

Index

- accessory Zn-proteins 10
- acetaldehyde 86
- acetate 27(table)
 - like Cu(II) complexes 29(fig.)
 - type copper complexes 31
- acetylsalicylic acid 29
- acid-pepsin secretion 86
- acne 90-1
- acrodermatitis enteropathica 4, 128
- actin 10
- adductin 10
- adhesion molecules 156
- adjuvant arthritis 82
- adrenalectomy 103
- Adversariorum varii argumenti* 1
- albumin 8
 - binding zinc 81
- alcohol dehydrogenase 50, 55
- alcoholic liver disease, chronic 84
- Alcusal 140, 142-4
- α_2 globulins 81
- α_2 -macroglobulin 8
- α -helix macrodipoles 52
- aluminium 86
- Alzheimer's disease 64, 70, 86-7
- American Academy of Paediatrics, Committee on Drugs 4
- amine oxidase 22(table), 180
- amino acids 8
- aminopyrine-*N*-demethylase 119
- amyloid 86
 - βA_4 87
 - precursor protein 87
- anaemia, zinc-induced 4
- androgens 11
- aniline-*p*-hydroxylase 119
- anorexia 3, 96
- antibody response 14
- anticancer drugs 71
- antigastric-ulcer activity 93
- antinuclear agents 27-8
- antioxidant(s) 13, 86
 - activity 93
- apo-copper-proteins 36
- apoferritin 13
- apoprotein 67
- apoptosis 93(table), 103-4
- apothionein 72
- arachidonate metabolism 123
- archaeobacteria 48
- arthritis, topical zinc 89-90
- ascorbic acid 12
- Asp-Ala-His 26
- Asp-Ala-His-NMA 27(table)
- aspartate transcarbamylase 56
- aspirin 94, 119, 121
- asthmatic conditions 97
- astringent 91
- astrocytes 64, 70
- atomic absorption spectroscopy 80-1
- ATPase "core" 184
- autosomal recessive copper toxicosis 3

- B-lymphocytes 72
- bacteriophage T4 helix, destabilizing protein 56
- 2-benzoylpyridine 31(fig.)
- β -alanyl-L-histidine-zinc 83
- "bidentate" site conformation 52
- bile 13
- bone 9
 - biology 173
 - collagen 14
 - growth, copper deficiency 14
 - metabolism 83
 - osteoporotic like changes 174
 - resorptive activity 83
 - trabecular 173-4
- BSA 27(table)
- bucillamine 130-1
- buthionine sulphoxamine 36

- C3bi 165
 C-reactive protein 129
 cadmium 61
 calcium
 ion flux 72
 paradox 174
 calmodulin 97
 carbon dioxide 56
 carbon tetrachloride 67
 carbonic anhydrase 47, 55
 isoenzyme II 85
 carboxylate-His-Zn 52
 carboxypeptidase A 52, 53(table), 55(fig.),
 56-7
 cardiac function 14
 cardiovascular integrity 14
 carrageenan paw oedema 119
 carrageenan-induced pleurisy 90
 cartilage matrix glycoprotein 175
 cathepsin B 67
 CD18 165-7
 Cd-resistant clones 71
 cell differentiation 66
 cell surface protein expression, copper
 effect 161, 163-5
 cellular immune effects 97-102
 ceruloplasmin 9, 12-13, 21-4, 114-15, 129-32,
 175
 gene 126
 cervical carcinoma 114
 charge density 49
 chelating molecules 72
 chemotaxis, neutrophil 90
 chief-cells 95
 cholesterol 14
 chromatin 48
 chromosome-16 63
 cimetidine 27(table), 28, 91
 circular dichroism 133
cis-acting DNA sequences 63
cis-platin 71
 cobalt 164
 cognitive functions 87
 colitis 83
 collagen 83, 174
 concanavalin A 14
 copper
 absorption 12-13, 69
 acetates 19
 ancient medicine 19-21
 anti-inflammatory therapy, topically
 applied 139-45
 clinical trials 142-4
 mode of action 144-5
 results of assays 141-2
 transcutaneous 140-1
 antiarthritic effects 151-2
 binding site of human serum
 albumin 24(fig.)
 bleomycin 115
 bracelets 140
 cell surface expression of ICAM-1,
 effects 163-5
 chelates
 formation in vivo 120-1
 new anti-inflammation 11920
 SOD-mimic activity 118-19
 chloride 183
 complexes 21-6
 catalytic activity 21
 lipophilic 26
 redox behaviours 25-6
 stability 21-5
 therapy 113-24
 compounds 19-38
 biochemistry 30-8
 selected 26-30
 containing molecules 147-8
 deficiency 4, 14
 syndromes 175
 dependent amino oxidase 20(fig.)
 dependent transcriptional activator 27
 dietary 174-6
 dissolution-skin absorption
 hypothesis 140
 effect on:
 HRG binding to T-cells 167-8
 platelet aggregation 168-9
 electron donor 79
 "endogenous" 147
 enzymes 13-14
 excretion 12-13
 functional roles 13-14
 histidine solution 183-4
 inflammation, biodistribution 120
 metabolism 13
 metallothionein 179
 neonate 185
 non-steroidal anti-inflammatory drugs 28
 oral absorption 148
 osteoporosis, postmenopausal 173-6
 oxides 19
 oxygen biochemistry, roles 20(fig.)
 proteins, mammalian 22-3(tables)
 responsive leucopenia 4
 rheumatic disease, treatment 128-33
 salicylate ethanolate complex 140-1
 stress protein 23(table)

