

MUKUND S. CHORGHADE, Ph.D.,

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HIGHLIGHTS

Thirty-four years of research leadership and project management of multi-million-dollar projects. Creativity in problem solving: Creativity in problem solving: Discovery and Development of New Chemical Entities, novel synthetic routes / processes and formulations for pharmaceuticals; successful implementation of technology in kilo-labs, pilot and manufacturing plants. Expertise in diverse areas of organic synthesis (Discovery Research & Process Development): Carbohydrates, Enzymes, Heterocycles, Metalloporphyrins, Molecular Recognition, Natural Products. Research work with eminent chemists: Robert Grubbs, Steven Ley, Jean-Marie Lehn, David Dolphin, Yoshito Kishi, Sidney Hecht, Charles Hammer, Jay Groves, Bal Tilak, Murzban Wadia, Ashok Vaidya, Colin Suckling, Eric Jacobsen, Ron Raines. Elected fellowships in prestigious academic societies (AAAS, ACS, AIC and RSC) Demonstrated skills in management of academic collaborations, global sourcing of new chemical entities from custom manufacturers; cGLP/CGMP, technology transfer, regulatory filings and compliance audits. Certified Professional in Current Good Laboratory Practices and Good Manufacturing Practices. Experienced executive with multi-faceted skills and proven track record of innovation and exceeding organizational goals; service on the Scientific Advisory Boards of Corporations and Foundations. Serial Entrepreneur. Visiting Scholar / Scientist at numerous academic institutions. **Fulbright Specialist Award (2015-2021), Chair, Princeton Section, ACS (2019), Chair RSC-Process Chemistry and Technology (2018-2020)**

PROFESSIONAL AND BUSINESS EXPERIENCE: President / CSO/ Research Fellow / Research Professor

**THINQ PHARMA / CBD SCIENCES GROUP / CHICAGO DISCOVERY SOLUTIONS / MVRC Research 2006-
THINQ-CRO / D & O PHARMACHEM, PHARMACEUTICALS SCIENCES DIVISION 2003-2006
CHORGHADE ENTERPRISES / CP CONSULTING 1995-2003**

Designed, Developed and Directed Chemistry for a variety of therapeutic and chemical applications. Consulted with major pharmaceutical and biopharmaceutical companies, on collaborations with industrial, academic and government laboratories (domestic and overseas; project management of technology transfer; process re-engineering; supply chain management and business development).

- Invented the "Chemosynthetic Livers" as powerful oxidation catalysts for predicting drug metabolites, Valorization of biomass and environmental remediation
- Used Observational Therapeutics for discovering NCEs through Traditional Medicine
- Collaborated on in and out-licensing of pharmaceutically active moieties.
- Discovered and Developed technologies; enhanced capabilities of research laboratories; mentored chemists
- Established strategic partnerships with chemistry-based companies for establishment of strategic partnerships; conducted cGLP/cGMP training and implementation in academic/industrial laboratories.
- Delivered seminars in numerous academic/industrial laboratories in the U.S.A., Europe, and Asia.
- Visiting Scholar/Fellow at Harvard University, MIT, Princeton, Caltech, Univ. Chicago, Northwestern Northeastern Universities, Boston College, Cambridge, University of Strathclyde, ICT, NCL, IICT, ICT, KHRC(India)

**GENZYME CORPORATION, Inc., DRUG DISCOVERY AND DEVELOPMENT, WALTHAM, MA 2000-2003
Vice President, Pharmaceutical Development Sciences; Member, Corporate Steering Committee**

- Directed chemical process and formulations research on pre-clinical and clinical candidates.
- Devised and implemented novel strategies for reduction of drug development cycle times
- Evaluated, selected and qualified vendors, worldwide, for deliveries of drug substance and product (cGLP / cGMP) for pre-clinical studies and clinical trials; oversaw and facilitated business processes for contract implementation and regulatory compliance by vendors;
- Filed "Investigational New Drug Application" and marketing approval filings with government agencies.
- Provided strategic inputs into alignment of drug discovery and development directions and investments.
- Set and monitored product strategy, made key decisions for project prioritization and resource allocation.

