

Index

14-3-3 η 226

a

A1PiZ (Z-variant of the human α -1
proteinase inhibitor) 132
AIB1 114
AIMP2 220ff.
AKT 32, 61, 198
anaphase promoting complex (APC) 149
– cyclosome C 5ff.
anergy gene 90
Angelman syndrome (AS) 83
angiogenesis 11
antizyme (AZ) 119f.
App12 22
APOBEC 157
AR-JP, *see* autosomal recessive juvenile
parkinsonism
ARF1 79
ATFG 125
Atg8 4
Atg12 4
ATM/ATR family of kinase 31
ATPase 183
autophagocytosis 131
autosomal recessive juvenile parkinsonism
(AR-JP) 173ff., 195ff., 212
– *Drosophila* model 203
– mouse model 204

b

bcl-2-associated athanogene 5 (BAG5)
199
Bcl-3 9
BiP 128
BiP/GRP78 201
BMP 94
Bombyx mori nucleopolyhedrovirus
(BmNPV) 153

BPLF1 62
breast cancer susceptibility gene (BRCA)
10, 77
– associated RING domain 1 (BARD1)
10
BRLF1 (Rta) 61
Burkitt's lymphoma (BL) 52
BZLF1 (Zta) 61

c

calnexin 125
calreticulin 125
cancer
– Smurf 93
– ubiquitin 13
cancer pathogenesis 1ff.
– ubiquitin 5ff.
carboxy-terminus of Hsc70-interacting
protein (CHIP) 198f., 217
caspase-8 and caspase-10 associated RING
protein (CARP) 25
 β -catenin 61, 151
Cdc48 130ff.
cell cycle control 149
– ubiquitin 5
cell death 201ff.
cell division control-related protein 1 (CDC-
rel1) 203, 218ff.
cell signalling 150
cervical cancer 80
chaperone 172, 201
CNS 172
CPY* 126ff.
CrkL (CT10 regulator of kinase-like enzyme)
61
cyclin E 203
cyclin-dependent kinase (CDK) 5
– inhibitor (CDKI) 5
cylindromatosis (CYLD) 9

cystic fibrosis transmembrane conductance regulator (CFTR) 126ff.
 cytotoxic T lymphocyte (CTL) 146

d

Dardarin 177f.
 DDB1 157
 defective ribosomal product (DRiP) 54, 146
 degradation
 – ER 123ff.
 – proteasome 107ff.
 – ubiquitin-independent 115ff.
 Derlin1 130ff.
 deubiquitinating enzyme (DUB) 1ff., 48, 150
 DJ-1 179, 224
 DNA
 – repair 4ff.
 – ubiquitin 9
 dopamine transporter (DAT) 220

e

E1 ubiquitin-activating enzyme 108, 216
 E1B55K 23, 149
 E2 conjugating enzyme 28, 150, 174, 216
 E3 ubiquitin ligase 13, 23, 48ff., 58, 108, 126, 151ff., 174, 196, 216f.
 – viral 154
 E4 ubiquitin elongation factor 216
 E4-like protein 198
 E4orf6 23, 149
 E6-AP 80ff.
 endoplasmic reticulum (ER) 123ff.
 – degradation 123ff.
 – ER-to-Golgi transport 131
 – import 124
 – protein quality 123ff.
 – protein quality control (ERQC) 123
 – stress 201
 endoplasmic reticulum protein quality control and degradation process (ERQD) 123
 – metazoan 133
 endoplasmic reticulum-associated degradation (ERAD) 201
 – C 131
 – M 131
 – L 131
 endosomal sorting complex required for the transport (ESCRT) 12, 88, 147
 epidermal growth factor receptor (EGFR) 3f., 150, 197

