
Chapter 7

References

7 References

- (1) Muller, F. M. C.; Groll, A. H.; Walsh, T. J. Current Approaches to Diagnosis and Treatment of Fungal Infections in Children Infected with Human Immunodeficiency Virus. *European Journal of Pediatrics* **1999**, *158*, 187-99.
- (2) Ampel, N. M. Emerging Disease Issues and Fungal Pathogens Associated with HIV Infection. *Emerging Infectious Diseases* **1996**, *2*, (2), 109-16.
- (3) This image is in the public domain and thus free of any copyright restrictions. Published at <http://phil.cdc.gov/phil/home.asp> by Centers for Disease Control and Prevention (CDC).
- (4) Published by the World Health Organisation (WHO) at <http://www.who.int/hiv/pub/epidemiology/imagefile/en/index.html>
- (5) Mann, J. *Life Saving Drugs. The Elusive Magic Bullet*; Royal Society of Chemistry **2004**
- (6) *Sporanox, Itraconazole* **2004** Published by Janssen Pharmaceutica at http://www.fda.gov/medwatch/SAFETY/2004/jul_PI/SporanoxInj_PI.pdf
- (7) *Diflucan* **2003** Published by Pfizer at http://www.pfizer.com/pfizer/download/uspi_diflucan.pdf
Fluconazole **2003** Published by U.S. Food and Drug Administration (FDA) at <http://www.fda.gov/cder/foi/label/2002/19949s33lbl.pdf>
- (8) Rex, J. H.; Rinaldi, M. G.; Pfaller, M. A. Resistance of Candida Species to Fluconazole. *Antimicrobial Agents and Chemotherapy* **1995**, *39*, (1), 1-8.
- (9) Pfaller, M. A.; Messer, S. A.; Gee, S.; Joly, S.; Pujol, C.; Sullivan, D. J.; Coleman, D. C.; Soll, D. R. In Vitro Susceptibilities of Candida Dubliniensis Isolates Tested Against the New Triazole and Echinocandin Antifungal Agents. *Journal of Clinical Microbiology* **1999**, *37*, (3), 870-2.
- (10) Onishi, J.; Mainz, M.; Thompson, J.; Curotto, J.; Dreikorn, S.; Rosenbach, M.; Douglas, C.; Abruzzo, G.; Flattery, A.; Kong, L.; Cabello, A.; Vicente, F.; Pelaez, F.; Diez, M. T.; Martin, I.; Bills, G.; Giacobbe, R.; Dombrowski, A.; Schwartz, R.; Morris, S.; Harris, G.; Tsipouras, A.; Wilson, K.; Kurtz, M. B.

- Discovery of novel antifungal (1,3)-b-D-Glucan synthase inhibitors.
Antimicrobial Agents and Chemotherapy **2000**, *44*, (2), 368-77.
- (11) *Amphocin* **2003** Published by Pfizer at
http://www.pfizer.com/pfizer/download/uspi_amphocin.pdf
- (12) Gallis, H. A.; Drew, R. H.; Pickard, W. W. Amphotericin B: 30 Years of Clinical Experience. *Reviews of Infectious Diseases* **1990**, *12*, 308-29.
- (13) Turner, W. W.; Current, W. L. *Drugs and the Pharmaceutical Sciences* **1997**, *82*, 315.
- (14) Zambias, R. A.; James, C.; Abruzzo, G. K.; Bartizal, K. F.; Hajdu, R.; Thompson, R.; Nollstadt, K. H.; Marrinan, J.; Balkovec, J. M. Lipopeptide Antifungal Agents: Amine Conjugates of the Semi-Synthetic Pneumocandins L-731,373 and L-733,560. *Bioorganic & Medicinal Chemistry Letters* **1997**, *7*, (15), 2021-6.
- (15) *Candidas* **2005** Published by Merck & Co. Inc. at
http://www.candidas.com/caspofungin_acetate/candidas/hcp/product_information/pi/index.jsp
Candidas **2005** Published by U.S. Food and Drug Administration (FDA) at
http://www.fda.gov/medwatch/SAFETY/2005/Feb_PI/Candidas_PI.pdf
- (16) Hoang, A. Caspofungin Acetate: An Antifungal Agent. *American Journal of Health-System Pharmacy* **2001**, *58*, (13), 1206-14.
- (17) Bewley, C. A.; Debitus, C.; Faulkner, D. J. Microsclerodermins A and B. Antifungal Cyclic Peptides from the Lithistid Sponge *Microscleroderma* sp. *J. Am. Chem. Soc.* **1994**, *116*, (17), 7631-6.
- (18) Schmidt, E. W.; Faulkner, D. J. Microsclerodermins C - E, Antifungal Cyclic Peptides from the Lithistid Marine Sponges *Theonella* sp. and *Microscleroderma* sp. *Tetrahedron* **1998**, *54*, (13), 3043-56.
- (19) Qureshi, A.; Colin, P. L.; Faulkner, D. J. Microsclerodermins F-I, Antitumor and Antifungal Cyclic Peptides from the Lithistid Sponge *Microscleroderma* sp. *Tetrahedron* **2000**, *56*, (23), 3679-85.
- (20) Sigma-Aldrich Catalogue published at <http://www.sigmaaldrich.com>
- (21) Harding, M.; Bodkin, J. A.; Hutton, C. A.; McLeod, M. D. Substrate Control in the Asymmetric Aminohydroxylation of Monosubstituted Alkenes: The Enantioselective Synthesis of GABOB and Homoserine Derivatives. *Synlett* **2005**, accepted for publication in 2005.