**CYTOMED, Inc., Cambridge, MA 1997-1999
Senior Director, Chemical Sciences Research and Development (1998-1999), Director (1997-98)**

- Awarded "Scientist of the Year" for contributions to drug development in 1997.
- Directed chemical process and formulation research: significant lowering of costs

- ABBOTT LABORATORIES, Pharmaceutical Research, North Chicago, IL** **1991 to 1995**
Project Manager (1992-1995) **Research Investigator (1991-1992)**
- Awarded the divisional "Scientist of the Year" award for discovery research in June 1993.
 - Designed novel cost-effective synthetic processes for the preparation of multi-kilo quantities of anti-convulsants, cholinergic channel activators, and anti-infectives reducing time to market by 25%.
 - Launched a new program on the biomimetic synthesis of drug metabolites via metalloporphyrin assisted epoxidation and hydroxylation. Elaborate multi-step syntheses were converted to one or two-step catalytic reactions thereby saving 75% of development time and 80% of costs.
- COLLEGE DE FRANCE, Paris and Université Louis Pasteur, Strasbourg, France** **1990 to 1991**
Research Scientist / Assistant Director
- Researched, with Professor Jean-Marie Lehn (Nobel Laureate), the phenomena of designed self-assembly and molecular recognition. Designed and synthesized diversely substituted pyrimidines, triazines and porphyrins.
- DOW CHEMICAL, U.S.A., Midland, MI** **1985 to 1990**
Project Leader (Freeport, TX) (1989-1990) **Senior Research Chemist (1985-1989)**
- Led a team of researchers on metalloporphyrin-assisted epoxidation of terminal alkenes, biomedical applications of porphyrins, selective functionalization of carbohydrates.
 - Initiated and successfully completed projects related to (ii) bio rational design of environmentally benign herbicides (iii) Process Development for pharmaceuticals. Received several performance-based awards.
- HARVARD UNIVERSITY, Cambridge, MA** **1984 to 1985**
Postdoctoral Research Fellow
- Conducted research, under Professor Yoshito Kishi, on the synthesis of complex carbohydrates (potential new drugs and non-calorific sweeteners); novel C-C bond forming reactions.
- UNIVERSITY OF VIRGINIA, Charlottesville, VA** **1982 to 1984**
Postdoctoral Research Associate
- Explored, under Professor Sidney Hecht, routes for the synthesis of the pyrimidine moiety of Bleomycin (a drug in clinical use for treatment of carcinomas, melanomas and Hodgkin's disease); 2' (3') -O- acylated pCpA derivatives.
- GEORGETOWN UNIVERSITY, Washington, D. C.** **1975 to 1982**
Instructor (1981-1982) **Teaching and Research Fellow (1975-1981)**
- NATIONAL CHEMICAL LABORATORY, Pune, India** **1973 to 1975**
Research Fellow: Under Dr. Bal D. Tilak, investigated the utility of N-aryl azetidines as anti-tumor drugs.

EDUCATION

- Ph.D. (Organic Chemistry), 1982, Georgetown University, Washington, D. C.**
- Performed research, under Professor Charles Hammer, on the "Synthesis of selected saturated nitrogen heterocycles; kinetic and mechanistic studies on cyclic chloro amines." Received Sigma XI Graduate Student Research Prize, (1982).
- M. Sc., 1973, 1st Class (Honors), 1st Rank; B. Sc., 1971, University of Poona, India**

MEMBERSHIP OF ACADEMIC/PROFESSIONAL SOCIETIES

American Chemical Society (Elected Fellow), Chair Princeton Section (2019) Organic Division; Member, Chair, Board of Directors Executive Committee and Past Chair, Northeastern and Brazosport Section International Union of Pure and Applied Chemistry; Royal Society of Chemistry (Elected Fellow) American Association for the Advancement of Science (Elected Fellow); American Institute of Chemists (Elected Fellow), Health Sciences Collegium (Elected Fellow) New York Academy of Sciences: Sigma XI World Innovation Foundation (Elected Fellow)

