

Index

- acetal exchange 126, 136, 154, 160, 293, 316, 566
 acetalisation 59–60, 64
N,N-acetals 98, 369–371, 388
N,O-acetals 96–99, 173–179, 232, 561–568, 626–630
O,O-acetals 5–7, 11, 50–77, 101, 120–160, 285–320, 342, 426–430
 acetamidomethyl 372, 381, 384
 acetate esters 3, 168, 206, 325, 334, 338
 acetate migration 196, 336
 80% acetic acid 595
 acetic acid 5–6, 139–140, 156, 175–176, 190, 196, 200, 208, 216, 265, 269, 315, 318, 341, 343, 461, 529, 564–565, 582
 acetic acid in ether 599
 acetic acid in refluxing 2-propanol 404
 acetic anhydride 156, 238, 298, 323, 497, 559
 acetonides 202
 α -acetoxy 92
p-acetoxybenzyloxycarbonyl (AcOZ) group 518
 acetoxyethyl acetal 156
 acetoxyethyl ether 157
 2-(acetoxyethyl)benzamides 501
N-acetyl neuraminic acid 4, 177, 258, 330
 2-acetyldimedone 606
 acetylene 490
 acetylenes 411
 acid and moisture sensitivity 595
 acidic exchange resin 287
 Acivicin 505, 513
 ACRL toxin IIIb 270
 Actinobolin 548
 Actinoidic Acid 108
 acyl anion equivalents 78, 99, 106
 acyl migration 217, 265, 330, 479
N-acylaminal 536
N-acylaziridine 109
 2-acyl-1,3-dithiane 91, 96, 270
 1-adamantylloxycarbonyl (Adoc) 614
 1,2-additions 32
 adenine 620
 Adenophostin A 481
N-adenylated *S*-methyl-L-cysteine sulfoximine 516
 Agelastatin A 508, 555
 Agrocin 84 477
 AI-77-B 576
 alanine 552
 Albomycin 595
 aldol reaction, directed 26
 alkene 516
 alkenes, terminal 55
O-alkyl nucleophilic scission 399
 alkylammonium formate 467
 alkylation 39, 87, 94, 370
 alkylation, asymmetric 411
S-alkylation 7
 alkyllithium reagents 137
 allene 70
 Allopumiliotoxin 339A 245
 Allosamidin 557
 allyl alcohol 606
 allyl bromide 595
 allyl carbamate 39
 allyl chloroformate 284, 346, 423, 528
 allyl esters 12, 37, 422, 517, 526
 allyl ethers 12–13, 39, 246, 276, 278, 422
 allyl isopropenyl dicarbonate 423
 π -allyl palladium 12, 418, 422, 594–595, 606–607
 allyl phosphates 467
 allyl scavengers 387
 allyl 2,2,2-trichloroacetimidate 423
 allylamines 593–594
 allylic amination 555
 allylic *p*-methoxybenzyl ether 261
 allylic TBS ether 212
 allyloxycarbonyl (Aloc) 345–347, 436, 468, 540, 575, 625
N-allyloxycarbonyl (*N*-Aloc) 37, 39, 419, 524–528
 allyloxycarbonyl group selectively isomerised using Pd or Rh catalysts 278
 allyloxycarbonylaminoethyl 385
 allyltrimethylsilane-trifluoroborane 568
 Alterobactin A 430, 617
 Althoyrtin C 333

- alumina 58, 241
aluminium amalgam 548, 553
Amamistatin A 312
Amberlyst 58, 59, 174, 269, 320
Ambruticin 399
amide hydrolysis 4
amides 16, 510
amidines 620
amination 20
amines 8–9, 14, 586, 597
amines, primary, asymmetric synthesis 584
p-aminobenzyl 20, 341
aminoglycoside antibiotics 559
2-amino-2-methyl-1-propanol 109, 546, 592
ammonia 3, 326, 375, 467, 471, 529, 603, 620
ammonia equivalent *tert*-butyl 2-(trimethylsilyl)ethylsulfonycarbamate 557
ammonia in methanol 336, 625
ammonia in toluene 336
ammonia, liquid 11, 245, 543
ammonium bifluoride 207
ammonium fluoride 171, 206
ammonium formate 9, 242, 516, 530
ammonium hydroxide 171
Amphidinolide L 311
tert-amyl 240
(–)-Ancistrocladine 584
2,5-anhydro-2,5-imino-D-glucitol 573
anisaldehyde 584
anisaldehyde dimethylacetal 150
anisole 367–368, 404, 410, 414, 506, 548, 587
p-anisylloxymethyl 306
anomeric effects 161
anomeric thiol 380
anomerisation 17
anthranilic acid 482
N-9-anthrylsulfonyl 547–548
Antibiotic 593A 514
Antibiotic 1233A 124, 131
Antibiotic X-206 302, 304
Anticapsin 396
Antillatoxin 527
Antrimycin 419
Aphidicolin 90
Aplasmomycin 290
Aplyronine A 212, 306
Aplyronines 321
Apoptolidine 258, 277
D-(+)-arabitol 154
Arachidonic Acid 75
arginine 250, 610, 613, 617–618
arginines, monoprotected 610
Ascomycin 629
asparagine 524, 585
aspartic acid 371, 458, 590
Asperazine 342, 625
Aspergillus niger lipase (ANL) 329
Aspicillin 32, 166
Aspirochlorine 388
atropisomers 107
Avermectins 294, 347
aza-crown ethers 546
Azadirachtin 87, 254
azeotropic distillation 58–59
azides 278, 496
azido groups 411
4-azidobenzoyloxycarbonyl 612
4-azido-1,1,1-trimethoxybutane 332, 607
Azinomycin 586
Azinomycin A 516
aziridine 516
aziridinomitosenone 532
azobis(isobutyronitrile) 370, 560

Baccatin III 176, 566
Bactobolin 554
Bafilomycin A 210
Bafilomycin A₁ 224
Balanol 406
Bao Gong Teng A 570
barbituric acid 12
barium carbonate 79
barium hydroxide 503
barium hydroxide octahydrate 266, 397
barium oxide 266
Bartanol 428
basicity 208
Batrachotoxinin A 63, 86
Baudry's catalyst (Ir(COD)[PMePh₂]₂)PF₆ 276–277
9-BBN 168
benzaldehyde 150, 153, 584
benzaldehyde dimethyl acetal 150, 154
1,2-benzenedimethanol 55
o-benzenedisulfonyl chloride 267
benzeneselenol 64
benzenethiol 234, 265, 304, 367, 458, 464, 548, 553
benzenethiol and triethylamine 458
benzhydrylamines 573

- benzoate esters 3, 57, 147–148, 326, 330, 334, 338, 491, 532
1,3-benzodithiolan-2-yl (BDT) ether 126
1,3-benzodithiolanyl tetrafluoroborate 126
benzoin 14
benzopentathiepine 367
benzophenone dimethyl acetal 160
benzophenone hydrazone 416
benzophenone imine 601
benzoquinone 66
benzostabase 598–599
benzothiazole-2-sulfonyl 553
benzothiazole-2-sulfonyl chloride 552
benzoyl 258, 330–331
N-benzoylphenylisoserine 566
N-benzyl 411, 570–585
benzyl alcohol 522
benzyl 1,2,3-benzotriazole-1-carboxylate 523
benzyl bromide 253
benzyl bromomethyl ether 304
benzyl chloroformate 379, 415, 522, 613
benzyl chloromethyl ether 304
benzyl esters 5, 232, 242, 289, 398, 409–417, 443, 506, 512–513, 528, 530–531, 612
benzyl esters reduced without harm to some Cbz groups or benzyl ethers 515
benzyl ethers 9, 11, 22, 32, 158, 173, 178, 242, 290–291, 300, 411, 481, 506, 512, 572, 588, 601
benzyl hydroxamates 244
benzyl isocyanate 576
benzyl phosphate esters 411, 464
benzyl 2,2,2-trichloroacetimidate 256, 415
N-benzylation 256
2-benzyl-1,3-dithiane 79, 226, 367–369, 373, 505, 575–577, 579, 584, 606
benzylic carbanions, dipole stabilised 579
benzylidenation 154
benzylidene acetals 11, 137–155, 168, 216, 227, 242, 252, 257, 309
 β -benzyloxy aldehydes 32
benzyloxycarbamates 411
benzyloxycarbonates 411
benzyloxycarbonyl (Cbz or Z) 9, 37, 174, 238, 242, 290, 300, 339–341, 506, 512–524, 528, 536, 540, 610–618, 625
(*S*)-2-(benzyloxycarbonylamino)succinic acid 4-methyl ester 103
N-(benzyloxycarbonyloxy)succinimide 523
benzyloxymethyl 6, 258, 563–564, 626–629
benzyloxymethyl (BOM) ethers 61, 301–305, 411, 572
(*R*)-*N*-benzylphenylglycinol 97
benzyltrimethylammonium cyanide 532
benzyltrimethylammonium fluoride 207
Bertyadionol 86
bimolecular nucleophilic substitution 11
(+)-Biotin 369
Biphenomycin 247
Biphenomycin A 514, 564
Birch reduction 141, 245, 303, 414
1,3-bis(diphenylphosphino)propane 66, 282, 594
bis(2-cyanoethyl) *N,N*-diisopropylchlorophosphoramidite 474
bis(ethylthio) acetal 81
bis(9-fluorenylmethyl)-*N,N*-diisopropylphosphoramidite 475
bis(methoxyphenyl)methanol 582
bis(4-methoxyphenyl)methyl 581
bis(2-oxooxazolidin-3-yl)phosphinic chloride 605
3a,3a'-bispyrrolidinoindoline alkaloids 574
bis(2-thienyl)ditelluride 541
Bistratamide D 515
bis(tributyltin) oxide 255, 397, 407, 425
[bis(trifluoroacetoxy)iodo]benzene 84, 91, 161, 163, 500, 598–599, 612–614, 616
1,2-bis(trimethylsilyloxy)ethane 61, 63, 70, 127
bis(trimethylsilyl) sulfate 319
borane 120
borane in THF 145
borane-amine complex 526
borane-diethylamine complex 527
borane-dimethylsulfide complex 143
borane-trimethylamine complex 143, 145
boric acid on silica 270
Boromycin 148
boron trifluoride etherate 408, 415
Brefeldin 320, 418
Brevetoxin 101
Brevetoxin A 81, 141
Breynolide 276
bromine 68, 81
 α -bromo acetal 68, 252, 590
p-bromobenzoate esters 326
p-bromobenzyl ether 21
B-bromocatecholborane 290, 300, 304, 508