- (22) Sasaki, S.; Hamada, Y.; Shioiri, T. Construction of Three Building Blocks for the Total Synthesis of Microsclerodermins. *Synlett* **1999**, (4), 453-5.
- (23) Shioiri, T.; Sasaki, S.; Hamada, Y. Synthetic Approach to Microsclerodermins: Construction of Three Building Blocks. *ARKIVOC* **2003**, *ii*, 103-22.
- (24) Zhu, J.; Ma, D. Total Synthesis of Microsclerodermin E. *Angew. Chem. Int. Ed.* **2003**, *42*, 5348-51.
- (25) Macor, J. E.; Cuff, A.; Cornelius, L. Neutral Acylation (protection) of the Indole Nitrogen: a Simple Synthesis of Indole-1-carboxylates, Indole-1-thiocarboxylates and Indole-1-carboxamides. *Tetrahedron Letters* **1999**, *40*, (14), 2733-6.
- (26) Moriya, T.; Hagio, K.; Yoneda, N. A Facile Synthesis of 6-Chloro-D-tryptophan. *Bulletin of the Chemical Society of Japan* **1975**, *48*, (7), 2217-8.
- (27) Sasaki, S.; Hamada, Y.; Shioiri, T. The Efficient Stereoselective Synthesis of (2*S*,3*R*,4*S*,5*S*,6*S*,11*E*)-3-amino-6-methyl-12-(4-methoxyphenyl)-2,4,5-trihydroxydodec-11-enoic acid (AMMTD), a Component of Microsclerodermins of Marine Sponge Origin, as its Protected Form. *Tetrahedron Letters* **1999**, *40*, (16), 3187-90.
- (28) Corey, E. J.; Guzman-Perez, A.; Noe, M. C. The Application of a Mechanistic Model Leads to the Extension of the Sharpless Asymmetric Dihydroxylation to Allylic 4-methoxybenzoates and Conformationally Related Amine and Homoallylic Alcohol Derivatives. *J. Am. Chem. Soc.* **1995**, *117*, (44), 10805-16.
- (29) Kim, S. H.; Zuercher, W. J.; Bowden, N. B.; Grubbs, R. H. Catalytic Ring Closing Metathesis of Dienynes: Construction of Fused Bicyclic [*n.m*.0] Rings. *J. Org. Chem.* **1996**, *61*, 1073-81.
- (30) Bodkin, J. A.; McLeod, M. D. The Sharpless Asymmetric Aminohydroxylation. *J. Chem. Soc., Perkin Trans. 1* **2002**, (24), 2733-46.
- (31) Greene, T. W.; Wuts, P. G. M., *Protective Groups in Organic Synthesis*. 2nd ed.; Wiley & Sons Inc.: New York, **1991**.
- (32) Kolb, H. C.; VanNieuwenhze, M. S.; Sharpless, K. B. Catalytic Asymmetric Dihydroxylation. *Chem. Rev.* **1994**, *94*, 2483-547.
- (33) Zhou, X.-J.; Huang, Z.-Z. The Deprotection of Methyl Carbamates by Sodium Hydrogen Telluride. *Synth. Commun.* **1989**, *19*, (7,8), 1347-9.

