

Index

A

Adrenoceptor antagonists, 6
Alchormeine, 39
Alkylidene malonates, 105
Alkynoates, isomerization, 71, 77
Allenenes, 71, 77, 80, 139
Allenoates, 71, 77, 139
Amides, α,β -unsaturated, 84, 105
Amino acids, 4, 22–25, 65, 75, 86, 132, 146, 158, 159, 169
3-Aminobenzothiadiazine-1,1-dioxide, 72
2-Aminoimidazolines, 1
Aminoindanol core, 130
2-Amino-4-oxoquinazoline, 72
Aminophosphoric acids, 171
2-Amino-4,5,6,7-tetrahydro-1H-1,3-diazepines, 1
2-Amino-1,4,5,6-tetrahydropyrimidines, 1
Aminothiourea/urea, 73
Anthrones, 109, 135
Anticancer activity, 45
Antidepressants, 46, 47
Aryl guanidines, 20, 23
Asymmetric intramolecular oxa-Michael (AIOM), 84
Asymmetric synthesis, 53, 71, 157
Atorvastatin, 71
Aza-Henry reaction, 164
Azlactones, 64, 124, 125, 150

B

Benzimidazoles, 23, 86, 113
Benzophenoneimine glycinates, 104
Benzothiadiazine, 71–77, 82, 86, 89

Benzotriazoles, 17
Bicyclic guanidines, 28, 34, 41, 57, 71, 100, 102, 112, 129–153
Biguanide, 130
Bi(III) salts, 6
Bis-guanidinium, 129
Bis-hydroxyguanidinium, 44
Bis-2-iminoimidazolinidium, 44
Bis-isouronium, 44
Br–I halogen bonding (XB), 153
Brønsted bases, 129, 137
Brønsted-Lewis acid bifunctional activation, 137
Butenolide, 104, 120
3-Butynoates, 78
Butyrolactam, α,β -unsaturated, 103

C

Camptothecin, 167
Carbamodithioic acid, 148
Carbodiimide guanidylation, 12
Carbon nucleophiles, 97
Carbonyls, α,β -unsaturated, 97
Cerulenin, 89
Chalcones, 58, 64, 98, 118, 123–125, 150
Chiba-G, 54, 61
2-Chloro-1,3-dimethylimidazolium chloride (DMC), 54
Chromanes, 71, 84, 117
Cimetidine, 43
Copper coupling, 22
Copper(II) sulphate, 8
Coupling reagents, 10
Crambidine, 38

Cross-coupling, copper-catalysed, 22
Cyanamides, 1, 20, 31, 36
Cyanoguanidines, 19
Cyclizations, 123
Cycloenin, 89
Cyclopentene, 124
Cyclopentenone, 97
Cyclopropenimine, 62

D

Diaziridinimines, 33
Dibenzyl malonates, 97
Diels-Alder reaction, 64, 80, 124, 134, 150
Diethylazodicarboxylate (DEAD), 20
Di-3-ethylpentan-3-yl azodicarboxylate, 145
Dihydrobenzofurans, 84
Dihydroimidazoline, 153
1,3-Dimethyl-4,5-diphenyl-2-(1-hydroxymethyl-2-phenylethyl)iminoimidazolidine (Chiba-G), 54, 61
Dimethyl malonate, 98
Diphenyl 4,4'-bis-guanidinium, 44
Diphenyl phosphite, 123
Diphenyl phosphonate, 171
Dithiomalonates, 98
Dithranol (1,8-hydroxyanthrone), 135
DNA minor groove binders (MGBs), 44

E

Entropy-driven reactions, 157
Epoxidation, 58, 71, 89, 117
Epoxy cyclohexenone, 119
Esters, α,β -unsaturated, 103
1-Ethyl-3-(3-dimethylaminopropyl)carbodiimide (EDCI), 10

F

Famotidine, 43
Fusarin C, 89

G

Guanfacine, 43
Guanidines, 1, 4
 amide catalysts, 63
 amine catalysts, 67
 bicyclic, 28, 34, 41, 57, 71, 100, 102, 112, 129–153
 bifunctional, 53
 binaphthyl-derived, 110

 chiral, 95, 129
 cyano, 19
 cyclic, 27
 functionality, 5
 hydroxide, bifunctional, 53
 synthesis, 5
 tartrate-derived, 60
 trisubstituted, 16
3-Guanidinium-4'-arylguanidinium diaromatic derivatives, 6
Guanidinium nitrate, 24
Guanidinium, resonance forms, 4
Guanidylating agents, *S*-methylisothiourea, 14
 thiourea derivatives, 6
Guanidylation, 6
 carbodiimide, 12
 copper-catalysed, 22
 polymer-supported, 13