- bromodi(isopropylthio)borane 290
bromodimethylborane 21, 54, 76, 124, 216, 265, 291, 299, 309, 508
bromodiphenylborane 299
2-bromoethanol 65
bromoetherification 23
2-bromoethyl ester 432
bromohydrin 23
bromomethyl methyl ether 293
2-bromomethylbenzoate esters 21
N-bromosuccinimide 7, 82, 137, 148, 548
bromotrichloromethane 149
bromotrimethylsilane 166, 288, 367, 460, 462, 513
bromotrimethylsilane in trifluoroacetic acid, containing thioanisole 513
Bryostatin 198, 260, 411
Bryostatin 2 334
Bryostatin 3 419
Buphasasine 526
(*R,R*)-(-)-butane-2,3-diol 67, 103, 154
butane-2,3-dione 165
butanethiol and potassium carbonate in conjunction with magnesium bromide in ether 309
butane-1,2,4-triols 130, 153
3-*O*-butanoyl-*D*-glucose 329–330
(*Z*)-2-butenol 490
butenolides 106
1-(*tert*-butoxy)-1,2-benziodoxol-3(1*H*)-one 251
tert-butoxycarbonyl (Boc) 35, 211, 237, 290, 300, 326, 404, 428, 616
N-tert-butoxycarbonyl 16, 76, 232, 289, 366, 369, 378–379, 382, 385, 424, 436, 506, 510, 538, 540, 552, 557, 606–607, 614, 616–617, 625, 628
2-(*tert*-butoxycarbonyloxyimino)-2-phenylacetonitrile 510
tert-butyl ethers 5, 37, 51, 148, 169, 211, 237–241, 282, 290, 295, 300, 313, 326, 341–342, 366, 368, 373, 376, 378–379, 382, 384–385, 403–404, 407–409, 415, 458, 460, 478, 506–507, 510–512, 528–529, 541, 556–558, 561, 568, 599, 603
tert-butyl mercaptan 380
butylammonium formate 469
butylammonium formate and Pd(0) 468
tert-butylcarbamates 123
tert-butyldimethylsilane 229, 443
tert-butyldimethylsilanol 215
tert-butyldimethylsilyl (TBS) 7, 22, 32, 35, 53–55, 57, 86, 88, 122–124, 140, 147, 158, 166, 168–169, 177, 191–192, 195–198, 199–216, 218–220, 223, 225, 242, 258, 288, 316, 335, 405, 429, 437, 440–444, 460, 465, 499, 506–507, 509, 536, 555, 596–597, 618, 623
tert-butyldimethylsilyl ethers 122, 218, 221, 269–270, 290, 295, 298, 300
tert-butyldimethylsilyl triflate 213, 240
tert-butyldiphenylsilyl (TBDPS) 7, 202, 206, 209, 216–220, 242, 260, 288, 312, 335, 440–444, 458, 595
tert-butyldiphenylsilyl ethers 31–32, 53, 122, 144, 197, 200, 219, 329, 433, 441, 478, 506, 595
tert-butyldiphenylsilylamines 595
2-[(*tert*-butyldiphenylsilyloxy)methyl]benzamides 501
tert-butyllithium 35, 168–169, 199, 579
tert-butylmagnesium chloride 314
tert-butylmethylidene acetals 147
S-(*tert*-butylsulfanyl)cysteine 380, 384
butyrylcholine esterase 19

C NMR spectroscopy 132
cadaverine 606
cadmium carbonate 79, 321
cadmium in DMF–HOAc 431
cadmium–lead couple 540, 541
calcium carbonate 79, 81, 321
calcium in liquid ammonia 271
calcium sulfate 58
Calicheamicin γ_1^I 252
Calicheamicin–Dynemicin 529
Calicheamicin–Esperamicin 25
Calicheamicinone 306
Calicheamicinone γ_1^I 535
Callipeltose 174
Calphostin A 232
Calyculin 31, 260
Calyculin A 205, 224, 465, 473, 476
camphorsulfonic acid (CSA) 53, 58, 126, 150, 163–164, 168, 176, 257, 316, 319, 326, 567
Candida cylindracea lipase (CCL) 329
carbamates 9, 12, 412
carbon disulfide 599
carbonates 12
1,2-carbonyl transposition 92
carbonyldiimidazole 345

- carboxamidomethyl (CAM) 379, 425
N-carboxyanhydrides 585
carboxylate anion 11
carboxylic acids 7, 11, 14, 16
carboxylic esters 57
Carnosidine 489
castanospermine 328
catalyst poisoning 241, 411
catalytic hydrogenation 51, 141, 514, 601
catalytic hydrogenolysis 264, 301, 410, 414
catalytic transfer hydrogenation 411, 572
catalytic transfer hydrogenolysis 302
catechols 158
Cephalosporin C 430
Cephalosporins 416
Cephalotaxine 101
cerebrosides 174
cerium(III) chloride 77
cerium(III) chloride and sodium iodide 283
cerium(III) chloride heptahydrate 54
cerium(III) chloride heptahydrate together with sodium iodide 265
cerium(IV) 84
cerium(IV) ammonium nitrate (CAN) 11, 55, 84, 149, 263, 316, 509, 572, 575, 578–579, 581
cerium(IV) ammonium nitrate absorbed on silica 270
cesium benzenethiolate 399
cesium carbonate 253, 402
cesium carboxylates 402
cesium fluoride 254, 310, 537, 554, 557
Cetirizine hydrochloride 546
Chaenorrhine 607
charge transfer 15
charge transfer complex 134
chelation control 32
chelation-controlled addition 94
chiral acetal 70
chiral ammonia equivalent 592
chiral auxiliary 96
Chlamydocin 64
chloramine T 83
chloride as nucleophile 12
chlorine 81
N-chloro-*p*-toluenesulfonamide, sodium salt 83, 299, 435, 494
 α -chloroacetamide 425
chloroacetate esters 3, 196, 335–338, 475
chloroacetic acid 191
chloroacetyl 233
p-chlorobenzyl ether 21
4-chlorobutanamides 502
2-chlorocarbonylbenzoic acid methyl ester 493
chlorocarbonylsulfonyl chloride 497
chloro-*di-tert*-butylsilane 170
chlorodiethylalane 147
chlorodiethylalane/triethylsilane 153
chloro(diisopropylamino)methoxyphosphine 457
chloro-*di-isopropyl*silane 170
chlorodimethylalane 124, 563
chlorodimethylsulfonium chloride 429
2-chloroethyl acetal 19
chloromethyl methyl ether 292, 307, 563
chloromethyl methyl sulfide 322, 429
chloromethyl 2,2,2-trichloroethyl ether and potassium hydride 564
m-chloroperbenzoic acid 65, 86
4-chlorophenol 507
2-chlorophenyl phosphate 469
N-chlorosuccinimide 82, 84
Chlorotetaine 401
Chlorothricolide 61, 74, 216, 309, 421
chlorotriethylsilane 198
chlorotrimethylsilane 54, 60, 65, 72, 90, 145, 192, 289, 332, 401, 435, 461, 473
2-chlorotriethyl 37
choline esters 17, 19
Chromobacterium viscosum lipase 329
chymotrypsin 330
citric acid 109
Clavalamine 414
Clavicipitic Acid 624
S,S-cleavage 367, 468
cobalt(I) phthalocyanine 432, 541
2,4,6-collidine 82, 322, 324, 341
Concanamycin 397
Concanamycin F 210, 224
conjugate addition 33–34, 39, 65–66, 98–100, 106, 153, 373
Conotoxin G1 384
Conotoxin M1 384
copper(II) 148, 614
copper(II) chloride 88
copper(II) chloride dihydrate 123
copper(II) oxide 88
copper(II) sulfate 58, 126, 269
Coriarin A 158
Cortisone 63
CP-262,114 86

- CP-263,114 292
Crambescidin 59
o-cresol 247, 368, 460
Crinine 526
Crispatine 289
Cristatic acid 311
crotyl ether 281
18-crown-6 100, 218
Cryptophycins 1 and 8 332
cumene 15
Curtius rearrangement 534, 536
cyanide as nucleophile 12
p-cyano ethers 252
cyano group 99
2'-(cyanoethoxy)(*N,N'*-diisopropylamino)-chlorophosphine 471
2-cyanoethyl 375–376, 439, 473–475
Cyclindrocyclophane A 234
cyclisation, asymmetric tandem 70
cyclisation to form a β -lactam 610
[3+2]-cycloaddition on the alkene of the allyl ether function 278
1,4-cyclohexadiene 9, 242, 411, 516, 572
cyclohexane-1,2-dione 164
cis-cyclohexane-1,3,5-triol 103
cyclohexanone 52, 135
cyclohexene 9, 242
cyclohexylidene acetals 126, 133–137, 175, 262
cycloisodityrosine derivatives 395
cyclopentanone 89, 135
cyclopentanones 52
cis-4-cyclopentene-1,3-diol 327
cyclopentylidene acetals 126, 133–137, 272, 281, 336, 408
Cyclophellitol 344
cyclopropanation 67–68, 96, 99
Cyclotheonamide 507
Cyclotheonamide B 250, 614
Cyclotheonamides A and B 490
Cylindrospermopsin 565
cysteine 368–369, 373, 376, 381, 511
L-cystine 380
cytidine-5'-monophosphono-*N*-acetylneuraminic acid (CMP-Neu5Ac) 468
Cytoblastin 627
Cytovaricin 168, 223
- Dactomelynes 142
Damavaricin 418, 537
Damavaricin D 216
Daunomycinone 340
deacetalisation 54
9-deazaguanine 620
decarboxylation 411
dehydration 55, 58–59, 61
cis-9,10-dehydroepothilone D 203
dehydrogenation 84
Deltamethrin 96
Denticulatin 152
6-deoxy-D-gulal 75
7-deoxypancratistatin 287
depurination 17
Dess–Martin periodinane 168
desymmetrisation 153, 166
dethioacetalisation 78
N,N'-dialkyl-*O*-methyl-isoureas 402
diallyl dicarbonate 423, 528
1,16-diamino-4,8,13-triazahexadecane 606
di-(*p*-anisyl)methylene 160, 307
1,4-diazabicyclo[2.2.2]octane (DABCO) 276, 462
1,8-diazabicyclo[5.4.0]undec-7-ene (DBU) 57, 192, 267, 273, 375–376, 437, 439, 473, 481, 529
9-diazafluorene 417
diazomethane 237, 401
Diazonamide 252
1-diazo-2-propene 423
dibenzocyclopentadienide anion 9
dibenzofulvene 9
dibenzosuberyl group 574
dibenzoyl peroxide 323
dibenzyl aspartate 596
dibenzyl dicarbonate 415, 523
dibenzylamine 621
dibenzylformamide dimethylacetal 621
1,2-di-*O*-benzyl-L-threitol 67, 128
1,3-dibenzyl-1,3,5-triazinan-2-one 568, 620
dibenzylurea 569
diborane 283
2,7-dibromo-9-phenylxanthen-9-yl 272, 557
4,4'-di-*tert*-butylbiphenyl 546
4,4'-di-*tert*-butylbiphenylidene 246
dibutylboron triflate 142
di-*tert*-butyldichlorosilane 170
dibutyldichlorostannane 324
di-*tert*-butylmethylsilyl triflate 230, 441
(*R*)-di-*tert*-butylphosphorylglycidol 461
2,6-di-*tert*-butylpyridine 213, 236
di-*tert*-butylsilyl bis(trifluoromethanesulfonate) 170, 233