Epstein Barr Virus (EBV) 47ff., 146
 – EBER 50
 – EBNA1 63
 – EBNA3 57ff.
 – EBNA4 57ff.
 – EBNA6 56f., 149
 – infection 47ff.
 – life cycle 50ff.
 – malignancy 63
 – nuclear antigen (EBNA) 50ff.
 – ubiquitin-proteasom system 52
 ErbB2 14

f

F-box protein 58
 Fanconi anemia (FA) 10
 – FANCD2 10
 FAT10 22
 folding 124
 Fub 22
 Fyn kinase 90

g

GAr (Gly-Ala repeat) 52ff.
 glial cell line-derived neurotrophic factor (GDNF) 224

h

HAC1 125
 HAT, *see* histone acetyltransferase
 HAUSP, *see* herpes simplex-associated ubiquitin specific protease
 HBX, *see* hepatitis B virus protein X
 HCMV, *see* human cytomegalovirus
 HDAC, *see* histone deacetylase
 hDLg 82
 heat shock protein (Hsp) 127
 HECT, *see* homologous to E6-associated protein carboxyl terminus
 hepatitis B virus protein X (HBX) 146
 hepatocellular carcinoma-related protein 1 (HCRP1) 12
 herc2 83
 HERC5 80
 herpes simplex-associated ubiquitin specific protease (HAUSP) 10, 32, 55
 HIF (hypoxia-inducible factor) 11, 158
 histone acetyltransferase (HAT) 31, 114
 histone deacetylase (HDAC) 31, 220
 HIV-1 157f.
 Hodgkin's disease (HD) 52
 homeostasis
 – bone 94

- homologous to E6-associated protein
 carboxyl terminus (HECT) 48, 77ff., 151
 – disease 79
 – domain 78
 – HECTH9 84
 – ubiquitin-protein ligase E3 77ff., 217
- HMG-CoA reductase degradation 127f.
 – Hrd/Der 132
 – Hrd3 130
- hScrib 82
 HSV 152
 hTERT 82
 human cytomegalovirus (HCMV) 130, 146f.
 human papillomavirus (HPV) 80
- i**
- IκB kinase (IKK) 8, 58, 150
 – IKKα 113
 ICPO 152f.
 immune response 88
 immunoreceptor 154f.
 inbetween-RING (IBR) domain 216
 incidental Lewy body disease (ILBD) 180
 inhibitor of apoptosis protein (IAP) 150
 inhibitor of NFκB (IκB) 150
 interferon 150ff.
 – stimulated gene 15 (ISG15) 22, 80
 interleukin (IL) 89
 IRE1 125
 ITAM 61
 ITCH 88
- j**
- jab1/MPN domain associated
 metalloisopeptidase (JAMM) 48
 Janus kinase/signal transducer and
 activator of the transcription (Jak/STAT)
 150
 josefine 48
 c-Jun 114
 – N-terminal kinase (JNK) 91
- k**
- K5 155f.
 Kap1 27
 Kaposi's sarcoma associated Herpes virus
 (KSHV) 146ff.
- l**
- latency-associated nuclear antigen-1 (LANA-
 1) 146
- latent membrane protein
 – LMP1 51ff., 158
 – LMP2 51ff.
- leucine-rich repeat kinase 2 (LRRK2) 177,
 224f.
- Lewy body 176ff., 195, 218
 Liddle's syndrome 86
 lymphoblastoid cell line (LCL) 50
 lysosomal system 177
- m**
- MAGI-1 82
 major histocompatibility complex (MHC)
 54, 147f.
 maltose binding protein (MBP) 197
 Mcl-1 Ubiquitin ligase E3 (MULE) 84
 Mdm2 9, 23ff., 111
 – p53 26
 Mdmx 30
 MHC, *see* major histocompatibility complex
 MHV γ68 virus 154
 mitogen-activated and extracellular protein
 kinase
 – MEKK1 91
 – MEKK2 95
 mK3 154
 monoubiquitination 1
 – multiple 197
 MULE/ARF-BP1/HectH9 80ff.
 MUPP-1 82
 multiubiquitination 1
 multivesicular body (MVB) 1ff.
- n**
- NADH 110
 neddylation 34
 NEMO 8f.
 neural precursor cell expressed
 developmentally down-regulated
 – Nedd4 85ff.
 – Nedd4-2 86f.
 – NEDD8 4, 22ff.
 neurodegeneration 174ff., 195ff., 211ff.
 – dopaminergic 202
 – molecular pathway 195ff.
 – parkin 211ff.
 neuroprotection 221
 NF-κB 8, 113
 – inducing kinase (NIK) 58
 – NF-κB inhibitor, *see* inhibitor of
 NFκB
 NFX1-91 82
 nucleotide excision repair (NER) 31