- (34) Davey, R. Synthetic Studies Towards Medermycin. PhD, University of Sydney, **2002**.
- (35) Corey, E. J.; Noe, M. C. A Critical Analysis of the Mechanistic Basis of Enantioselectivity in the Bis-Cinchona Alkaloid Catalysed Dihydroxylation of Olefins. *J. Am. Chem. Soc.* **1996**, *118*, (45), 11038-53.
- (36) Bodkin, J. A. Application of Asymmetric Catalytic Methodology in Organic Synthesis. PhD, University of Sydney, **2004**.
- (37) Dale, J. A.; Mosher, H. S. Nuclear Magnetic Resonance Enantiomer Reagents. Configurational Correlations via Nuclear Magnetic Resonance Chemical Shifts of Diastereomeric Mandelate, o-Methylmandelate, and α -Methoxy- α -trifluoromethylphenylacetate (MTPA) Esters. *J. Am. Chem. Soc.* **1973**, *95*, (2), 512-9.
- (38) Ohtani, I.; Kusumi, T.; Kashman, Y.; Kakisawa, H. High-field FT NMR Application of Mosher's Method. The Absolute Configurations of Marine Terpenoids. *J. Am. Chem. Soc.* **1991**, *113*, 4092-6.
- (39) Jayaraman, M.; Deshmukh, A. R.; Bhawal, B. M. Application of (+)-(1*S*,2*S*)-2-Amino-1-phenylpropan-1,3-diol in the Formal Total Synthesis of Carbapenems, Novel 4-Cyano- β -Lactams and β -Hydroxy Aspartates. *Tetrahedron* **1996**, *52*, (27), 8989-9004.
- (40) Tullis, J. S.; Vares, L.; Kann, N.; Norrby, P.-O.; Rein, T. Reagent Control of Geometric Selectivity and Enantiotopic Group Preference in Asymmetric Horner-Wadsworth-Emmons Reactions with *meso*-Dialdehydes. *J. Org. Chem.* **1998**, *63*, 8284-94.
- (41) Parikh, J. R.; Doering, W. V. E. Sulfur Trioxide in the Oxidation of Alcohols by Dimethyl Sulfoxide. *J. Am. Chem. Soc.* **1967**, *89*, (21), 5505-7.
- (42) Commercon, A.; Bezard, D.; Bernard, F.; Bourzat, J. D. Improved Protection and Esterification of a Precursor of the Taxotere and Taxol Side Chains. *Tet. Lett.* **1992**, *33*, (36), 5185-8.
- (43) Sigma-Aldrich, *Aldrich Catalogue - Handbook of fine chemicals and Laboratory Equipment*; Australia, New Zealand, **2003-2004**.
- (44) Garner, P.; Park, J. M. The Synthesis and Configurational Stability of Differentially Protected β -hydroxy- α -amino aldehydes. *J. Org. Chem.* **1987**, *52*, 2361-4.