- di-*tert*-butylsilylene 7, 31, 152, 168, 212, 223–224, 233, 396
dibutyltin oxide 254, 324
dichloroacetate esters 3
2% dichloroacetic acid 479
dichloroacetic acid 205, 587
2,6-dichlorobenzyl ether 250, 616
dichlorobis(triphenylphosphine)palladium(II) 527
2,3-dichloro-5,6-dicyano-1,4-benzoquinone (DDQ) 11, 54–55, 125, 149–150, 152, 168, 172, 176, 212, 250, 258, 271, 283, 305, 572, 575, 579
2,3-dichloro-5,6-dicyano-1,4-benzoquinone coated onto molecular sieves 152
2,3-dichloro-5,6-dicyano-1,4-benzoquinone in aqueous acetonitrile 316
2,3-dichloro-5,6-dicyano-1,4-benzoquinone oxidation 138
dichlorodimethylsilane 289
dichloroethylalane 270
1,3-dichlorotetrabutyl-distannoxane 324
N,N'-dicyclohexyl-*O*-benzylisourea 416
dicyclohexylcarbodiimide 102, 109, 409, 438
dicyclohexylcarbodiimide–DMAP 432, 435
Didemnin 291, 424, 428
Didemnonones A and B 238
dideoxy-L-cladinosine 140
Diels–Alder reaction 99
diethanolamine 568
O,O-diethyl trithiodicarbonate 497
diethyl acetal 72–73
diethylamine 530, 590
diethylisopropylsilyl chloride 225
diethylisopropylsilyl triflate 225
differentially protected chiral ammonia equivalent 571
1,5-dihydro-2,4-benzodioxepine 55
Dihydrocodeinone 574
dihydrodithiazine 96
dihydroerythronolide A 29, 134, 147, 151
4,5-dihydro-2-lithio-5-methyl-1,3,5-dithiazine 96, 319
1,5-dihydro-3-methoxy-2,4-benzodioxepine 55
dihydroxylation 332
1 α ,25-dihydroxy-vitamin D 238
diimide 490
diimide scavenger 490
diiodozinc 247
di-isopropylsilylene 31, 168
diisobutylalane 120, 145, 153, 199, 216, 257, 268, 282, 331, 594
7,20-diisocyanoadociane 64
N,N'-di-isopropyl-*O-tert*-butylisourea 408
diisopropyl acetal 74, 75
N,N-diisopropyl-bis[2-(methylsulfonyl)-ethyl] phosphoramidite 481
diisopropylethylamine (DIPEA) 192, 324, 452, 495, 511, 533, 553, 561, 570
diisopropylsilyl ether 39
dimedone 12, 281, 345, 420, 524
4,5-dimethoxy-2-nitrobenzyloxycarbonyl 520
1,3-dimethoxybenzene 404, 506
3',5'-dimethoxybenzoic acetate 14, 471–472
3,4-dimethoxybenzyl ethers 11, 147, 152, 257–269, 307–308, 572, 577, 580
3,4-dimethoxybenzylidene acetal 147, 152
3,4-dimethoxybenzyloxymethyl (DMBM) 306
(2,4-dimethoxybenzylthio)-4-methylphenyl sulfonate 371
1,1-dimethoxycyclohexane 136
1,1-dimethoxycyclopentane 136
4,4'-dimethoxydiphenylmethyl, *see* bis(4-methoxyphenyl)methyl
2,2-dimethoxypropane 126, 174
dimethoxymethane 157, 293
3,3-dimethoxypentane 130
3,4-dimethoxyphenyl acetals 268
2,2-dimethoxypropane 128, 401
dimethoxytrityl (DMT) 269–271, 461, 479, 481, 560, 586, 589
5'-*O*-dimethoxytritylthymidine 477
5,5-dimethyl-1,3-dioxane 59, 176, 332, 524, 541, 568, 606, 611
dimethyl acetal 19, 29, 36, 72, 74–76, 79, 84, 86, 99
dimethyl *N,N*-diethylphosphoramidite 460
dimethyl disulfide 374
dimethyl sulfate 235
dimethyl sulfide 62, 231, 304, 460, 513, 582
dimethyl sulfoxide 323, 399
dimethylacetamide dimethylacetal 620
dimethylallyl ester 526
dimethylaminomethylene 620
N-(3-dimethylaminopropyl)-*N'*-ethylcarbodiimide 173
4-dimethylaminopyridine (DMAP) 198, 212, 222, 273, 324, 409, 432, 435, 522, 538

- dimethylaminosulfur trifluoride 210
dimethylaminotrimethylsilane 210
dimethylaziridine 109
N,N'-dimethylbarbituric acid 387, 420, 525, 594
dimethyl- β -cyclodextrin 518
dimethyldioxirane 51, 252, 548
dimethylformamide di-*tert*-butyl acetal 409
dimethylformamide dimethyl acetal 620–621
dimethylisopropylsilyl (DMIPS) 224
2,5-dimethylphenacyl esters 16
2,4-dimethylphenylsulfonyl 546
2,2-dimethylpropane-1,3-diol, 58–59
N,N'-dimethylpropylene urea 311
N,N-dimethylsulfamoyl 623
dimethylsulfonium intermediates 321
2,7-dimethylxanthen-9-ylidene 160
2,2'-dinitrodiphenylmethoxycarboyl 522
2,4-dinitrophenylsulfonyl 559
2,4-dinitrophenylsulfonyl 551
1,2-diols 237, 268, 293
1,2- and 1,3-diols 14, 229, 261, 274
1,3-dioxanes 30, 52, 58, 125, 128, 131, 150, 153, 261, 293
1,3-dioxepanes 52–53, 128–129, 296
dioxolanation 61–62
1,3-dioxolanes 26, 29, 32, 52, 56, 58, 61, 73, 94, 97, 120, 125, 128, 131, 139, 145, 150, 153, 261, 298, 318
1,3-dioxolanes, *cis*- and *trans*-fused 131
dioxonium ion 27
1,2-dipalmitoyl-*sn*-glycer-3-yl-D-*myo*-inositol 1-phosphate 317
diphenyl phosphate 482
diphenyl sulfoxide/methyltrichlorosilane 384
diphenyldiazomethane 416
diphenyldichloromethane 160
diphenylmethyl (Dpm) 404, 413, 575
diphenylmethyl esters 414, 513, 601
diphenylmethylamine 573, 601
diphenylmethylamines 573
diphenylmethylene acetals 155, 158
N-diphenylmethylene derivative 600
N-diphenylmethyleneamines 600–601
2,2'-dipyridyl suppressed hydrogenolysis 242, 515
di-(2-pyridyl)thiocarbonate 268, 439
Discodermolide 95, 152–153, 243
Discorhabdin A 369
dissolving metal reduction 92, 138, 158, 264, 369, 512, 576, 589
distearoylphosphatidyl-*myo*-inositol 3,4,5-tris(dihydrogenphosphate) 464
disulfide 380
disulfide, disproportionation 380
dithianemonosulfoxide 87
1,3-dithianes 7, 78–79, 94, 321, 544, 573
1,3-dithianes ethers 241
1,3-dithian-2-yl-methyl 439
1,3-dithian-2-yl-phosphonic acid diethyl ester 105
1,2-dithiine ring 375
dithioacetalisation 92
dithioacetals 77–93, 125, 141, 387–388
dithiocarbonate 372
dithioerythritol 559
1,3-dithiolanes 7, 90
dithionite 559
dithiothreitol 380–381, 496
Ditryptophenaline 312, 574
(S)-(+)-2-dodec-3-en-1-olide 101
Dolastatins 531
Doliculide 211
double bonds 242
double diastereoselection 162
Dowex 58
Dowex 50W 121
Dowex 50WX2 320
Dowex 50WX8 200
Dynemicin A 428, 443, 507
Dynemicins 36, 211
E1_{cb} mechanism 9
Ecteinascidin 369
Ecteinascidin-743 376
Elaiophyllin 224
electric eel cholinesterase 327
electrolysis 547, 606
electron transfer 13
electrophilic aminating agent 511
electrophilic thiolation 370
 α -Eleostearic acid 101
Eleutherobin 194, 326
Elfavirenz 178
 β -elimination 17, 57, 59, 74–75, 86, 89, 208, 437, 473, 529, 532–533
Ellipticine 622
enamide 592
enamine 91