Indian Society of Bio-Organic Chemists, Maharashtra Academy of Sciences (Overseas Fellow), Andhra Pradesh and Telengana Academy of Sciences (Foreign Fellow), Indian Society of Chemists and Biologists (Overseas Fellow), **Fulbright Specialist Award (2015-2021)**

Awards and Distinctions

- "Alkyl Amines Padma Bhushan Prof. B.D. Tilak Chemcon 2002 Distinguished Speaker Award" of the International Institute of Chemical Engineers.
- "Diamond Jubilee Fellowship", University Department of Chemical Technology, Mumbai, India
- "B. D. Tilak Distinguished Visiting Fellowship", University of Bombay.
- Professor V.M. Kulkarni Fellow under "Professor V. M. Kulkarni Endowment Fund" in Pharmaceutical Science and Technology" for the year 2018-2019
- Listed in "American Men and Women of Science", "Who's Who in Science and Engineering".
- Government of India National Merit Scholarships at college and university levels

LANGUAGE PROFICIENCY

Fluent in English, Hindi and Marathi; excellent working knowledge of German, French and several Indian languages

DISTINGUISHED SERVICE TO ACADEMIC/PROFESSIONAL SOCIETIES

American Chemical Society: **Henry Hill Awardee (NESACS-October 2014)**

- Chair(2019) and Chair-Elect, Member, Board of Directors, Princeton Section 2018
- Chair, and Immediate Past Chair, Executive Committee Member, Division of Small Chemicals Businesses 06-
- Committee Member, Joint Board Council Committee on Science, Program Chair ComSci, Subcommittee Chair, Awards and Fellowships for National Medal of Science and Technology
- Committee Member, Joint Board Council Committee on International Activities; Tour Speaker Program; Distinguished Consultant Career Consultant Program, Chemical Entrepreneurship Council
- Elected Chair, Brazosport Section, 1990, Chair- Elect Northeastern Section 2006, Chair 2007-2008
- Member, Board of Directors and Chairman of the Public Services / Public Affairs Committee, Member Publications Committee, Northeastern Section, 1997—2017, Editor, "The Nucleus", February 2004-July 2004-
- Member, Editorial Advisory Board for "Organic Process Research and Development" and "Chimica Oggi". Reviewer of manuscripts for numerous leading professional journals.
- Chair, US Organizing Committee, ACS-CSIR Symposium, Pune + Hyderabad, 2006-

International Union of Pure and Applied Chemistry:

- Member, US National Committee USNC (2010-7), Titular Member, IUPAC Division VII Committee on Chemistry and Human Health (2002-2004 term); Secretary of the Division-2005-, Medicinal Chemistry Section Committee; Associate Member, IUPAC Commissions on Biotechnology, New Technologies and Special Topics; Associate Member, Committee on Chemical Education. NR USA to Division VII (Chemistry and Human Health),
- Project Leader of "New Projects Teams" on Naturaceuticals, Glossaries of Terms used in Process Chemistry" and Training in Medicinal Chemistry in South East Asia.
- Chair, Scientific Program Committee, 20th IUPAC Conference on the Chemistry of Natural Products, Chicago, September 1996.

Other Organizations:

- Chair and US Representative, RSC-Process Chemistry and Technology Committee Group (2018-2020) Member-at-Large, Executive Committee of the Royal Society of Chemistry, US chapter
- Co-chair, Process Development Committee, Massachusetts Biotechnology Council.
- Director and Member, Committees on Advanced Professional Thinking, International Activities and Technology, American Institute of Chemists.
- Consultant, Transfer of Knowledge through Expatriate Nationals (TOKTEN) and United Nations Development
- Visiting scholar and adjunct faculty member, Caltech (2006-2007), Cambridge University (2006-2007), Harvard University (2005-2006, 2009-), Massachusetts Institute of Technology (2007-), Massachusetts College of Pharmacy (2005-2008), Tufts University, Wellesley College, University of Chicago, Northwestern University, University of British Columbia, University of Houston, Saginaw Valley College, Michigan, Shishubharati (2001-) Institute of Chemical Technology, Mumbai (2013-), Overseas Director, SP Mandali (2013-)
- Course Director and Faculty, CMC Courses, Center for Professional Advancement. and cGLP / cGMP courses, The Center for Professional Innovation & Education
- Actively involved with TiE, India Cultural Coordination Committee, Washington, D. C., and leadership roles in several community groups.