- (45) Garner, P.; Park, J. M. 1,1-Dimethylethyl (S)- or (R)-4-formyl-2,2-dimethyl-3-oxazolidinecarboxylate: A Useful Serinal Derivative. *Organic Syntheses* **1991**, *70*, 18-22.
- (46) Baudin, J. B.; Hareau, G.; Julia, S. A.; Ruel, O. A Direct Synthesis of Olefins by Reaction of Carbonyl Compounds with Lithio Derivatives of 2-[alkyl- or (2'-alkenyl)- or benzyl-sulfonyl]-benzothiazoles. *Tetrahedron Lett.* **1991**, *32*, (9), 1175-8.
- (47) Blakemore, P. R. The Modified Julia Olefination: Alkene Synthesis via the Condensation of Metallated Heteroarylalkylsulfones with Carbonyl Compounds. *J. Chem. Soc., Perkin Trans. 1* **2002**, 2563-85.
- (48) Baudin, J. B.; Hareau, G.; Julia, S. A.; Lorne, R.; Ruel, O. Stereochemistry of Direct Olefin Formation from Carbonyl Compounds and Lithiated Heterocyclic Sulfones. *Bulletin de la Société chimique de France*. **1993**, *130*, 856-78.
- (49) Blakemore, P. R.; Cole, W. J.; Kocienski, P. J.; Morley, A. A Stereoselective Synthesis of *trans*-1,2-disubstituted Alkenes Based on the Condensation of Aldehydes with Metallated 1-Phenyl-1*H*-tetrazol-5-yl Sulfones. *Synlett* **1998**, 26-8.
- (50) Liu, P.; Jacobsen, E. N. Total Synthesis of (+)-Ambruticin. *J. Am. Chem. Soc.* **2001**, *123*, (43), 10772-3.
- (51) Williams, C. M.; Mander, L. N. Chromatography with Silver Nitrate. *Tetrahedron* **2001**, *57*, 425-47.
- (52) Li, T.-S.; Li, J.-T.; Li, H.-Z. Modified and Convenient Preparation of Silica Impregnated with Silver Nitrate and its Application to the Separation of Steroids and Triterpenes. *Journal of Chromatography A* **1995**, *715*, 372-5.
- (53) Sonnet, P. E. Tetrahedron Report Number 77: Olefin Inversion. *Tetrahedron* **1980**, *36*, 557-604.
- (54) Schwarz, M.; Graminski, G. F.; Waters, R. M. Insect Sex Pheromones. Stereospecific Synthesis of (*E*)-13,13-Dimethyl-11-tetradecen-1-ol Acetate via a Thiophenol-Mediated Olefin Inversion. *J. Org. Chem.* **1986**, *51*, 260-3.
- (55) Raghavan, S.; Tony, K. A. Sulfinyl Moiety as an Internal Nucleophile. 1. Efficient Stereoselective Synthesis of Fragment A of Cryptophycin 3. *J. Org. Chem.* **2003**, *68*, 5002-5.

- (56) Fluka, *Laboratory Chemicals*; Riedel - de Haën; Fluka Chemie GmbH, Sigma Aldrich Laborchemikalien GmbH: **2001-2002**.
- (57) Fukuyama, T.; Laird, A. A.; Hotchkiss, L. M. p-Anisyl Group: A Versatile Protecting Group for Primary Alcohols. *Tetrahedron. Lett.* **1985**, *26*, (51), 6291-2.
- (58) Morikawa, K.; Sharpless, K. B. Double Diastereoselection in Asymmetric Dihydroxylation. *Tetrahedron Lett.* **1993**, *34*, (35), 5575-8.
- (59) White, B. H.; Snapper, M. L. Ring-Opening Metathesis/Oxy-Cope Rearrangement: A New Strategy for the Synthesis of Bicyclic Medium Ring-Containing Compounds. *J. Am. Chem. Soc.* **2003**, *125*, 14901-4.
- (60) March, J. *Advanced Organic Chemistry: Reactions, Mechanisms and Structure*. 4th ed.; John Wiley & Sons: **1992**; p 1495.
- (61) Chuang, C.-Y.; Vassar, V. C.; Ma, Z.; Geney, R.; Ojima, I. Electronic Effects on the Regio- and Enantio-selectivity of the Asymmetric Aminohydroxylation of *o*-Substituted 4-Hydroxy-2-butenates. *Chirality* **2002**, *14*, 151-62.
- (62) Wang, Z.-M.; Shen, M. Enantiocontrolled Construction of Functionalised Tetrahydrofurans: Total Synthesis of (6*S*,7*S*,9*R*,10*R*)-6,9-Epoxynonadec-18-ene-7,10-diol, a Marine Natural Product. *J. Org. Chem.* **1998**, *63*, 1414-8.
- (63) Perrin, D. D.; Armarego, W. L. F. *Purification of Laboratory Chemicals*. 3rd ed.; Permagon Press Ltd, **1988**.
- (64) Leonard, J.; Lygo, B.; Proctor, G., *Advanced Practical Organic Chemistry*. 2nd ed.; Blackie Academic & Professional: London, **1995**.
- (65) Dess, D. B.; Martin, J. C. A Useful 12-I-5-Triacetoxyperiodinane (the Dess-Martin Periodinane) for the Selective Oxidation of Primary or Secondary Alcohols and a Variety of Related 12-I-5-species. *J. Am. Chem. Soc.* **1991**, *113*, 7277-87.
- (66) Ireland, R. E.; Liu, L. An Improved Procedure for the Preparation of the Dess-Martin Periodinane. *J. Org. Chem.* **1993**, *58*, 2899.
- (67) Hirao, T.; Nakamura, T.; Hagihara, M.; Agawa, T. Addition of Cyclopropylphosphonates to Aldehydes. *J. Org. Chem.* **1985**, *50*, 5860-2.
- (68) Boers, R. B.; Randulfe, Y. P.; Van der Haas, H. N. S.; Van Rossum-Baan, M.; Lugtenburg, J. Synthesis and Spectroscopic Characterisation of 1-¹³C- and 4-¹³C-Plastoquinone-9. *Eur. J. Org. Chem.* **2002**, *13*, 2094-108.