- enediynes 196
Enkephalin 530, 601
enol ethers 12–13, 275, 279
enol silyl ethers 214
enolate formation 208
enones 39, 55
Enopeptin B 441
enzymatic hydrolysis 401, 518
ephedrine 511
Epiantillatoxin 87
epichlorohydrin 609
epidithiapiperazinedione 387
Epothilones 84, 344
Epothilones A and B 228, 250
epoxidation 31, 66
epoxides 31, 66, 136
Epoxysorbicillinol 435
equatorial alkylation 254
6-*epi*-erythromycin 33, 138–139
Erythronolide 320
Erythronolide B 90, 274
esterases 327
esters 9, 11, 16, 242, 395–440
ethane-1,2-diol 58, 60, 62
ethane-1,2-dithiol 78, 105, 167, 270
1,2-ethanedithiol bis(trimethylsilyl) ether
91, 231, 506
ethanesulfanyltrimethylsilane 90
ethanethiol 78, 122, 140, 231, 247–248,
265, 582
ethanolamine in refluxing 2-propanol 334
1,2-ethanolamines 564
ethanolysis without loss of the labile phe-
nolic TES ether 336
ethers 5, 8, 230–285, 412
1-ethoxy-1-ethyl ethers 318
N-ethoxycarbonyl 503–505
N-ethoxycarbonylphthalimide 493
2-ethoxyethyl 104, 204, 562
ethyl carbamate 595
ethyl chloroformate 595
ethyl esters 398
ethyl trifluoroacetate 500
ethyl vinyl ether 318
ethyl-diisopropylammonium hydrazine-
dithiocarbonate 475
1-ethyl-3-[3-dimethylamino)propyl]carbo-
diimide 409, 497
ethylenediamine 336, 411, 491, 515, 627
ethylidene 141, 147
Everinomycin 254
Finkelstein reaction 253
FK-506 24, 197, 221
fluorene 9
9-fluorenyl esters 417
9-fluorenylmethanol 534
9-fluorenylmethoxycarbonyl (Fmoc) 9, 37,
326, 385, 414, 419, 424, 428, 436, 460,
488, 528–535, 540, 590
9-fluorenylmethyl (Fm) 9, 376–378,
439–440, 474–476, 534
fluoride-induced fragmentation 8
fluoroboric acid 237, 256, 331
2-fluoroshikimic acid 156
fluorosilicic acid 202, 221
fluorosilicate 7
fluorotrimethylsilane 7
formaldehyde 156
formaldehyde scavenger 568, 627
formic acid 9, 202, 238, 242, 269, 295, 302,
403, 414, 516, 526
formyl anion equivalent 96
Fostriecin 214, 260, 466
FR-900482 175, 291, 301, 521
FR-901228 373
FR-900848 68, 206, 397
fragmentation reaction 433
Fredericamycin 233
Friedel–Crafts alkylation 240
fructose 573
fucosyl-chitobiose 524
Fulvine 289, 434
Fumagillin 198
Fumiquinazoline G 581, 583
Gabriel reaction 489
Galanthamine 39, 158
Galantin I 602
galbonolide B 139
Garner's aldehyde 173–174
Gelsemine 562
Gilvocarcin 288
Ginkgolide 101
Ginkgolide A 289
Gliotoxins 387
 β -D-Glucopyranosyltuberonic acid 337
glucosaminic acid 401
D-glucose 130, 329
glutamic acid 414, 458, 531
glutamine 585
glycinamide can be added to scavenge the
formaldehyde 303

- glycine 591, 595, 598, 600
glycoconjugate 17
glycopeptides 16
glycophosphopeptides 16
glycosidation 28, 492
O-glycosidic links 17
glycosphingolipid 226
glycosylation 173
O-glycosyl-serine 419, 529
O-glycosyl-threonine 419
glyoxylic acid 84
gramine 625
guanidine 326, 331
guanidine alkaloids 59
guanidinylation 614
guanine 559, 620
guanylation 612
L-gulonolactone 155
- Hainanolidol 76
halogen–metal exchange 99, 598
Hamacanthin B 624
Hapalosin 289
Hemibrevetoxin 141
Hemibrevetoxin B 204
Hennoxazole 212
2,3,4,4',4'',5,6-heptafluorotriphenyl-
methyl 414
12-HETE 101
1,1,1,3,3,3-hexafluoro-2-propanol 271
hexahydropyrrolo[3,2-*c*]quinoline 97
hexamethyldisilane 504
hexamethyldisilazane 192
hexamethyldisiloxane 61
hexamethylphosphoramide (HMPA) 233
D-*threo*-2,5-hexodiulose 573
HF-7 341
Hikizimycin 250
Himastatins 547
Hirudonine Sulfate 611
histidine 622, 628
Hitachimycin 535, 579
HMG CoA reductase inhibitor 70
Hofmann rearrangement 84
homocaldopentamine 607
homocysteine 380
homolysis 13
human serum response factor 17
Huperzine A 504, 576
Hycron 37
hydrazine 4, 273, 326, 338, 464, 490, 606
hydrazine in acetic acid–methanol 336
hydrazine in methanol 625
hydrazinedithiocarbonate 336
hydrazinolysis 489
hydrazoic acid 559
Hydridalactone 101
hydride abstraction 157, 322
hydride transfer 26
hydroboration 332
hydrochloric acid 156, 171, 568, 601
hydrochloric acid, 1M in dioxane 237, 460,
532, 554, 559, 597, 623
hydrochloric acid in THF 559
hydrogen 9, 410
hydrogen abstraction 16
hydrogen bromide 5, 233, 369, 488, 512,
528, 568
hydrogen bromide in acetic acid 237, 546
hydrogen chloride 204, 219, 287, 366, 378
hydrogen chloride in DME at 55 °C 563
hydrogen chloride in ether 559
hydrogen chloride in methanol 568–569,
597
hydrogen chloride in THF 426
hydrogen cyanide 559
hydrogen donor 15
hydrogen fluoride 7, 66, 88, 211, 216, 221,
228, 230, 308, 367, 368, 376, 414, 424,
441, 466, 477, 512, 548, 597
hydrogen fluoride and anisole 555, 617
hydrogen fluoride in acetonitrile 201, 220,
428
hydrogen fluoride•pyridine 197, 205, 216,
220, 224, 229, 464, 597
hydrogen fluoride•triethylamine 216–217,
221
hydrogen iodide 559
hydrogen peroxide 31, 277, 344, 488
hydrogen sulfide 372–373, 559
hydrogenation 611
hydrogenolysis 6, 56, 97, 137–138, 158,
173, 178, 238, 241, 271, 339, 341, 413,
417, 462, 464, 481–482, 515, 517, 520,
530, 540, 563, 573–574, 584, 586, 588,
612, 621
hydrogenolysis of BOM ethers in the pre-
sence of alkenes 302
hydrogenolysis of *p*-nitrobenzyl (PNB) 413
hydrolysis 51, 71, 75, 86, 88, 91, 95, 97,
99–101, 106–107, 121, 158, 175
hydrolysis, basic 498

- hydroperoxide 318
hydroxamic acids 244, 312
 β -hydroxy ketones 54, 94, 106, 170, 523
1-hydroxybenzotriazole 559
hydroxylamines 535
hydroxyl-directed reduction 70
1,1,1-2-hydroxymethyl-2-methyl-propane-
1,3-diol 102, 384, 386
Hygromycin A 61
hypophosphorous acid, 50% aqueous 553
Hypusine 379
- imidate ester 109
imidazoles 192, 198, 212, 222, 229, 621,
625–626, 629
imide 4, 492
iminium salt 97
iminodithiocarbonates 599
Inandenin-12-one 538
indoles 510, 621–622, 624–627
indoline *N*-benzyl groups 574
Indolizomycin 535
inositol-1,4,5-triphosphate 272, 467
Integerrimine 206, 322, 427
intramolecular hydride transfer 145
intramolecular hydrosilylation 170
intramolecular transesterification 3–4, 326
iodine 7, 24, 64, 81, 105, 122, 141, 205,
269, 277, 375–376, 382, 384, 477, 502,
504
iodide, as nucleophile 12
iodine, aqueous 465
iodinolysis 372
9-iodo-9-borabicyclo[3.3.1]nonane 231
p-iodobenzyl ether 21
2-iodoethyl ester 432
iodomethane 87, 107, 233, 235–236, 321,
599
iodomethane in aqueous acetone 427
N-iodosuccinimide (NIS) 29, 165
iodosylbenzene 75
iodotrimethylsilane 5, 54, 192, 231, 233,
238, 247, 264, 283, 289, 296, 319, 413,
458, 504, 509, 514, 563, 573
ion exchange resins 121, 126, 316–317, 320
iron(III) chloride 54, 123, 126, 238, 247,
258, 270, 298
iron(III) chloride adsorbed on silica 317
iron(III) chloride hexahydrate 54, 124
isobutene 239, 407
isocyanate 536
Isolaurallene 250
isomerisation 13, 275–276, 278
isopropenyl ether 126
isopropenyl methyl ether 127
isopropoxytrimethylsilane 63
isopropyl aryl ethers 235
isopropyl ethers 5
isopropyl phosphonate 166
isopropylidene 6, 72, 91, 127, 130,
140–141, 158, 160, 168, 206, 269, 478,
509, 517, 620
isopropylidene acetals 138, 141, 145, 150,
258, 265, 269, 288
- Jesterone 66
Jones oxidation 95, 488
- (–)-K252a 580
K-13 498, 514
KDO 402
ketene dithioacetal 105
 γ -keto acid 97
ketone 261
kinetic control 61, 128
kinetic resolution 328
Koenigs–Knorr glycosidation 27, 489
- L-733,725 629
Lactacystin 176
D-lactal 284
 β -lactams 404, 490, 566, 576, 580–581,
592, 596, 598
lactol 95
lactone 95, 105
lactose 226
Lankacidin 100, 123
Lankacidin C 202
Lanosterol 91
lanthanum(III) chloride 77
Lapidilectine 569
laser flash photolysis 15
Latrunculin 308, 579
Latrunculin B 577
Laulimalide 288
Laurencin 250, 331
lead tetraacetate 488
lead(II) nitrate 590
lead(IV) 83
Leinamycin 261, 438
Lepicidin 534
Lepicidin A 395