H

Henry reaction, aldehydes, 159
 α -keto esters, 162
Heteronucleophiles, 95
Huperzine A, 97
Hydrazination, 71, 75
Hydrogen bonds, 3, 53
 donors, 71
 nonclassical (NCHB), 153

I

Iminoimidazolidines, 34
Isomerization, 71, 139
Isovaleraldehyde, 131
Isoxazolidines, 84–86
Isoxazolines, 84
Itaconimides, cyclic, 137

K

Kinase inhibitors, 1, 6

L

Linorexepin, 168

M

Maleimides, 135
Mannich reaction, 55, 56, 73, 144–146
 phospha-, 150
 type reaction, 65, 66, 158, 172–173

Martinell acid, 15
Metformin, 43
Michael additions, 40, 95–98, 102, 115, 123, 133, 135
Mitsunobu reaction, 19, 30
Monanchorin, 41
Mukaiyama's reagent, 8

N

N-Cyano-*O*-phenylisourea, 19
NF- κ B transcription regulation, 20
N-heterocyclic carbene (NHC), 123
N-hydroxyphthalimide (NHPI), 135
N-iodosuccinimide (NIS), 9
Nitriles, α,β -unsaturated, 109
Nitroalcohols, 159
Nitroaldol reaction, 159
Nitroalkanes, 99–101, 131, 136, 159, 162, 165
Nitroalkenes, 68, 110–115, 123, 171
Nitro compounds, α,β -unsaturated, 110
Nitrogen nucleophiles, 119
Nitroolefins, Michael reaction, 169
 phospha-Michael reaction, 171
Nitrostyrenes, 60, 63, 112–116, 121, 136, 169–174
N-mesityl itaconimide, 137
N-methylmorpholine (NMM), 9
Noradrenaline receptors antagonists, 1, 46
N-pyridinium benzoylguanidines, 6
Nucleic acid bases, 4
Nucleophiles, 97, 116–120

O

Olefins, electrophilic, 95
Organocatalysis, 53, 71, 96, 129, 157
Oxa-Michael addition, 71
2-Oxazolidinone, 142
Oxazolones, 104
Oxindoles, 152
Oxiranecarboxamides, 89
Oxiranecarboxylic acids, 89
(*E*)-4-Oxo-4-arylbutenamides, 142
Oxygen nucleophiles, 116

P

Pentanidine, 130
Pentanidium, 129, 131, 151
Phase-transfer catalysts, 151
Phosphine oxides, 121
Phosphorus nucleophiles, 121

2-Phthalimidoacrylate, 137
p-methoxybenzyl (PMB) guanidine, 24
Propargylguanidines, 35
Propiolamide, 111
2-Pyridinoguanidines, 6
Pyrrolidines, 80, 115, 119, 124, 164, 169
Pyrrolidinylamides, 90
Pyrrolo[3,2-*d*]pyrimidines, 18

Q

Quasi-guanidine bases, cyclopropenimine-type, 61
Quinazolines, 71

R

Ring closure, metal-catalysed, 33

S

Saxitoxin, 40
Selectivity, 96
Sesamol, 112, 174
S-methyl-*N,N'*-bis-Boc-isothiourea, 14
Strecker reaction, 29, 130, 131
Succinimides, 9, 105, 121, 139
Sulphur nucleophiles, 120
Superbases, 28, 61, 96, 130

T

Tetralone, 165
Tetrodotoxin, 38
Thioesters, 84, 98, 133
 α,β -unsaturated, 103, 141
Thiomalonates, 134
Thiourea, 6, 17, 71, 109, 112, 130, 157
TNF- α cytokine, 20
Topoisomerase, 167
1,5,7-Triazabicyclo[4.4.0]dec-5-ene (TBD), 132

U

Urea, 17, 157

Y

Y aromaticity, 4

Z

Zanamivir, 43