SCIENTIFIC ADVISORY BOARDS

- Envision Biotech, Civent Chem, Raleigh, North Carolina, ROW2, Parsippany, New Jersey; MA, International

Publications:

- 1) Thomas G. Heckler, Li-Ho Chang, Yoshiyuki Zama, Takehiko Naka, Mukund S. Chorghade and Sidney M. Hecht*, "T4 RNA Ligase Mediated Preparation of Novel Chemically Misacylated tRNA phe's", *Biochemistry*, **1984**, 23 (7), 1468.
- 2) James R. Roesser, Mukund S. Chorghade and Sidney M. Hecht*, "Ribosome Catalyzed Formation of an Abnormal Peptide Analogue", *Biochemistry*, **1986**, 25 (21), 6361.
- 3) Yoshiaki Aoyagi, Mukund S. Chorghade, Abeysinghe A. Padmapriya, Hosbett Suguna and Sidney M. Hecht*, "Synthesis of Pyrimidoblastic Acid and Epipyrimidoblastic Acid", *J. Org. Chem.*, **1990**, 55 (26), 6291.
- 4) Mukund S. Chorghade, David E. Basque, Dennis G. Lay* and Paul E. Cranley, "MDI Prepolymers Rival TDIs in PU Sealant Formulations", *Adhesives Age*, **1992**, 32.
- 5) M. Chorghade, D. G. Lay* and P. Cranley, "2, 4' MDI based Prepolymers: A Viable Alternative to TDI Prepolymers in Polyurethane Sealants", *Polyurethanes World Congr. Proc., SPI / ISOPA*, **1991**, 319
- 6) Knud E. Andersen, Mikael Begtrup, Mukund S. Chorghade, Jesper Lau, Elaine C. Lee, Behrend F. Lundt, Hans Petersen, Per O. Sorensen* and Henning Thogersen, "The Synthesis of Novel GABA Uptake Inhibitors, Part 2. Synthesis of 5-Hydroxytiagabine, a Human Metabolite of the GABA Reuptake Inhibitor Tiagabine", *Tetrahedron*, **1994**, 50 (29), 8699
Erratum cited in *Tetrahedron*, **1996**, 52 (10), 3375
- 7) Mukund S. Chorghade*, Peter Ellegaard, Elaine C. Lee, Hans Petersen and Per Olaf Sorensen, "Synthesis of Desmethyl Tiagabine", *Heterocycles (special issue honoring Alan Katritzky)*, **1994**, 37 (2), 783.
- 8) Jan V. Andersen, Mukund S. Chorghade*, Derek A. Dezero, David H. Dolphin, David R. Hill, Elaine C. Lee, Kristian T. Hansen and Richard J. Pariza, "Metalloporphyrins as Chemical Mimics of Cytochrome P-450 Systems", *Bioorganic and Medicinal Chemistry Letters*, **1994**, 4 (24), 2867.
- 9) Gary Callen, Mukund S. Chorghade*, Elaine C. Lee, Peter G. Nielsen, Hans Petersen and Abu Rustum, "Identification and Synthesis of Major Oxidative Degradation Products of Tiagabine", *Heterocycles (special issue honoring Arnold Brossi)*, **1994**, 39 (1), 293.
- 10) Joseph E. Celebuski, Mukund S. Chorghade* and Elaine C. Lee, "Chemical Modification of Erythromycin: Novel Reaction Observed by Treatment with Metalloporphyrins", *Tetrahedron Lett.*, **1994**, 35 (23), 3837. Corrigendum published in *Tetrahedron Lett.*, 36 (52), 9414.
- 11) Mukund S. Chorghade* and Elaine C. Lee, "Progress of an Anti-Convulsant Drug from Discovery to Manufacture", *J. Indian Inst. Sci.*, **1994**, 74, 231.