- nucleotide-binding oligomerization domain (NOD) 150
- null Hong Kong (NHK) mutant 133
- nutlin 14
- o**
- oncogenesis 47ff.
– ubiquitin-proteasome system 47ff.
- open gate conformation 116
- ornithine decarboxylase (ODC) 55, 109ff.
– antizyme 109f.
- Osterix 94
- ovarian tumor (OTU) domain-containing protease 48
- overflow degradation pathway 131
- p**
- p14^{ARF} 27ff., 84, 105
- p21^{waf1/cip1} 57, 108ff.
- p27^{kip1} 64
- p38 203
– AIMP2 220ff.
- p53 21ff., 81f., 111
– de-ubiquitination 32
– E2 conjugating enzyme 28
– E3 ligase 23
– functional domain 21f.
– interacting protein 29
– Mdm2 23ff.
– pathway 9
– ubiquitin 25ff.
- p73 111
- p300 27ff.
- PACRG 215
- PARK 173ff.
– PARK6 204
- parkin 173ff., 196ff., 211ff.
– animal model 227
– cellular regulator 226
– *Drosophila* (dParkin) 227
– dysfunction 225
– E3 ubiquitin ligase 198, 217
– gene 213
– localization 215
– multiple monoubiquitination 197
– neurodegeneration 211ff.
– pathogenic mutation 225
– post-translational regulation 226
– proteasome-independent 197
– regulation 215
– substrate 199, 218
– toxic substrate 221
– ubiquitin-proteasome pathway 216
- parkin-associated endothelin-like receptor (Pael-R) 201f., 219
- Parkinson's disease (PD) 169ff., 195ff.
– linked gene 223
– sporadic 180
- parkinsonism
– parkin-related 195ff.
- pathogen-associated molecular pattern (PAMP) 150
- PCNA 11
- PDZ domain-containing protein 82
- PERK 125
- PIAS, *see* protein inhibitor of activated STAT
- phosphoinositide 3-kinase (PI3K) 61, 198
- phospholipase C (PLC- γ 1) 90
- phosphorylation 31
- platelet-derived growth factor (PDGF) 11
- polyubiquitination 1
- Prader-Willi syndrome (PWS) 83
- pRB 81
- promyelocytic leukaemia body (PML) 61
- proteasome 14
– 20S proteasome (CP) 115, 181ff.
– 26S proteasome 115, 172ff.
– degradation 107
– dysfunction 180ff.
- protein inhibitor of activated STAT (PIAS) 25
– ligase 33
- protein kinase C (PKC) 90
- protein kinase R (PKR) 180
- proteolysis 146
- PTEN-induced kinase 1 (PINK1) 178, 204
- r**
- Rb 27, 111
- RCC1-like domain (RLD) 79
- receptor internalization and degradation (RID) 148
- receptor tyrosine kinase (RTK) 12
- REG γ 114
- regulatory particle (RP)
– Rpn4 112
– Rpn10 117f.
- retrotranslocation channel 132
- retrovirus budding 88
- ribosomal protein 27
- RING (really interesting new gene) 151, 217
– E3 ligase 152
– finger 197f., 216ff.
– finger domain 27
– finger ligase 24

- finger motif 196
- inbetween-RING (IBR) domain 216

RITA (2,5-bis(5-hydroxymethyl-2-thienyl)furan 14

RTA 153

Rub 22ff.

RunX2 94

S

SAE1/AOS1 23

SAE2/Uba2 23

SCF (SKP1-CUL1-F-box protein) 5ff.

