- serine-threonine kinase 35
- sex combs reduced genes 14
- shaggy patterns 17, 18
- skeletal muscle 213
- skeleton 216
- smoothened 18
- somatic
 - recombination 101, 103
 - tissues 217
- somitogenesis 99
- somitomeres 171
- spadetail 121
- spe-11* (sperm defective) 79
- spermatogenesis 204
- spermatozoa 205
- spindle orientations 72
- stem cells
 - embryonic 215
 - mouse embryonic 186
 - stem-cell division 53, 83
- sterility, semi-sterility 176

- stored maternal RNA 161
 strain
 – distribution patterns (SDP) 179
 – recombinant inbred (RI) strains 177
 syncytium 95
 syndromes
 – Angelman 211
 – Beckwith Wiedemann 211
 – Prader Willi 211
- T gene 132
 T locus, brachyury 125
 T maternal effect 213
 t-chromosomes 177
 t-haplotypes 177
 tail bud 99
 tailless 11
 TE (trophectodermal) cells 160, 165
 tension striae 98
 transcription factors 11, 13, 15, 32, 34, 219
 transgenes/transgenic 219
 – fish 133
 – transmission 136
 – zebrafish 92
 transient expression of injected DNA 138
 transmembrane protein 15
 transplantation 2
 – experiments 3
 – pronuclear 204
 transposon tagging 51
 trophectodermal (TE) cells 160, 165
 trophoblast 207
 – tissue, early mouse development 163
- ultrabithorax genes 14
 undulated mutation 189
 uniparental disomic embryos 208
- uterine cell, ventral 65
 uvomorulin 158
- variable penetrance 222
 ventral uterine cell 65
 viability 208
 visceral mesoderm 24
 vulva 65
 – precursor cells, vulval 65
- wingless 9, 18
 – protein 27
 wnt-1 131
- X chromosome 176
 xenopus 109, 132
 – laevis 218
- yolk syncytial layer 96
- zebrafish
 – embryo (brachydanio rerio) 90ff.
 – embryogenesis 95
 zeste-white patterns 17
 zinc-finger
 – genes 189
 – proteins 11
 zona pellucida 154, 155
 zyg-9 (zygote defective) 78
 zyg-11 (zygote defective) 79
 zygotic/zygotically
 – expression 75
 – genes 82, 83, 120
 – transcription 58
 – zygotic-lethal mutations 76, 80