- (69) Schwartzapel, A. J.; Zhong, L.; Docampo, R.; Rodriguez, J. B.; Gros, E. G. Design, Synthesis and Biological Evaluation of New Growth Inhibitors of *Trypanosoma Cruzi* (Epimastigotes). *J. Med. Chem.* **1997**, *40*, 2314-22.
- (70) Shi, S.; Wudl, F. Synthesis and Characterisation of a Water-Soluble Poly(*p*-phenylenevinylene) Derivative. *Macromolecules* **1990**, *23*, 2119-24.
- (71) Wang, L.; Floreancig, P. E. Synthesis of the C₁₆-C₃₅ Fragment of Integramycin using Olefin Hydroesterification as a Linchpin Reaction. *Organic Letters* **2004**, *6*, (4), 569-72.
- (72) Johnstone, R. A. W.; Price, P. J. Metal Assisted Reactions: Part 19. Burst Kinetics in Heterogeneous Catalytic Transfer Hydrogenolysis. *J. Chem. Soc., Perkin Trans. 1* **1987**, 1069-76.
- (73) Alves, J. A. C.; Barkley, J. V.; Brigas, A. F.; Johnstone, R. A. W. Metal-Assisted Reactions. Part 26. Catalytic Reactivity and Ether Bond Lengths in Aryloxytetrazoles and Aryloxypseudosaccharins. *J. Chem. Soc., Perkin Trans. 2* **1997**, 669-77.
- (74) Takeda, K.; Tsuboyama, K.; Torii, K.; Murata, M.; Ogura, H. Single-Step Preparation of Allylic Sulfides having 1-Phenyltetrazole-5-thio Group from Allylic Alcohols using S,S'-bis(1-phenyl-1*H*-tetrazol-5-yl) dithiocarbonate and Reactions involving the Allylic Sulfides. *Tetrahedron Lett.* **1988**, *29*, (33), 4105-8.
- (75) Kocienski, P. J.; Bell, A.; Blakemore, P. R. 1-*tert*-Butyl-1*H*-tetrazol-5-yl sulfones in the Modified Julia Olefination. *Synlett* **2000**, *3*, 365-6.
- (76) Kiddle, J. J. Microwave Irradiation in Organophosphorus Chemistry. III. Moderate Scale Synthesis of Reagents for Olefin Formation. *Synth. Commun.* **2001**, *31*, (21), 3377-82.
- (77) Grayson, M.; Keough, P. T. Phosponium Compounds. II. Decomposition of Phosponium Alkoxides to Hydrocarbon, Ether and Phosphine Oxide. *J. Am. Chem. Soc.* **1960**, *82*, (15), 3919-24.
- (78) Buss, A. D.; Warren, S. The Stereocontrolled Horner-Wittig Reaction: Synthesis of Disubstituted Alkenes. *J. Chem. Soc., Perkin Trans. 1* **1985**, 2307-25.
- (79) Liu, J.-T.; Jang, Y.-J.; Shih, Y.-K.; Hu, S.-R.; Chu, C.-M.; Yao, C.-F. Novel Synthesis of Alkenes via Triethylborane-induced Free-radical Reactions of Alkyl iodides and β -Nitrostyrenes. *J. Org. Chem.* **2001**, *66*, 6021-8.