- Fbw1 5
- Roc1 E3 ligase complex 92
- Skp2 5ff., 56
- ubiquitin ligase complex 34, 58
- viral E3 ligase 156

SCF- β TRCP 8

- E3 ligase 159
- HOS 58

Sec61 124ff.

septrin 22ff.

serum and glucocorticoid-induced kinase (Sgk1) 87

Siah-1 151

signal transducing adaptor molecule (STAM) 62

SKP1-CUL1-F-box protein, *see* SCF

SLP-65 (SH2 domain containing leukocyte protein-65) 60

Smad

- co 91
- I 91
- R 91

small ubiquitin-related modifier (Sumo) 4, 22ff., 57

- interacting motif (SIM) 4
- specific protease SENP1 152

Smpt3 22ff.

Smurf (Smad ubiquitination regulatory factor) 91ff.

- cancer 93

spleen tyrosine kinase (Syk) 60f.

STAT (signal transducer and activator of the transcription) 150ff.

steroid receptor co-activator 3 (Src-3) 114

substrate accumulation 201ff.

substrate recognition 107ff.

substrate recognition enzyme (E3), *see* ubiquitin protein ligase

Sumo, *see* small ubiquitin-related modifier

synphilin-1 203

α -synuclein 175ff., 223

t

T cell receptor (TCR) 158

tankirase-1 (TRF1) 55

TATA-associated factor (TAF) 21ff.

thymidylate synthase (TS) 112

TNF, *see* tumor necrosis factor

TNF-R-associated factor (TRAF)

- TRAF6 8f.

TNF-related apoptosis-inducing ligand (TRAIL) receptor 148

Toll like receptor (TLR) 150

TOPORS ligase 25

toxicity

- stress-mediated 222

trans-lesion DNA synthesis (TLS) 11

- polymerase 11

transcriptional regulation 149

transforming growth factor β (TGF- β) 91ff

- activated kinase (TAK1) 8

transporter associated with antigen processing (TAP) 59ff.

β -TRCP 58

tripetidyl peptidase TPP-II 63f.

tumor necrosis factor (TNF)

- α 150
- receptor (TNFR) 58

tumor susceptibility gene 101 (TSG101) 12, 30

u

U-box

- domain 151
- motif 198
- UFD2-homology protein 217

UbcH5B/C 28

ubiquitin (Ub) 23ff.

- associated (UBA) domain 31
- cancer 13
- cancer pathogenesis 5ff.
- cell cycle control 15
- conjugating enzyme (Ubc, E2) 28, 150, 174, 216
- DNA repair 9
- elongation factor (E4) 216
- independent degradation 115
- independent proteasome substrate 109ff.
- like (UBL) domain 31
- like (UBL) protein 4, 21ff.
- modification 1
- NF- κ B pathway 8
- oncogenesis 11
- p53 21ff.

- pathway 34
 - proteasome pathway 52, 216
 - proteasome system (UPS) 145ff., 169ff., 196
 - protein ligase (E3) 13, 23, 48ff., 58, 108, 126, 151ff., 174, 196, 216f.
 - receptor endocytosis 12
 - signalling 1ff.
 - ubiquitin carboxy-terminal hydrolase (UCH) 9, 48
 - UCH-L1 175
 - ubiquitin proteasome pathway 52
 - EBV 47ff.
 - oncogenesis 47ff.
 - ubiquitin-activating enzyme E1 108, 216
 - ubiquitin-binding domain (UBD) 3
 - ubiquitin-binding motif (UBM) 11
 - ubiquitin-binding zinc finger (UBZ) 11
 - ubiquitin-specific protease (USP) 48
 - USP7 55
 - ubiquitination 107
 - p53 28
 - UCRP 22
 - UDP-glucose:glycoprotein glucosyltransferase (UGGT) 124ff.
 - unfolded protein response (UPR) 123ff., 202
 - uracil DNA glycosylase (UNG) 157
 - UREB1 (upstream-regulatory element binding protein 1) 84
- v**
- vascular endothelial growth factor (VEGF) 11
 - VHL (von Hippel-Lindau) 11
 - virion infectivity factor (Vif) 157
 - virus 145ff.
- w**
- WW domain 85
- y**
- ying yang 1 (YY1) 27ff.
- z**
- zinc finger domain 27