- sulphate 19
 sulphide 19
 supplemented diets 150(table)
 thiolate luminescence 25
 thionein 27
 tissue distribution 12-13
 toxicological evaluation 152-5
 toxicosis 3
 transport 12-13
 copper-diSchiff base complexes 25, 30, 36-7- Cu,Zn-SOD 35(table)
- magnetic behaviour and electronic absorption 35(table)
- cortex 11
 Crohn's disease 83
 Cu(I)/Cu(II) 49
 Cu₂+(aq) 34(table)
 Cu(acetylsalicylate) 33(table), 34(table)
 Cu(II)(acetylsalicylate) 116
 Cu(II) amino acids 115
 Cu[cyclo(His)₂] 33(table)
 Cu-deficient diet 66
 Cu-dependent antioxidant 67
 Cu(di-isopropylsalicylate) 33(table), 34(table)
 Cu(II)(dimethylglyoxime) 115
 Cu-EDTA 33(table)
 Cu(formate) 34(table)
 Cu(glu-his-leu) 34(table)
 Cu(gly-his) 34(table)
 Cu(II)(glycyl-glycyl-histidinate) 115
 Cu(II)(glycyl-histidyl-lysine) 115
 Cu(I)-GSH 68-9
 Cu(indomethacin) 28, 34(table)
 Cu(II)(2-keto-3-etoxybutyraldehyde-bis-thiosemicarbazone) 115
 Cu(lys)₂ 33-4- Cu(I) MT-GSH 68-9
- Cu(I)-orthophenanthroline 21
- Cu-penicillamine 34(table)
- Cu(II)-phenanthroline 25
- Cu-Pulm 33(table)
- Cu-PuPhePy 30, 33-4- Cu-PuPy 30, 33(table), 34(table)
- Cu(II)(pyridine-2-carboxaldehyde-2-pyridylhydrazone) 115
- Cu(II)(pyruvaldehyde-bis-thiosemicarbazone) 115
- Cu(II)(salicyl-aldehydebenzoyl-hydrasonate) 115
- Cu(salicylate) 33(table), 34(table)
- Cu(II)-serum albumin, BSA 25
- Cu-TAAB 33-4- Cu(II)(3,4,7,8-tetramethyl-1,10-phenanthroline) 115
- Cu(I)-thionein 34(table)
- Cu(II)(2,3,4-trihydroxybenzaldehyde) 115
- Cu(II)₂ 33-4- Cu,Zn-SOD 23(table), 30, 31, 33(table)
- cumene hydroperoxide 36
- cupric acetate, anti-inflammatory activity 20
- cuprifores 140
- Cushing's syndrome 173
- cyanobacteria 72
- cyclic voltametry 25
- cyclophosphamide 90, 96
- cyclosporine A 90
- Cys thiolate ligands 56
- Cys-Cys arrangement 62
- Cys-thiolate 50
- Cys-X-Cys arrangement 62
- cysteine 9
 - rich intestinal protein 8, 69
- cytochrome C oxidase 22(table), 115, 180
- cytochrome oxidase 20(fig.)
- cytochrome P-450 mono-oxygenase 123
- cytokines 71, 156
- cytoprotective effects 94
- cytosol 67
- d-d-absorption maxima 25
 D-penicillamine 129
 daunorubicin 117
 dehalogenation 27
 delayed-type hypersensitivity 96
 desquamation 9, 70
 dexamethasone 66-7
 diclofenac 30, 91
 diethylmaleate 36
 digestive secretion 9
 4-dimethylaminoazobenzene 115
 dioxygen transport 20(fig.)
 DNA polymerase 10
 DNA replication 69
 DNA-binding domains 10
 DNA-dependent RNA-polymerase 10
 dopamine β-hydroxylase 180
 dopamine β-mono-oxygenases 20(fig.), 22(table)
 dwarfism 3
- Ehrlich ascites 115
 - tumour 96
- Ehrlich carcinomas 116
 eicosanoid
 - metabolism 93(table)