- Leucascandrolide A 397
Leuchs anhydrides 585
tert-leucinol 96
Leukotriene B₄ 400
levulinic acid 96
levulinoyl 464, 475
2-[2-(levulinoyloxy)ethyl]benzoyl (PAC_{Lev})
esters 474
linker 37
lipase M 17
lipases 327
Lipid A 465
Lipogrammistatin A 605
lipopeptides 16
Lipstatin 74
lithiation, directed 622–623
6-lithio-3,4-dihydro-2*H*-pyran 161
lithium 11, 51, 141, 158, 245, 303, 372, 546
lithium aluminium hydride 107, 503, 546,
559
lithium aluminium hydride–trichloroalane
142, 145
lithium benzenethiolate 458
lithium borohydride 498, 568
lithium bromide 157
lithium chloride 233
lithium cyanide 464
lithium di-*tert*-butylbiphenylide 303
lithium di-*tert*-butylimidodicarbonate 511
lithium diisopropylamide 30, 137, 176, 568
lithium dimethylcuprate 33
lithium diphenylphosphide 234
lithium ethanethiolate 233
lithium hexamethyldisilazide 100, 162, 465
lithium hydroperoxide 395, 578
lithium hydroxide 212, 331, 395, 499, 539
lithium in ethylamine 576
lithium in liquid ammonia 543
lithium iodide in hot collidine 413
lithium iodide in refluxing collidine 399
lithium iodide in refluxing pyridine 399
lithium *N*-methylanilide 25
lithium [α -methylbenzyl]allylamide 592
lithium (α -methylbenzyl)(3,4-dimethoxy-
benzyl)amide 571
lithium naphthalenide 246
lithium tetrafluoroborate 57, 74, 291, 309
lithium *p*-thiocresolate 233
lithium tri-*sec*-butylborohydride 109
lithium triethylborohydride 342
lithium–halogen exchange 107
Loganin 77
Lonomycin A 227
2,6-lutidine 82, 84, 170, 213, 222, 321, 342,
406
Luzopeptins A–C 530, 555
Lycoricidine 579
lysine 37, 587, 606
Lysobisphosphatidic Acid 478
Lythrancepine 248
Lyxose 136
Macbecin 260
Macbecin I 499
Macrocarpal C 233
macrocyclisation 100
macrolactonisation 134, 433
Macrosphelide A 295
Madumycin II 139, 289, 399
Magellanane alkaloids 332
Magellanine 573
magnesium bromide 88, 316, 318, 428
magnesium bromide etherate 265, 317
magnesium bromide in ether containing
nitromethane 309
magnesium chloride 296
magnesium iodide 232, 296
magnesium metal in methanol 546, 623
magnesium methoxide 326, 331
magnesium sulfate 58, 90
 β -manno glycosides 262
Manumycin 527
Manzamine 545
Manzamine A 557
Martinellines 97
Medetomidine 623
Meisenheimer complex 549
mercaptoacetic acid 550
2-mercaptobenzoic acid 593
2-mercaptobenzothiazole and DIPEA in
N-methylpyrrolidinone 458
mercaptoethanol 367, 382, 471, 496, 550,
559, 605
mercaptoethanol and DBU 605
2-mercaptoethylamine 336
3-mercaptopropionitrile 375
2-mercaptopyridine 496
mercury(I) 93
mercury(II) 7, 93–94, 96, 104, 106, 275,
367, 372, 382
mercury(II) acetate 300
mercury(II) chloride 79, 276, 320, 616

- mercury(II) oxide 79–80, 276
mercury(II) perchlorate 81, 322
mercury(II) trifluoroacetate 369, 371
mesitylenesulfonamide 548
mesitylmethylene acetals 137–139
meso trick 400
metal hydride 624
metallated cyanohydrins 100
metallation 35, 93, 107, 625
metallation, directed 598
metallation, heteroatom-assisted 35
methanesulfonic acid 226, 233, 249, 380, 506, 512
methanol 191
methanolysis using potassium carbonate 344
methionine 233, 525
p-methoxybenzaldehyde dimethylacetal 176, 258, 387
p-methoxybenzenesulfonamide 545
p-methoxybenzoate 149, 330
p-methoxybenzyl (PMB) 88, 257–269, 368–371, 465–467, 577–585
p-methoxybenzyl ethers 11, 22, 24, 26, 55, 123, 130, 133, 144–145, 153, 175–176, 242–243, 260, 265–268, 290, 305, 307, 368, 404, 410–411, 413, 416, 465, 517, 536, 544, 549, 577, 584
p-methoxybenzyl mercaptan 369
4-methoxybenzylamine 267
p-methoxybenzylidene acetals 134, 137–138, 149–150, 387, 566
4-methoxybenzyloxycarbonyl 517
N-methoxycarbonyl 505
2-(2-methoxyethoxy)ethyl (MEE) esters 17
2-methoxyethoxymethyl chloride 300
2-methoxyethoxymethyl (MEM) 6, 34, 242, 295–301, 426–430
 α -methoxyhydroperoxide 74
methoxymethyl (MOM) 6, 16, 32, 216, 242, 258, 294, 309, 316, 557, 562, 565
methoxymethyl ester 426–430
methoxymethyl ethers 156–157, 285–295, 508, 579
2-(*p*-methoxyphenyl)-1,3-oxazolidine 176, 212, 268, 274
p-methoxyphenylethylene acetal 55
2-methoxypropene 126–128, 130, 318
4-methoxytetrahydropyran-4-yl ethers 317
4-methoxy-2,3,6-trimethylphenylsulfonyl (Mtr) 617–618
methoxytrimethylsilane 77
 α -methoxyvinyl lithium 298
methyl benzyl *N,N*-diisopropylphosphoramide 463
methyl carbonate 399
methyl dihydroquinone 166
methyl dithiocarbamate 599
methyl esters 395–403
methyl ethers 5, 27, 230–237, 573
methyl β -hydroxypropionate 438
methyl α -D-mannopyranoside 164–165
methyl methanethiosulfonate 92
methyl orthoformate 55, 165
methyl phosphates 457–460, 464
methyl trifluoromethanesulfonate 87, 235–236
methylamidine group 620
(+)-*O*-Methylancistrocline 107
N-methylaniline 38, 419
N-methylation 107, 321
p-methylbenzyl 368
p-methylbenzylsulfonyl group 548, 554
2-methyl-2-butene 269
2-(methyl diphenylsilyl)ethyl (DPSME) group 478
methylene acetals 289
methylhydrazine 490
6-methyl-1-indanone 16, 31, 60, 102, 192, 240, 401, 458, 501, 552, 583
methylmagnesium iodide 234
N-methylmorpholine 277, 332
methylnitropiperonyloxycarbonyl 522
methylrhodium trioxide 344
2-(methylsulfonyl)ethyl esters 437
2-(methylsulfonyl)ethyl phosphates 480–481
methylsulfonylmethyl esters 427
(methylthio)dimethylsulfonium tetrafluoroborate 374
methylthiomethyl (MTM) 7
methylthiomethyl esters 427
methylthiomethyl ethers 34, 94, 241
Methynolide 309
Micacocidin 369
migration 3, 68, 206, 214–216, 247, 324, 338
migration of double bond 63
Milbemycin D 309
Milbemycins 54, 274
Mirabazole C 369
Mitsunobu reaction 215, 257, 433, 549–550, 557–558, 603

- mixed carboxylic–carbonic anhydrides 423
Miyakolide 411
Moenomycin 482
molecular oxygen 579
molecular sieves 58, 60, 126, 128–129, 208
Monensin 148, 275, 310
mono- and di-allylamines 593
Monocrotalic Acid 215
Monocrotaline 157
monomethoxytrityl (MMT) 270, 586–587
(+)-Monomorine 97
Montmorillonite clay 126, 316
MoOPh 579
morphine 544
morpholine 9, 12, 281, 419, 529
Motuporin 260, 424
Muamvatin 170
Mucin-type glycopeptides 37
Mucor miehei lipase 330, 518
Mucor javanicus 17
Muricatetrocin 167
Muscaflavines 532
Muscone 100
Mycalamide B 157, 293, 536
Mycalamides 563
Mycinolide 420
Mycobactin S 312
Mycotrienol 72, 220
Myxovirescin A1 217
- N1999-A2 196, 336
naphthyl ether 612
2-naphthylmethyl 244, 251–252, 412, 520
2-naphthylmethylene (NAP) acetals 142
Naproxen 68
Narciclasin 579
Nargenicin 108
Nazarov cyclisation 226
neighbouring group participation 489, 492, 501
Neocarzinostatin 73
Nephilatoxin-9 606
Nephritogenoside 345
Nephrosteranic Acid 106
nickel(0)-catalysed hydroalumination–
elimination 282
nickel(II) chloride (dppb) and lithium
triethylborohydride 282
Nicotianamine 343
Nisamycin 72
nitrile 99, 103
nitro group cleaved by transfer hydrogeno-
lysis 612
nitro groups 242, 341, 369, 411, 559
N^ω-nitroarginines 611
4-nitrobenzaldoxime 470
2-nitrobenzenesulfenyl 469, 560–561
2-nitrobenzenesulfenyl chloride 367
2-nitrobenzenesulfonamides 550, 605
2-nitrobenzenesulfonyl chloride 550
2-nitrobenzyl 14, 252, 341, 413, 582–583
2-nitrobenzylidene acetals 14
p-nitrobenzyloxycarbonyl (PNZ) 340–341,
516–517
p-nitrocinnamyloxycarbonyl (Noc) 528
nitroimidazole–polyamine conjugates 608
2-(4-nitrophenyl)ethyl (NPE) 481, 522
o-nitrophenylacetamide 501
p-nitrophenyldiazomethane 416
2-nitrophenylsulfenyl chloride 382,
559–561
2- and 4-nitrophenylsulfonyl (Ns)
548–552, 604–605
2-nitrosobenzaldehyde 14
nitroveratryl 619
2-nitroveratryloxycarbonyl 520
Nocardicin acid 490
NodRf-III 208, 492
NodRm-IV factors 200
Nogalamycin 281, 283, 288
5-norbornene-2,3-dicarboximido chloroformate 523
Norrish type II process 14
nucleopeptides 17
nucleophilic cleavage 464
nucleophilic cleavage of the *N*-sulfonylazir-
idine 557
nucleophilic demethylation 36
nucleophilic dithioacetalisation 92
nucleophilic scavenger 420, 467
nucleophilic substitution 106, 398
nucleophilic thioacetalisation 91
Nummularine F 514
- Obafluorin 559
Obtusenyne 257
OF 4949 III 432
Okadaic Acid 246
Oleandolide 141, 152, 221
olefins 411
Oligomycin C 30
Olivomycin A 281, 303, 336