- (80) Negishi, E.-I.; Takahashi, T.; Akiyoshi, K. Palladium-Catalysed or Promoted Reductive Carbon-Carbon Coupling. Effects of Phosphines and Carbon Ligands. *Journal of Organometallic Chemistry* **1987**, *334*, 181-94.
- (81) Cignarella, G.; Ocelli, E.; Testa, E. Bicyclic Homologs of Piperazine. VII. Synthesis and Analgesic Activity of 3-Aralkenyl-8-propionyl-3,8-diazabicyclo[3.2.1]octanes. *Journal of Medicinal Chemistry* **1965**, *8*, (3), 326-31.
- (82) Winnik, M. A.; Kwong, P. T. Y. Substituent Effects and Rearrangements in the Electron-Impact Spectra of Long Chain Esters of *m*- and *p*-Methoxybenzoic acid. *Organic Mass Spectrometry* **1975**, *10*, 339-46.
- (83) Drew, J.; Letellier, M.; Morand, P.; Szabo, A. G. Synthesis from Pregnenolone of Fluorescent Cholesterol Analogue Probes with Conjugated Unsaturation in the Side Chain. *J. Org. Chem.* **1987**, *52*, 4047-52.
- (84) Antes, P.; Schwarzmann, G.; Sandhoff, K. Distribution and Metabolism of Fluorescent Sphingosines and Corresponding Ceramides bearing the Diphenylhexatrienyl (DPH) Fluorophore in Cultured Human Fibroblasts. *European Journal of Cell Biology* **1992**, *59*, 27-36.
- (85) Misumi, S.; Nakagawa, M. The Preparation of Stereoisomeric α,ω -diphenylpolyenes and Related Compounds by means of the Wittig Reaction. *Bulletin of the Chemical Society of Japan* **1963**, *36*, 399-404.
- (86) Kim, J. D.; Lee, M. H.; Han, G.; Park, H.; Zee, O. P.; Jung, Y. H. Synthesis of N-Protected Allylic Amines from Allyl Ethers. *Tetrahedron* **2001**, *57*, 8257-66.
- (87) Cao, X.-P. Stereoselective Synthesis of Substituted all-*trans*-1,3,5,7-octatetraenes by a Modified Ramberg-Backlund Reaction. *Tetrahedron* **2002**, *58*, 1301-7.
- (88) Doll, M. H.; Baker, B. R. Irreversible Enzyme Inhibitors. Inhibitors of Guinea Pig Complement Derived by Quaternization of Substituted Pyridines with Benzyl Halides. *Journal of Medicinal Chemistry* **1976**, *19*, (9), 1079-88.
- (89) Gaucher, A.; Ollivier, J.; Marguerite, J.; Paugam, R.; Salaun, J. Total Asymmetric Synthesis of (1*S*,2*S*)-Norcoronamic Acid and of (1*R*,2*R*)- and (1*S*,2*S*)-Coronamic Acids from the Diastereoselective Cyclisation of 2-(N-

- benzylideneamino)-4-chlorobutyronitriles. *Canadian Journal of Chemistry* **1994**, *72*, 1312-26.
- (90) Mori, K.; Koseki, K. Synthesis of Trichostatin A. A Potent Differentiation Inducer of Friend Leukemic Cells, and its Antipode. *Tetrahedron* **1988**, *44*, (19), 6013-20.
- (91) Brandl, T.; Hoffmann, R. W. Conformational Analysis of Axially Substituted 4,4'-bi-1,3-dioxanyls. *Eur. J. Org. Chem.* **2004**, 4373-8.