- eicosanoid (*continued*)
 synthesis, modulation 123
- elastin 174
- electron
 paramagnetic resonance 25
 spin resonance studies 116
 transfer reaction 19
 transport 13
 chains 25
- electrophilic strain distortion 52
- electrostatic
 effects 52
 potential 49
- endothelial cells 8, 10
- endotoxins 9
- energy dispersive X-ray microanalysis 83
- energy metabolic changes 93(table)
- energy-independent carrier-mediated process 8
- entropy 51
- epinephrine 8-9, 13
- erythrocyte 8, 50
 ghosts 10
- erythroleukaemia cells 34
- estradiol 14
- ethanol 56, 94
- exon-12 184
- factor V 23(table)
- famotidine 28
- Fe(II)/Fe(III) 49
- female gonadal function 14
- Fenton reactions 20(fig.), 25
- ferroxidase 13
- fibrinogen 165
 receptor 168
- fibronectin 165
- flores zinci 2
- flurbiprofen 29
- formate 27(table)
- 1-formylisoquinolone
 thiosemicarbazone 115
- 2-formylpyridine 115
- fractures, osteoporotic 173
- free radical 10
- GABA-mediated synaptic transmission 11
- Gal-4-domain 56
- galactose oxidase 20(fig.)
- gall bladder 13
- γ -globulin 123
- γ -glutamyl cysteinyl 61
- gastric secretory volume 85
- gastric ulcer disease 91
- gastroduodenal mucosal damage 92
- gastrointestinal excretion 9
- Gaebius 1-2, 4
- gene regulatory elements 71
- gene-regulatory proteins 79
- genetic information 48
- glucagon 8-9, 13
- glucocorticoids 8-9, 11, 13
 responsive hMT-1-E gene 64
- glutamatergic neurons 69
- glutathione 13, 26, 93(table)
 disulphide 68
- Gly-Gly-His 26, 27(table)
- glycine 27(table)
- glycocalyx 8
- growth hormone-prolactin receptor complex 56
- growth inhibitory factor 64
- growth retardation 3, 96
- H₂-receptor antagonists 91
- H-bond networks 52
- haemocyanin 27
- haemoglobin 126
- Hahn spin-echo 133
- heavy-metal transporter ATPases 72
- Helicobacter pylori* 93(table)
- heparin 26
- herpetic infections 97
- Herpin 3
- hippocampus 11
- His-imidazolyl ring 52
- histamine 27(table), 93(table), 97
 release 86
- histidine 8-9, 27(table), 132
 imidazole-nitrogens 30
 rich glycoprotein 167-8
- hMT-2 gene 64
- Hodgkin's disease 114
- homeostatic mechanism 14
- hormone(s) 11-12
 receptor proteins 10
- host defence mechanism 128
- HSA 27(table)
- hydrogen peroxide 28
 stress 38
- hydrolases 79
- hydroxyl radical(s) 20-1, 28, 139
 scavengers 133
- hydroxylysine- ϵ -amine groups 174
- hyperbilirubinaemia 179
- hypercupraemia 9
- hyperparathyroidism 173
- hypochlorite 28