- Omapatrilat 380
orange peel acetyl esterase 518
organocuprates 35
ornithine 610, 612, 614
orthoester formation 28
orthoesters 100–107, 109, 294, 332
osmium tetroxide 13, 126, 277, 332, 488, 592
Ovatolide 627
oxalic acid 73
1,3-oxathianes 93
1,3-oxazinanes 566
oxazole 532
oxazolidine 175
oxazolidinone 563
oxazoline 177
oxazolinium salt 109
oxetane 102
oxidation 65, 81, 375
oxidation of allylic amine function to give ketone 260
oxidative cleavage 7, 148–149, 251, 580
oxidative coupling 39
oxidative cyclisation 152–153
oxidative deprotection 382
oxidative dethioacetalisation 84
oxidative hydrolysis 81, 86, 260, 277
oxidative ring contraction 75
oxindole 562
oxiranes 54
oxonium ion 5, 11, 29, 81
(*R*)-4-oxo-5-phosphononorvaline 458
oxytocin 368
ozone 13, 51, 137, 168, 488
ozonolysed to very labile formate ester 279
ozonolytic cleavage 147
- Paenoflorin 194
palladium 9, 11, 38, 241, 276
palladium-catalysed extrusion of CO₂ from allyloxycarbonyl 284, 418
palladium-catalysed hydrogenolysis 568
palladium hydroxide 241, 621
palladium on carbon 410, 594
palladium supported on barium sulfate 244
palladium(0) catalysed allylation of an amine 595
palladium(0) catalysis 467, 594
palladium(0) catalysts 12, 281, 345–347, 524, 593
palladium(II) 148
palladium(II) acetate 66, 420, 526
palladium(II) acetate and triethylamine in the presence of triethylsilane 412
palladium(II) chloride(MeCN)₂ 54
palladium(II) chloride, Ph₃P and ammonium formate in dioxane 418
1-*O*-palmitoyl-3-*O*-phosphophoryl-*sn*-glycerol 461
Pancratistatin 545
Paniculide 287
papain 17
Papulacandin 210
Papulacandin D 169, 396
Paraherquamide A 508
Park nucleotide 437, 499
Pateamine 541
Pearlman's catalyst 302, 570
Pederin 433
penem allyl ester 421
penicillin G acylase 19, 385, 518
pent-4-enoic anhydride 502
N-pent-4-enoyl 502
pentachlorophenylsulfenyl 559
pentadienyl anion 11
N-pentafluorophenyl-*N*-allyloxycarbonylaminomethyl sulfonium tetrafluoroborate 387
pentafluorophenyl (Pfp) esters 496
pentafluorophenyl diphenylphosphinate 618
2,2,5,7,8-pentamethylchroman-6-ylsulfonyl 617
2,2,4,6,7-pentamethyldihydrobenzofuran-5-ylsulfonyl 617
1,2,2,6,6-pentamethylpiperidine 324
(*S,S*)-(+)-pentane-2,4-diol 66
2,4-pentanedione 482
3-pentanone 130
n-pentenyl glycosides 28
4-pentenylmagnesium bromide 97
Peptide T 326
perchloric acid 129, 408
Perhydrohistrionicotoxin 61
periodic acid 86
Periplanone B 65, 100
PGD₂ 89
PGE₁ derivatives 421
phase transfer catalysis 236, 560, 600
phenacyl 14
phenacyl bromide 425

- phenacyl derivatives 15
(*S*)-phenethylamine 584
phenol 379, 506
phenolate anion 11
phenolic benzyl ethers 411, 530
phenolic *tert*-butyl carbonate 342
phenolic chloroacetate 336
phenols 210, 240, 242
phenols as their Boc derivatives 342
phenoxyacetates 333
phenoxythiocarbonyl chloride 372
S-phenylacetamidomethyl 384
4-(phenylacetoxy)benzyloxycarbonyl 19, 518
L-phenylalanine, *N*-Boc 16, 510, 552
2-phenylbenzofuran 14
p-phenylbenzyl ethers 244, 247
phenyldiazomethane 256
phenyldimethylsilane 229
phenylenediamine 336
2-phenylethoxycarbonyl group 530
9-phenylfluoren-9-yl (PhFl) 414–415, 587–591
(*R*)-(-)-phenylglycinol 97
phenylglycine 552
phenylsilane 387, 526
4-(phenylsulfonyl)methyl-1,3-dioxolane 57, 437, 529–530, 532, 622–623
2-(phenylthio)ethyl acetal 19, 549
phenylthiolate as nucleophile 12
phenylthiotrimethylsilane 95, 247
2-phenyl-2-(trimethylsilyl)ethyl (PTSME) 436, 538
9-(9-phenyl)xanthenyl ethers 272
Philanthotoxin-433 606
Phorboxazole 258
Phorboxazole A 218
phosgene 522–523, 538
phosphate methyl esters 457–460, 464
phosphines 384
N-phosphinoyl 608
phosphodiester 453
phosphoramidite approach 453
phosphoranylideneamine 21
phosphoric acid 239
phosphorus oxychloride 319
phosphorus pentoxide 157, 293
phosphotyrosines 459
photochemical bromination 251
photocleavage 13, 520
photocyclisation 13
photodeprotection 252, 425, 521, 583
photolysis 583, 619
photooxygenation 13
photorelease 472
phthalic anhydride 493
phthalide orthoester 21
phthalimides 4, 563, 606
Phyllanthoside 279
Phyllanthostatin 196
Phyllanthostatin I 336
Picrotoxane 305
Picrotoxinin 23
pig liver esterase 327
pig pancreatic lipase 327, 329
Pillaromycinone 168
Pinner reaction 103
piperidine 9, 376, 439, 488, 529, 625
piperidinethiocarboxamide 501
pivalaldehyde 176
pivalate esters 3, 28, 227
pivaloyl chloride 324
pivaloyloxymethyl (Pom) esters 407, 620
Plakorin 318
plasmogens 264
platelet-activating factor (PAF) 280
platinum 241, 413
Pleuromutilin 287
polyamines 602
Polycavernoside A 250
polystyrene resins 37
porcine pancreatic lipase 401
potassium *tert*-butoxide 13, 240, 408, 533, 563
potassium *tert*-butoxide in DMSO 275
potassium carbonate 3–4, 234, 326, 331, 439, 550
potassium carbonate in aqueous methanol 498
potassium carbonate in methanol 190
potassium carbonate in methanol or HOAc–H₂O–THF 441
potassium carbonate in refluxing aqueous methanol 622
potassium carboxylate 467
potassium cyanide 326, 337
potassium fluoride dihydrate 536
potassium fluoride in DMSO 345
potassium fluoride on alumina 211
potassium fluoride trihydrate 208
potassium fluoride-impregnated alumina 284
potassium hexamethyldisilazide 153

- potassium hydride 253
10% potassium hydroxide 218, 526, 595
potassium hydroxide 92, 503
potassium iodide 518
potassium peroxydisulfate 580
potassium phenoxide 552
potassium thioacetate 387
potassium trimethylsilanolate 396
proline 552, 567
propane-1,3-diol 58
propane-1,3-dithiol 78, 105, 177, 496
propane-1,2,3-triols 131, 153
1,3-propanolamines 564
propargylic epoxides 123
propargylsilane 70
propenyl acetate 327
propenyl ether 465
(*Z*)-1-propenyl ether 275–276
(*R,R*)-4-propyl-9-hydroxynaphthoxazine 233
1,3-propylene bis(*p*-toluenethiolsulfonate) 91
propylidene 216
Prostaglandin D 201
Prostaglandin D₂ 101
Prostaglandin E₁ 101
protease 406
protection of a ketone in the presence of an aldehyde 62
Protolichesterenic Acid 106
(1*S*,2*S*)-(+)-pseudoephedrine 98
Pseudomonas cepacia lipase 327
Pseudomonic acid 148
(*R*)-(+)-Pulegone 94
Pumiliotoxin 74
Pummerer rearrangement 87
Pyrenolide D 75
Pyrenophorol 318
pyridine 171, 192, 243
pyridine, aqueous 336, 469
pyridine-2-aldoxime 470
2,6-pyridinedicarboxylic acid *N*-oxide 306
pyridine-2-sulfonamides 606
pyridine-2-sulfonyl 606
pyridinium hydrobromide perbromide 68
pyridinium *p*-toluenesulfonate 6, 52, 57, 58, 72, 77, 86, 102, 121, 126–127, 150, 153, 168, 191, 197, 200, 208, 216, 269, 296, 314, 316, 318–319, 441
pyridinium *p*-toluenesulfonate in refluxing ethanol 308
pyrophosphoryl *myo*-inositol pentaphosphates 463
pyrroles 621, 623, 625–626
pyrrolidine 491, 552, 573
o-pyrrolidinocarbonylbenzamide 491

Quinocarin 123
quinone 376

Radiosumin 397
Raney nickel 11, 241, 243, 303, 411, 584
Rapamycin 84, 195, 346, 399
rearrangement 12
reduction 490
reduction of the azide 612
reduction of the azido group with dithiothreitol 612
reductive alkylation 584
reductive *S*-alkylation 371
reductive amination 39, 97, 573–574, 586
reductive cleavage 97, 120, 137, 141–142, 145, 147, 153, 175, 227, 281, 294, 346, 367, 372, 431–432, 482, 491–492, 516, 543, 546
reductive cleavage to the corresponding methyl ethers with borane 306
reductive elimination 418, 481, 540
reductive fragmentation 24
relay deprotection 275, 322, 332, 341, 382, 439, 501
resolving agent 162
Retigeranic acid 101
retroaldolisation 61, 208
Rhizobitoxine 512
Rhizopus javanicus lipase 330
Rhizoxin 105, 260
Rhizoxin D 309
rhodium 241
rhodium(I)-catalysed isomerisation 13, 528
Ribasine 590
Rifamycin 148
ring closing metathesis 31
Rishirilide B 434
Ro32-3555 410
Routiennocin 627
(–)-Roxaticin 126, 158
Rutamycin B 30
ruthenium catalysis 279, 418