- 12) Mukund S. Chorghade* and Csaba Cseke, "Biorational Design of Herbicides: Synthesis of Inhibitors of the PFP Enzyme", *Pure and Appl. Chem.*, **1994**, 66 (10/11), 2211.
- 13) Mukund S. Chorghade*, Csaba T. Cseke and Paul S. Liu, "The Utility of 2,5-Dideoxy-2, 5-imino-D-mannitol as a PFP Enzyme Inhibitor", *Tetrahedron Asymmetry*, **1994**, 5 (11), 2251.
- 14) Mukund S. Chorghade* and Csaba T. Cseke, "Biorational Design of Herbicides: Synthesis of Inhibitors of the PFP Enzyme", *Heterocycles (special issue honoring Rolf Huisgen)*, **1995**, 40 (1), 213.
- 15) V. Rama Rao*, Mukund K. Gurjar, Shashwati Pal, Richard J. Pariza and Mukund S. Chorghade, "Synthesis of a Novel C2-Symmetrical (2S, 5S)-2,5-Bis-[(1,1-dimethyl-ethoxy) carbonylamino]-1,6-diphenylhex-3-ene: Applications in the Synthesis of Potential HIV Protease Inhibitors", *Tetrahedron Lett.*, **1995**, 36 (14), 2505.
- 16) M. S. Chorghade*, H. Petersen, E. C. Lee and S. Bain, "Efficient Synthesis of Regioisomers of Tiagabine", *Pure and Appl. Chem.*, **1996**, 68 (3), 761.
- 17) Mukund S. Chorghade*, David H. Dolphin*, David R. Hill, Fumio Hino, Elaine C. Lee, Li-Ying Zhang and Richard J. Pariza, "Metalloporphyrins as Chemical Mimics of Cytochrome P-450 Systems", *Pure and Appl. Chem.*, **1996**, 68 (3), 753.
- 18) David R. Hill, Joseph E. Celebuski, Richard J. Pariza, Mukund S. Chorghade*, Milton Levenberg, Thomas Pagano, George Cleary, Paul West and David Whittern, "Novel Macrolides via meso-Tetraarylmetalloporphyrin Assisted Oxidations", *Tetrahedron Lett.*, **1996**, 37 (6), 787.
- 19) M. S. Chorghade*, D. H. Dolphin*, D. Dupre, D. R. Hill, E. C. Lee and T. P. Wijesekara, "Improved Protocols for the Synthesis and Halogenation of Sterically Hindered Metalloporphyrins", *Synthesis*, **1996**, 1320.
- 20) M. K. Gurjar*, S. Pal, A. V. Rama Rao, R. J. Pariza and M. S. Chorghade, "Synthesis of Novel C-2-symmetric and Pseudo C2-symmetric Based Diols, Epoxides and Dideoxy Derivatives of HIV Protease Inhibitors", *Tetrahedron*, **1997**, 53 (13), 4769.
- 21) B. Venkateswara Rao*, B. V. Sarma, S. V. Ravindranadh, M. K. Gurjar and M. S. Chorghade, "Selective Hydrolysis of Isopropylidene Group of Sugar Derivatives with Oxone in Aqueous Methanol", *Carbohydrate Lett.*, **1997**, 2, 377.
- 22) M. K. Gurjar*, K. Sadalapure, S. Adhikari, B. V. N. B. S. Sarma and M. S. Chorghade, "Kinetic Resolution of Aryl Glycidyl Ethers: A Practical Synthesis of Optically Pure *beta* -blocker-S-Metoprolol", *Heterocycles*, **1998**, 48 (7), 1471.
- 23) Mahendra N. Deshpande*, Jufang Barkalow, David Brown, Michael H. Cain, Gary Callen, Mukund Chorghade, Ashok Gupta, Roger Koops, Richard Pariza, Ketan Patel, Subhash R. Patel, and Pulla Reddy Singam, "A Scalable Process for a Novel Antidepressant (ABT-200)", *Org. Process Res. Dev.*, **1998**, 2 (6), 351