- hypogeusia 3
 hypogonadism 3, 11, 173
 hypothermia 179
 hypoxanthine 27(table)
 hypozincaemia 9
- imidazolate 30
 imidazole receptor 28
 immune cell interactions
 copper, effects 161-9
 zinc, effects 161-9
 immune-deficient states 96
 immunocompetence 14
 immunoglobulin M secretion 72
 indomethacin 29(fig.), 94, 119
 inflammatory bowel diseases 83-4
 inflamed synovia 82
 inner-sphere water exchange 51
 insulin 11
 allosteric behaviour 56
 hexamer 56
 integrin α IIb β 3 168
 integrin-ligand interactions 168
 intercellular adhesion molecule
 (ICAM-1) 163-5
 interleukin-1 66, 83, 102, 126
 interleukin-2 83, 96
 interleukin-6 83
 intestinal absorption 69
 intestinal mucosa 8
 intoxications 3
 intracellular compartment 9
 ionic radii for tetraco-ordinate
 complex 49(table)
 isometallothioneins 62
- Jahn-Teller-distorted H₂O ligands 31
 K-562 erythroleukaemia cells 116
 Kayser-Fleischer rings 3
 keratinization 14
 ketoprofen 30, 92
 kidney, cortex 9
- l*-amino acids 12
 L-carnosine 94
l-histidine 12
 laminin 165
 leg ulcers 88
 leguminous proteins 12
Leishmania 165
 Lenthauser 115-16
 leucocytes 8
 leukaemia, acute 114
 leukopaenia 96
 leukotriene(s) 93(table)
 Lewis acid 50
 ligand(s) 7
 field effect 51
 ligases 79
 lipid peroxidation 13, 123
 lipophilic metal complexes 89
 lipopolysaccharide 66, 104
 5-lipoxygenase activity 94
 liver 12-13
 cells 8
 cirrhosis 128
 copper storage and excretion 13
 zinc uptake 8
 lonacoloc 29(fig.)
 Ludemann 1
 Luna fixa Ludemanni 1
 luteinizing hormone-releasing hormone
 secretion 123
 lyases 79
 lymphocyte, phytohaemoagglutinin 14
 lymphoid atrophy 128
 lymphokines 66
 lysosomal exocytosis 13
 lysosomal membrane 123
 lysosomes 12, 67
 lysyl oxidase 22(table), 115, 123, 174,
 181(table)
- malabsorption syndrome 128
 malachite 19
 mammalian tissues, adult 65
 manganese 174
 matrix metalloproteases 51
 matrix metalloproteinases 57
 membrane skeleton protein 10
 Menke's disease 13, 72, 175, 179-85
 biochemical, clinical and genetic
 aspects 179-81
 treatment 182-3
 outcome 183-4
 menopause 173-4
 metabolism, intermediary 47
 metal
 acceptor 68
 binding factor 64
 chelation 52
 detoxification 13, 72
 donor 68
 fume fever 4
 homeostasis 70
 ion-dependent adhesion site 167
 reserves 68
 response elements 63

- metal (*continued*)
 responsive factor 64
 thiolate polypeptides 61
 transcellular factor 64
 transporter 68
 metalloenzymes 48
 metallothioneins 8, 23(table), 61-73, 79
 biosynthesis 61, 63-5
 content 65-7
 cytoprotective role 71
 degradation 67
 hepatic 82
 immune system 71-3
 induction 65-7
 isoforms 62-3
 location 65-7
 role 68-71
 structures 62-3
 tissue specific 62
 translocation 66
 turnover 67
 types 62
 metzincins 53(table), 55(fig.), 57
 Michaelis-Menten kinetics 94
 micronutrients 96
 mitogens 72
 mono-oxygenase, activation 27
 mono-oxygenases, down-regulation 119
 monocytes 71
 monokines 104
 monophenol mono-oxygenase 23(table)
 mRNA MT-3 70
 MTIII-mRNA 69
 mucosal membrane "stabilization" 93(table)
 mucosal protection 86
 mucus production 93(table)
Mycobacterium butyricum 150
Mycobacterium tuberculosis 142
 myelomas 114

N-methyl-D-aspartate receptor 11
 N-terminal copper binding site 26
 NADPH-dependent P-450 reductase 123
 naproxen 91
Naturalis Historia 19
 nervous system 13
 functions 11
 neural signalling process 11
 neurocuprein 23(table)
 neuroendocrine abnormalities 96
 neuroendocrine axis 95
 neurofibrillary tangles 86
 neuronal signals 69
 neurone growth inhibitory activity 70
 neuroprotection 70
 nickel 164
 nicotinamide-dinucleotide redox ratios 38
 niflumic acid 142
 nitric oxide 27, 28, 31-2, 71
 synthesis 156
 nitrite 27
 nitrite reductase 27
 nitro-blue tetrazolium chloride 21
 nitrosyl copper complexes 27
 nitroxybutylesters 29
 nitroxyl anion 32
 NK-cell activity 11
 NMR 47
 non-ceruloplasmin-bound 132
 non-enzymatic Cu proteins 13
 non-essential metals 70
 non-Hodgkin's lymphoma 114
 non-saturable transport 8
 non-steroidal anti-inflammatory drugs 29-30, 66, 87, 126
 NUC-18 103
 nucleic acid(s) 21
 replication 10
 nucleophilic reactions 52
 nucleotides 26