S_E2' reaction 30
S_N2 reaction 373, 402

- S_N2' reaction 65
 S_NAr reaction 107–108
Salicylilalamide 31
Salinomycin 105, 170, 197
samarium(II) iodide 344, 432, 606
samarium(III) chloride 54
(–)-Sandramycin 556
Sanglifehrin 342
Sanglifehrin A 23
Sanjonine G 570
Sarain A 577
Sarcodictyin 197
Sarcophytol-A 100
Saxitoxin 573
scandium triflate 77, 324
scavengers 250, 265, 367–368, 371, 379, 404, 414–415, 460, 506
(–)-Schizandrin 108
Scytophycin C 170
selenium 431
selenium dioxide 226, 277
selenoxide elimination 64
self-regeneration of stereocentres 567
serine 17, 102, 173, 238–239, 326, 406, 461, 556, 601
serine phosphate 518
Sesbanimide 147, 156
Sharpless asymmetric dihydroxylation 55
Shikimic Acid 157, 274
Silphenene 226
silver(I) 7, 104, 372, 382
silver(I) nitrate 81–82, 84, 219, 321–322, 561
silver(I) oxide 81, 236, 253
silver(I) perchlorate 81, 103, 502
silver(I) tetrafluoroborate 375
silver(I) triflate 268, 294
silver(I)-assisted solvolysis 68
silver(I)-assisted hydrolysis 81
silver(I)-assisted oxidative hydrolysis 92
silver(I)-assisted silylation 215
silver(I)-mediated cleavage 93
silyl ester 590
1,2-silyl migration 122, 226
silylamines 595
N-silylpyridinium triflates 194
Simmons-Smith reaction 67–68
Sinensal 73
single electron transfer 11
sodium 11, 51, 141, 245, 264, 303, 367
sodium amalgam 543, 564, 623
sodium anthracenide 544, 546
sodium bis(2-methoxyethoxy)aluminium hydride 96, 174, 503, 546
sodium borohydride 178, 281–282, 384, 432, 488, 491–492, 496, 498, 526–527, 559, 584
sodium bromate 251
sodium carbonate 595
sodium carbonate in methanol 333
sodium chloride 232
sodium chloride in refluxing wet DMF 399
sodium cyanoborohydride 142, 144–145, 573, 584
sodium dithionite 553
sodium ethanethiolate 36, 233
sodium hexamethyldisilazide 536
sodium hydride 166, 253, 532, 568
sodium hydrogencarbonate in aqueous DMF 425
sodium hydrogencarbonate in methanol 191, 337
sodium hydrogensulfate 101–102
sodium hydrogensulfite 557
sodium hydrogensulfite in refluxing aqueous ethanol 553
sodium hydrosulfide 518
sodium hydrosulfite 414
sodium hydroxide 100, 171, 218
sodium in liquid ammonia 271, 546, 559, 574, 576
sodium iodide 54, 231, 595
sodium iodide in acetone 458
sodium methoxide in methanol 625
sodium naphthalenide 367
sodium in liquid ammonia 543
sodium periodate 592
sodium salt of 2-ethylhexanoate 418
sodium sulfide 414
sodium telluride 431
sodium 2-thiophenethylthiolate 541
sodium *p*-toluenesulfinate 422
sodium triphenylmethylthiolate 372
sodium/anthracene 498
solvolysis 13, 16, 68
solvomercuration 80
Somatostatin 499
Somatostatin inhibitor 37
D-sorbitol 156
(–)-Sparteine 35
(–)-Spergualin 612
spermidine 602

- Spermine 602, 611
D-erythro-sphingomyelin 457
D-erythro-sphingosine 174, 473, 576
sphingosines 601
spider neurotoxins 602
spider toxin HO-416b 605
spiroacetal 88
spirocyclic *O,S,S*-orthoesters 105
spiroindolone 563
Spirotryphostin 399
(-)-Spirotryprostatin B 563
Sporidesmins 387
STABASE 597–599
stannoxane 251
stannylene 254, 274, 284
stannylene activation 293
Staurosporine 258, 563, 627
D-erythro-2-*N*-stearoylsphingosine 457
Steglich esterification 432
Stigmastellin A 263
Streptazolin 248
Streptothricin 589
Strychnine 65, 222, 499, 545, 568
subtilisin 328
sulfilimine 83
sulfites 559
sulfone 20
sulfone, α,β -unsaturated 34, 60, 62–63, 65
sulfoxonium ylide 376
sulfur monochloride 367
sulfur tetrafluoride 210
sulfuric acid 126, 129, 136, 239, 506
Surugatoxin 437
Suspensolide 106
Swern reagent 376
Swinholide 170, 397
- TA-949 207, 420
Tabersonine 552
(*Z,E*)-Taiwanin 426
TAN-1057A 617
TAN-1251C 53
tartaric acid 68
tartrate acetals 68
TAS-F 218, 224, 537
Tautomycin 79, 152, 224, 226, 306, 405
Taxol 26, 90, 99, 148, 169–170, 176, 210, 318, 334, 551, 566
Taxusin 298
Teichoplanin 214, 231, 499, 537, 540
Teleocidin 623
- temporary protection 99, 590, 597, 614, 625
Terramycin 287
tertiary alcohols 54, 253
tertiary allylic alcohol 55, 72
tertiary amines 171
2,3,5,6-tetra-*O*-acetyl-D-glucofuranose 478
tetrabenzyl diphosphate 465
tetra-*tert*-butoxydisiloxane-1,3-diyl 171
tetrabutylammonium bromide 289
tetrabutylammonium chloride 536
tetrabutylammonium chloride and potassium fluoride dihydrate in DMF 433
tetrabutylammonium fluoride (TBAF) 7, 99, 169, 171, 173, 193, 196, 207, 215, 217–218, 220, 311, 314, 374–375, 414, 433, 437, 439, 458, 477, 529, 534–535, 554, 556–557, 563, 568, 597, 627
tetrabutylammonium fluoride buffered with acetic acid 224, 479
tetrabutylammonium fluoride in THF-buffered with ammonium chloride 198
tetrabutylammonium fluoride trihydrate 326
tetrabutylammonium hydroxide 332
tetrabutylammonium iodide 95, 253, 304, 314
tetrabutylammonium salt 7
tetrachlorophthalic anhydride 491
tetraethylammonium fluoride 310
1,1,3,3-tetraethyl-1,3-disilaisindolines 599
tetrafluoroboric acid 367
N-[2,3,5,6-tetrafluoro-4-(*N'*-piperidino)-phenyl]-*N*-allyloxycarbonylamino-methyl 386
tetrafluorosilane 204
tetrahydrofuran, aqueous 225
tetrahydrofurans, synthesis 149
tetrahydrofuran-2-yl 629–630
1,2,3,4-tetrahydro-1-naphthyl esters 413
tetrahydro-1,3-oxazine 566
Tetrahydropseudodistomin 568
tetrahydropyran-2-yl 6, 33, 37, 57, 104, 133, 202, 204, 216, 242, 258, 288, 335, 379, 428, 441, 508
1,1,3,3-tetraisopropylidisiloxane-1,3-diyl 7, 284
tetrakis(triphenylphosphine)palladium(0) 345, 347, 526
2,2,3,3-tetramethoxybutane 165
1,1,2,2-tetramethoxycyclohexane 164

- tetramethylammonium acetate in HMPA 399
N,N,N,N'-tetramethyl-1,2-ethylenediamine (TMEDA) 169, 347, 597–598
1,1,3,3-tetramethylguanidine 222, 272, 469
tetramethylguanidinium azide 21
Tetraonerines 550
1*H*-tetrazole 458, 621
Tetrazomine 592
Tetronasin 124
thallium(III) 83, 367
thallium(III) trifluoroacetate 382
Thermitase 406
thermodynamic control 61, 128
thermolysis 625
thermopentamine 606
thexyldimethylsilyl chloride 227
Thiangazole 378
Thiarubrine C 375
Thielocin A₁ 431
Thienamycin 107, 148, 413, 596
thioacetalisation 90
thioacetamide 559
thioacetates 21
thioanisole 247, 250, 295, 367, 404, 414, 460, 506, 513, 580, 616, 618
Thiocoraline 382
p-thiocresol 368, 559
thioethers 241, 366–377
thioglycolic acid 367, 559
thioglycosidation 370
thiol esters 3
(*S*)-thiolactic acid 373
thiolane 5
thiolate anions 400
thiols 39, 89, 365–392, 548
thonium ion 26
thiono–thiolo rearrangement 479
thionyl chloride 109, 488, 558
thiophenols 289, 496, 506, 559
thiosulfate 559
thiourea 336, 501, 559
Thorpe–Ingold effect 58
threonine 17, 37, 174, 238–239
Thromboxane A₂ 397
thymidine 322
thymine 559
tin(II) chloride 127, 237
tin(II) chloride dihydrate 265
tin(II) triflate 267
tin(IV) chloride 32, 136, 170, 247, 265, 296
Tirandamycic Acid 300
Tirandamycin 202
Tirandamycin B 580
titanacyclopropane 282
titanium(IV) chloride 70, 75, 91, 97, 142, 168, 238, 298, 511
titanium(IV) isopropoxide 282
p-toluenesulfinic acid 422
p-toluenesulfonamides 544, 546, 617, 624
p-toluenesulfonate esters 57, 86
p-toluenesulfonic acid monohydrate (PTSA) 53, 58, 62, 77, 122, 126, 128–130, 150, 157, 171, 177, 216, 220, 224–225, 239, 319, 326, 403, 538, 553, 557, 559, 567
p-toluenesulfonyl (tosyl) 258, 369, 498, 533
Tolyporphyrin A 248
torsional deactivation 164
2-tosylethoxycarbonyl 532
2-tosylethyl esters 437
transacetalisation 52–53, 55, 60, 84, 140, 177
transacylation 21
transesterification 327, 332
1,5-transfer of hydrogen 14
transfer catalytic conditions 530
transfer catalytic hydrogenation 9, 242, 516
transprotection 79, 84, 86, 90–91, 491, 505, 550, 555, 595, 606
2-(trialkylsilyl)ethyl phosphorothioates 479
trialkylsulfonium salts 87
1,2,4-triazole 621
2',3',5'-tri-*O*-benzoyladenine 478
tribromoalane 231, 582
tribromoborane 5, 27, 231, 248
tributylphosphine 369, 374, 384, 469
tributylstannane 281, 370, 386, 467, 526–527, 559–560
tributylstannyl esters 407
tributylstannyl ethers 255
tributylstannyl thiolate 370
trichloroacetate esters 3
trichloroacetic acid 74
trichloroacetimidate 240
trichloroacetonitrile 240, 284, 408
trichloroalane 91, 126, 143, 230–232, 235, 414
trichloroalane–*N,N*-dimethylaniline 428
2,4,6-trichlorobenzoyl chloride 409, 438