- 25) Mukund S. Chorghade*(Editor) and Elaine C. Lee (Associate Editor), Pure and Appl. Chem., **1998**, 70 (2), Proceedings of the XXth IUPAC Symposium on the Chemistry of Natural Products, Chicago, September 1996, preface page vi
- 26) Mukund S. Chorghade*, Liang Guo, Robert M. Moriarty, Raju Penmasta, Munagala S. Rao, Rajesh K. Singhal, Zhengzhe Song, Sudersan M. Tuladhar, Sanmin Yang, T. V. Radhakrishnan and D. G. Sathe, "Industrial Synthesis of N-acetyl-5-methoxytryptamine (Melatonin)", The Chemist, **1998**, 75(4), 27
- 27) Mukund S. Chorghade*, Karen A. Jauregui, Sunil V. Mhaskar, Colin Scott and C. Grace Yeh, "Discovery and Development of an Anti-Inflammatory Medication", The Chemist, **1998**, 75 (5), 32.
- 28) Mukund S. Chorghade* and Veena M. Chorghade, "Promise and Potential of the Pharmaceutical Sector in India: Opportunities and Challenges for Strategic Collaboration", Chimica Oggi, **1998**, 10 (16), 33.
- 29) Mukund S. Chorghade*, "Metalloporphyrins as Synthetic Livers", published in "Drug Metabolism: Databases and High Throughput Testing During Drug Design and Development", International Union of Pure and Applied Chemistry: DMDB Working Party, Ed. Paul W. Erhardt, Blackwell (**1999**), pp.152-162.
- 30) S. Lahiri, C. Ramarao, A. V. Rama Rao, B.V. Rao*, and M. S. Chorghade, "A Facile Synthesis of 5, 6-dimethoxy-1-tetralone", Org. Process Res.Dev., **1999**, 3 (1), 71.
- 31) Xiong Cai, Mukund S. Chorghade*, Aberra Fura, Gurmit S. Grewal, Karen A. Jauregui, Ralph T. Scannell, Michelle Young, C. Grace Yeh, Liang Guo, Robert M. Moriarty, Raju Penmasta, Munagala S. Rao, Rajesh K. Singhal, James P. Staszewski, Sudersan M. Tuladhar and Sanmin Yang, "Kilogram Scale Synthesis of a Potent 5-LO Inhibitor", Org. Process Res. Dev., **1999**, 3 (1), 73.
- 32) Mukund S. Chorghade*, Liang Guo, Robert M. Moriarty, Raju Penmasta, Munagala S. Rao, Rajesh K. Singhal, Zhengzhe Song, Sudersan M. Tuladhar, Sanmin Yang, T. V. Radhakrishnan and D. G. Sathe, "Industrial Synthesis of N-acetyl-5-methoxytryptamine (Melatonin)", Submitted to Organic Process Research and Development. **Now to be resubmitted**
- 33) M. S. Chorghade*, M. K. Gurjar, S. Adhikari, K. Sadalapure, S. V. S. Lalitha, A. M. S. Murugaiah and P. Radha Krishna, "Synthesis of (2S, 5S)-trans-5-(4-fluorophenoxymethyl)-2-(1-N-hydroxyureidyl-3-butyn-4-yl)-tetrahydrofuran-CMI-977", Pure and Appl. Chem., **1999**, (6), 1071-74.
- 34) Mukund S. Chorghade*, "Professor Sir Derek Harold Richard Barton-In Memoriam", Pure and Appl. Chem., **1999**, (6), 1075-77; reprinted in The Nucleus, **1999**, LXXVII, (10), 20
- 35) M. S. Chorghade*. K. Sadalapure, S. Adhikari, S. V. S. Lalitha, A. M. S. Murugiah, P. Radha Krishna, B. Sridhar Reddy and M. K. Gurjar*, "Synthesis of (2S, 5S)-trans-5-(4-fluorophenoxymethyl)-2-(1-N-hydroxyureidyl-3-butyn-4-yl)-tetrahydrofuran (CMI-977): A Potent 5-Lipoxygenase Inhibitor", Carbohydrate Lett, **2000**, 3(6), 405-410.