 oesophageal irritation 91
 oesophagitis 85
 oestrogens 11
 opioid peptides 11
 osmotic fragility 10
 osteoarthritis 131
 osteoblastic activity 83
 osteoporosis 83
 postmenopausal 173-6
 bone 173
 diet 174
 osteosarcoma 114
 oxidative dealkylation 27
 oxido-reductases 79
 2-oxoglutarate-dependent hydroxylase 123
 oxygen radicals 71, 132
 oxygen transport 13
 oxyradical production 93(table)

Papyrus Ebers 19
 Paracelsus 1-2
 penicillamine 28
 pepsin 93(table)
 peptide hormones 48
 peptidylglycine mono-oxygenase 22(table)
 peroxidated lipids 10
 peroxynitrite 32(fig.)

- pH-dependent dissociation 94
 phagocytosis 90
 phenylbutazone 119, 142
 phosphate-His-Zn network 52
 phospholipase C 79
 phytate(s) 7, 26, 84-5
 phytomitogens 11
 pilocarpine 70
 pinocytosis 70
 piroxicam 91
 pKa modulation 52
 platelet aggregation 168-9
 defective 11
 Pliny the Elder 19
 Polaprezinc 91
 polyadenylation signal-AATAA 63
 poly(ADP-ribose) polymerase 38
 polyarthritis 142
 polyclonal activators 42
 polymorphonuclear leucocyte(s) 28, 126
 activities, modulation 121-2
 postmenopausal women 173
 postsynaptic effects 11
 Prasad-Halstead syndrome 84
 pre-prothrombincarboxylase 123
 proaccelerin 23(table)
 proenzyme activation 51
 progesterone 11
 prostaglandin 11, 123
 D₂ 86
 E 93(table)
 E₂ 102, 123
 protein folding 51
 protein kinase C 56, 164, 168
 activity 122
 protein metal site 52
 protein-mediated transport 12
 protein-protein interactions 51, 56
 proteoglycan synthesis 83
 psoriatic arthritis 81-2
 Pulm 27(table)
 pulse-radiolytically generated superoxide 21
 PuPhePy 27(table)
 PuPy 27(table)
 putrescine 30, 31(fig.)
 pyridine-2-aldehyde 31(fig.)
 pyrithione 103

 radical oxygen scavengers 66
 ranitidine 91
 reactive oxygen species 28, 144-5
 reduction kinetics 25
 reserpine-induced ulcers 95
 rheumatoid arthritis 28, 85
 albumin levels in plasma 81
 therapy
 copper 128-33
 corticosteroids 131
 zinc 80-2, 88, 125-8
 rhinovirus 97

 sal vitrioli 1
 salicylate(s) 27(table), 29(fig.)
 salicylidine-anthranilic acid Schiff bases 119
 scavenging properties 13
 Schouwink 3
 Schroeder van der Kolk 2
 second messenger system 104
 semen 25
 sexual development, delayed 3
 3d-shell electrons 49
 sickle cell disease 128
 silicon 174
 singlet oxygen 28
 skeletal growth 11
 skin
 desquamation 9
 infections 91
 slow-release trace-metal complexes 89
 smoke bombs 4
 smooth muscle 97
 SOD-mimicking substances 30
 sodium/amino acid co-transport 9
 somatomedin C 11
 spectin 10
 spectroscopic "silence" 47
 spinal cord, myelination 14
 spontaneous dismutation 34(table)
 5-SRNA gene transcription 10
 static magnetic field 67
 steroid
 receptors 12, 79
 thyroid 56
 stress 85
 acute-phase response 66
 conditions 8
 induced gastric lesions 86
 oxidative 71
 sulphhydryl reactivity 93(table)
 superoxide 28, 32(fig.)
 superoxide dismutase 10, 20(fig.), 21, 49, 67,
 79, 114, 131-2, 180
 sweat 9
 synovial fluid 132
 synovial tissue(s) 81-2, 85