- trichloroborane 5, 230, 235, 247, 289, 304, 313, 388, 505, 514
trichloroborane•dimethylsulfide 248, 265
2,2,2-trichloro-*tert*-butoxycarbonyl (Tcboc) 607
2,2,2-trichloro-1,1-dimethylethyl (TCB) 481–482
2,2,2-trichloroethanol 432
2,2,2-trichloroethoxycarbonyl (Troc) 9, 175, 343–344, 428, 540–542, 575, 607
2,2,2-trichloroethoxymethyl 564
2,2,2-trichloroethoxymethyl ethers 9
trichloroethyl acetate 327
2,2,2-trichloroethyl carbonates 9, 326, 343, 542, 575
2,2,2-trichloroethyl esters 8, 382
Tricolorin A 149
Trienomycin A 564
triethyl orthoformate 135
triethylalane 282
triethylamine 192, 233, 480
triethylamine in DMF or dioxane 458
triethylamine trihydrofluoride 197, 207, 443
triethyl-oxonium tetrafluoroborate 87
triethylsilane 32, 81, 97, 144, 147, 229, 265, 371–372, 516
triethylsilyl (TES) 7, 59, 191, 195–199, 440–444, 516
triethylsilyl ethers 55, 195–199, 466
triethylsilyl triflate 29, 126, 192, 198, 406
triflic acid, see trifluoromethanesulfonic acid
trifluoroacetamides 4, 499, 540, 611
trifluoroacetate esters 3, 157
trifluoroacetic acid 5, 37, 109, 121–122, 139, 144–145, 158, 162, 164, 166, 171, 176, 191, 196, 203, 216, 237–238, 250, 265, 287, 295, 309, 312, 326, 367–369, 371–372, 379, 382, 403, 410, 413–414, 424, 435, 460, 506, 511, 513, 528, 529, 538, 554, 561, 566, 579–580, 582, 589, 614, 616–618, 625
trifluoroacetic acid in a phenol matrix 404, 410
trifluoroacetic acid in dichloromethane 517
trifluoroacetic anhydride 156, 375, 500, 568
trifluoroacetonitrile 267
trifluoroacetoxymethyl acetal 156
N-trifluoroacetylation 500
N-(trifluoroacetyl)succinimide 500, 606
trifluoroborane 5, 237, 239–240, 247, 265, 304
trifluoroborane etherate 80, 89–91, 102, 135, 143, 166–168, 204, 226, 231, 240, 267, 270, 289, 373, 423, 513, 566
trifluoroborane etherate in acetic acid 508
trifluoroborane in dichloromethane–methanol 271
2,2,2-trifluoro-1,1-diphenylethanesulfenamides 559
trifluoroethanol 122, 177
N-trifluoromethanesulfonamides 603
trifluoromethanesulfonic acid 122, 144, 165, 177, 213, 225, 240, 256, 384, 460, 512
trifluoromethanesulfonic acid in 2,2,2-trifluoroethanol 240
trifluoromethanesulfonic anhydride 75
4-trifluoromethylbenzyl carbamate 520
2,4,6-triisopropylbenzenesulfonyl chloride 482
triisopropylsilane 415
triisopropylsilyl (TIPS) 7, 191, 197, 202, 218–223, 239, 270, 395, 440–444, 625–626
triisopropylsilyl chloride 222
triisopropylsilyl esters 443
triisopropylsilyl ethers 36, 55
tri-isopropylsilyl ethers 169
triisopropylsilyl triflate 222
2,4,6-trimethoxybenzyl 368, 371
4,4',4''-trimethoxytrityl 586, 589
trimethyl orthobenzoate 177
trimethyl orthoformate 77, 294
trimethylacetamidomethyl (Tacm) 385
trimethylaluminium 69, 105
trimethylloxonium tetrafluoroborate 87, 236
trimethylsilyl cyanide 99–100, 194
trimethylsilyl esters 401, 422, 590
trimethylsilyl ethers 22, 34, 100, 166, 443
trimethylsilyl triflate 61, 63, 77, 157, 192, 194, 247, 292, 341–342, 367, 405, 460, 507
2-(trimethylsilyl)ethoxycarbonyl (Teoc) 344–345, 534–540, 575
2-(trimethylsilyl)ethoxymethyl (SEM) 6–8, 57, 88, 90, 99, 107, 192–193, 200, 209, 258, 312–314, 345, 367, 375, 401, 422, 433, 436, 443, 471, 477, 529, 536–539,

- 554–555, 557, 563, 575, 596, 606, 626–627
- N*-(2-trimethylsilylethoxy)methyl 258
- 2-(trimethylsilyl)ethoxymethyl chloride 626
- 2-(trimethylsilyl)ethoxymethyl esters 428
- 2-(trimethylsilyl)ethyl ester 534
- 2-(trimethylsilyl)ethylsulfonyl (SES) 554–558, 606–609, 627
- trimethylsilylethynyllithium 34
- N*-trimethylsilylimine 598
- 3,6,6-trimethyl-1,5,6,7-tetrahydro-4*H*-indazol-4-one 606
- trimethylstannyllithium 65
- trimethylvinylsilane 557
- 2,4,6-trinitrotoluene 135
- 1,3,5-triols 153
- triphenylcarbenium tetrafluoroborate 157, 267, 322
- triphenylcarbenium triflate 274
- triphenylmethanesulfenamides 559–560
- triphenylmethanesulfonyl chloride 560
- triphenylmethanethiol 373
- triphenylmethanol 373
- triphenylmethyl (trityl) 37, 269–275, 371–374, 585–591
- N*-triphenylmethyl 37, 133, 216, 329, 371, 382, 408, 459, 506, 508, 585–586
- triphenylmethyl bromide 589
- triphenylmethyl cation-promoted benzylation 256
- triphenylmethyl chloride 273, 374, 589
- triphenylmethyl esters 414
- triphenylmethyl ethers 5, 81, 288,
- triphenylmethyl hydroperoxide 66
- triphenylmethyl tetrafluoroborate 291
- triphenylmethylamine 586
- triphenylmethylamine as an ammonia equivalent 586
- triphenylmethylpyridinium fluoroborate 274
- triphenylphosphine 612
- triphenylsilane 229, 373
- triphenylsilyl chloride 229
- triphenylsilylthiol 373
- tris-(4-benzoyloxyphenyl)methyl ethers 273
- tris(dibenzylideneacetone)dipalladium 420
- tris[4-(4,5-dichlorophthalimido)phenyl]-methyl 273
- tris(dimethylamino)sulfonium difluorotri-methylsilicate 209, 434
- tris-(dimethylamino)sulfonium difluorotri-methylsilicate 169, 236, 274, 491, 509, 617
- tris(2,6-diphenylbenzyl)silyl esters 440
- tris(4-levulinoyloxyphenyl)methyl 273
- tris(4-methoxyphenyl)phosphine 21
- tris(methylthio)methylolithium 106
- tris(pentafluorophenyl)borane 229
- tris(phenylthio)methylolithium 106
- trisodium 3,3',3''-phosphinetriyltribenzene-sulfonate 421, 526
- tris(triphenylphosphine)rhodium(I) chloride (Wilkinson's catalyst) 12
- trityl, *see* triphenylmethyl
- tryptophan 520, 548, 622, 625
- Tunicamycin 149, 207, 302, 346
- twist-boat conformation 132
- tyrosine 39, 239, 326, 461, 506
- UDP-*N*-acetylmuramyl-pentapeptide 437, 499
- ultrasonication 126, 150, 237, 296, 341, 546
- Umpolung 78
- uracil 559, 565
- urethanes 5
- uridine 160, 560
- Ustiloxin D 550
- valine 552
- Vancomycin 208, 210, 231, 281, 300, 346, 418, 582
- Varacin 367
- Verrucarin A 433
- Verrucarin B 345, 433
- Vincadifformine 551
- Vincamine 404, 588
- Vineomycinone 244
- vinyl acetate 327
- vinyl pivalate 332
- Vitamin D 67, 70
- Vitamin E 69
- von Braun degradation 575
- Wacker oxidation 23, 97
- water 277
- wheat germ lipase 17, 330
- Wieland-Miescher ketone 60
- Wilkinson's catalyst ([Ph₃P]₃RhCl) 276, 592
- Wilkinson's catalyst, rearrangement of allylamines to enamines 592
- Williamson ether synthesis 235, 253
- ent*-WIN 64821 574

- 9H*-xanthen-9-yl 371
xanthen-9-ylidene 160
xylitol 163
o-xylylene *N,N*-diethylphosphoramidite
464
- Yamaguchi esterification 409, 438
ytterbium(III) triflate 334
- Zampanolide 258, 536
Zaragozic Acid 140, 229
Zaragozic Acid A 190–191, 295, 416
Zaragozic Acid C 191, 403
- zinc 176, 341, 343, 382, 414, 497, 540, 565
zinc bromide 76, 88, 270–271, 296, 508
zinc carbenoid 68
zinc chloride 91, 150, 237, 248, 296, 538
zinc in acetic acid 8, 424, 430, 553, 607
zinc iodide 90, 95, 296
zinc nitrate hexahydrate 123
zinc triflate 90, 140
zinc–copper couple 8
zinc–lead couple 540
zinc–silver couple 24
zirconocene dichloride 103
Zoapatanol 213