- 36) Mukund K. Gurjar*, Andappan M. S. Murugaiah, Joseph Cherian and Mukund S. Chorghade, "Synthesis of (4R)-4-Benzyloxycyclopent-2-en-1-one and 1,9-Dioxabicyclo (4.3.0) non-3-enes by Ring Closing Metathesis of Carbohydrate Precursors", Carbohydrate Lett, **2000**, 3 (5), 343-348.
- 37) Darren J. Dixon, Steven V. Ley*, Dominic J. Reynolds and Mukund S. Chorghade, "A Short and Efficient Stereoselective Synthesis of the Potent, 5-Lipoxygenase Inhibitor CMI-977", Synthetic Communications, **2000**, 30 (11), 1955
- 38) M. S. Chorghade*, M. K. Gurjar*, S. Adhikari, K. Sadalapure, S. V. S. Lalitha, A. M. S. Murugaiah and P. Radha Krishna, "An Efficient Stereocontrolled Synthesis of Anti-asthmatic Compound CMI-977", Tetrahedron Lett, Submitted. **Now to be resubmitted**
- 39) Mukund S. Chorghade, Elaine C. Lee, Gary Callen, Jonathan Pease, Hormuz Mazdiasni, Robert Rickert, Richard J. Pariza, Steve J. Wittenberger, Dieter O. Beer, Thomas K. J.Esch, Thomas C. Herzig, Christian C. Witzig, A. V. Rama Rao, B. Venkateswara Rao, V. Satish Kumar and M. Nagarajan, "Efficient Syntheses of (S)-Methyl-2-Pyrrolidinyl)-Isoxazole Hydrochloride: A Novel Cholinergic Cognition Enhancer", Organic Process Research and Development, Submitted . **Now to be resubmitted**
- 40) Mukund K. Gurjar*, L. Murali Krishna, B. Sridhar Reddy, and Mukund S. Chorghade*, "A Versatile Approach to an Anti-Asthmatic Compound LDP-977 and its Six Membered Analogue", **2000**, Synthesis, 557.
- 41) Mukund S. Chorghade*, Edwin D. Becker, John W. Jost, Edwin P. Przybylowicz, and Cynthia Friend, "IUPAC: A Glorious Past, Productive Present and Bright Future", The Nucleus, **2000**, LXXXVIII, No. 19, 10; Part II: The Nucleus, LXXXIX, 1, 16.
- 42) Ramesh A. Joshi, Mukund K. Gurjar*, Narendra K. Tripathy and Mukund S. Chorghade*, "A New and Improved Process for Celiprolol Hydrochloride", Organic Process Research and Development, **2001**, 5, (2), 176.
- 43) G.V. M. Sharma*, K. Raman Kumar, Punna Sreenivas, Palakodety Radha Krishna and Mukund S. Chorghade, "FeCl₃ Mediated Synthesis of 2-substituted and 2,5-disubstituted Tetrahydrofurans from 1,4-Diols", Tetrahedron Asymm., **2002**, 13, 687-690
- 44) Mukund S. Chorghade*, Veena M. Chorghade and Mukund K. Gurjar, "Promise and Potential of the Pharmaceutical Sector in India: Opportunities and Challenges for Strategic Collaboration", Chimica Oggi, **2001**, Outsourcing Compendium, 45-51
- 45) Monge, M. Chorghade, P.W. Erhardt, C.R. Ganellin, N.Koga, P. Lindberg, T.J. Perun, J.G. Topliss, B.K. Trivedi & C.G. Wermuth, "Medicinal Chemistry in the Development of Societies. Biodiversity and Natural Products", Eur. J. Med. Chem., **2000**, 35 (12), 1121-1125; Acta Farmacéutica Bonaerense, **2000**, 9 (4), 309-313; Boletín de la Sociedad Química del Perú, **2000**, LXVI, 210-217; Ingeniera y Ciencia Química, **2000**, 19, 2; Quim Nova (Brazil), **2001**, 24 (1), 153-155; Chemistry International, **2001**, 23 (2), 39-42; Anales de la Real Academia De Farmacia (Spain), **2001**, 67, 5, 14; Anales de

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