 T-cell 10-11
 mediated cytotoxicity 161

- T-helper dysfunction 128
 TAAB 27(table)
 telencephalon 69
 tetrachlorocupratechelates 119
 Theophrastus Bombastus von Hohenheim 1
 thermolysin 53(table), 55(fig.), 56-7
 thiols 10
 thiopronin 131
 thrombin 168
 thrombosis 179
 thrombospondin 165
 thromboxane 123
 B2 86
 thy-1 lymphocytes 83
 thymocytes 103
 thymulin 79
 thymus 96
 atrophy 103
 hormones 11
 tissue pigmentation 14
 tonsillitis 19-20
 total parenteral nutrition 96, 131
 TPEN 103
 trabecular bone mineral density 176
 trace-element metabolism 11
trans-acting factors 63-4
 transcription factors 10, 56
 transcuprein 24
 transcytotic vesicles 8
 transferrin 13
 transmucosal
 flux 9
 transport 8
 triamcinolone 119
 triglycerides 14
 trigonal bipyramid 63
 tubulin polymerization 10
 tumour cells 38
 tumour necrosis factor- α 83, 102
 tymulin 11
 tyrosinase 20(fig.), 180
 tyrosine phosphorylation 102

 undecylenic acid, fungicidal properties 90
 upper gastrointestinal ulceration 85-6
 uracil 27(table)
 UVB irradiation 67

 vascular permeability 90
 verdigris 19-20
 vesicular zinc pools 69
 viral proteins 56
 vitamin(s)
 A 86
 C 84, 86
 D 174
 E 86
 vitronectin 167
 VLA-3 167
 VLA-6 167
 von Willebrand factor 168

 Wilson's disease 3, 13
 wound healing, impaired 3
 wounds 91

 X-linked cutis laxa 181
 X-ray crystallography 47
 X-ray emission nuclear microprobe 81
 X-ray fluorescence spectrophotometry 81
 xanthine/xanthine oxidase system 21
 xanthine oxidase-acetaldehyde system 71

 Z-103 91
 zinc
 acetate 96
 acexamate 91-3
 Alzheimer's disease 87
 aminoacid complexes 95
 antiarthritic activity 102
 antitumour effects 96-7
 antiviral effects 97
 apoptosis 103-4
 as:
 antidote for intoxications 3
 antiepileptic 2-3
 emetic 3
 aspartate 95
 binding proteins 8
 bioinorganic chemistry 48-51
 biological space 47-8
 bound water 52
 brain 86-7
 carnosine 91, 93-4
 challenge test 87
 chelating agents 87
 chloride 90, 95
 cancer induced 4
 cimetidine complex 95
 co-ordinate bonds 50
 co-ordination and function in proteins 51-6
 co-ordination geometry, dynamic 51
 co-ordination polyhedron 56
 compounds
 antiulcer activity, mechanisms 93(table)
 lipid peroxidation 99(table)
 lysosomal enzyme release 98(table)

INDEX

- mast-cell degranulation 98(table)
- mononuclear/cytokine reactions 100-1(tables)
- oxygen consumption 99(table)
- reactive oxygen species 99(table)
- deficiency 96, 128
 - blood cell components 11
 - dietary 10
 - immune function 10
 - primary or subclinical 84-5
 - syndromes 3
 - therapy 80-104
- depletion 8
- diet 127
 - deficient 103
- effect on:
 - HRG binding to T-cells 167-8
 - platelet aggregation 168-9
- elderly population 128
- finger 52
 - transcription factors 63
- glycinate 95
- hepatic 86
- homeostasis 9, 86
- leucocyte 82
- malabsorption 127
- monoglycerolate 89-90, 94-5
- neuromodulation 69
- oxide 1-2, 90-1
 - side effects 4
- physiological properties 7-12
 - absorption 7-9
 - excretion 7-9
 - functional roles 10-12
 - tissue distribution 7-9
 - transport 7-9
- plasma levels 81, 86
- proteases 56-7
 - chemistry 53(table)
- rheumatic disease, treatment 125-8
- selection during evolution 48
- slow release forms 87
- sulphadiazines 91
- sulphate 1, 3, 83, 91
- supplementation 3-4, 96, 128
- surface expression of CD-18, effects 165-7
- therapy
 - gastrointestinal diseases 88-104
 - history 1-4
 - inflammatory disease 88-104
 - rationale 80-7
- topical, arthritis
 - anti-inflammatory 90-1
 - antimicrobial effects 90-1
 - wound healing 90-1
- toxicity 4
- undecylenate 90
- urinary elimination 81
- Zn-Mt-1 67
- Zn(II) oxidation 49