Curriculum Vitae

1. **Name** : **Dr. Vivekanand Baliram Jadhav**
2. **Nationality/Gender** : Indian/Male
3. **Mailing ADDRESS (Work)** : **Department of Chemistry,**
   Shri Muktanand College, Gangapur, Dist-Aurangabad,
   Pin-431109**, Maharashtra**, India.
   Phone-91-2433-221342 & Fax-91-2433-221343

   Permanent Address (**Home**) : Plot No. 29, R.H.No-1, Adarsh Nagar,
   B/H Patwardhan Hospital, Station Road,
   Aurangabad-431005. Maharashtra, INDIA.
   Cell: +917875732317 & 7588876395
   E-mail: ***viveka22@gmail.com***

- **Orcid ID:** orcid.org/0000-0002-2840-8126

4. **Educational Qualifications:**

- **Teaching:** Currently working as an Assistant Professor in Shri Muktanand College, Gangapur, (NAAC Re-accredited A Grade, ISO 9001-2015 Certified), Dist.-Aurangabad, Maharashtra, India, run by MSP Mandal, Aurangabad, Maharashtra since 15th October-2011 to till date.
- **Teaching**: Worked as an Assistant Professor in Deogiri College, Aurangabad, Maharashtra, India, run by MSP Mandal, Aurangabad, Maharashtra, since December-2010 to October-2011.
- **Post-Doctoral Research Associate:** Worked as a postdoctoral Research Associate under the Directorship of **Prof. Heonjoong Kang**, Director of Centre for Marine Natural Products & Drug Discovery, Seoul National University, Seoul, South Korea, from Dcember-2008 to September-2010.
- **Ph. D. (2008)**: Thesis entitled "**Synthesis of C-Linked Carbo-β^3, γ^4-Amino Acids, Peptides and Studies towards the Synthesis of Marinomycin A**" submitted to Osmania University, Hyderabad, India.

  Research Supervisor: **Dr. G. V. M. Sharma FNA**, Deputy Director & Sci-G, Indian Institute of Chemical Technology, Hyderabad, (CSIR-Govt. of India), Andhra Pradesh**,** India.
- **M. Sc. (2001):** Passed with first class with 65.57 % in 2001 with subject as **Organic Chemistry** from Swami Ramanand Teerth Marathwada University, Nanded, MS, India.
- **B. Sc. (1998):** Passed with first class obtaining 73.56 % in 1998 with subjects **Chemistry, Physics** and **Mathematics** from Swami Ramanand Teerth Marathwada University, Nanded, MS, India.

Accomplishments:

- *Sanctioned, "**SERB-DST Start-Up Research Grant",** for Young Scientist from Science and Engineering Research Board, New Delhi, Government of India, with an amount of Rs.-22, 40,000/- for three years,*

  *Entitled, "**Synthesis and Biological evaluation of 4, 6 disubstituted 2-functionalised 1,3,5-trizine hybrids for therapeutic importance ".***
- *Sanctioned, "**UGC-Minor Research Project",** from WRO, University Grants Commission, Pune, Government of India , for two years with an amount of Rs.-1,70,000/- for two years, entitled, **"Synthesis of Imidazo [1, 2-a] Isoquinoline Based Pyrimidinylsulfinyl Derivatives for Its Antiulcer, Anti-secretory Activity via Molecular Hybridization Approach."***
- Nominated for DAE Young Scientist Research Award (DAE-YSRA), by BRNS, Mumbai. *Government of India*, (Project under Revision).
- Sanctioned *University Grants Commission*, New Delhi, *Government of India,* UGC-Major research project for Presentation in the final round.

- ***Selected as a Visiting Fellow** in Jawaharlal Nehru Centre for Advanced Scientific Research, Jakkur, Banglore-560064, India, under the guidance of **Dr. T. Govindaraju,** faculty fellow, New Chemistry Unit, JNCASR, Bangalore under **Visiting Fellowship Programme 2012-13** for three months.*
- *Research Fellowship (2003-2008) awarded by **CSIR** (Council of Scientific and Industrial Research), New Delhi, Govt. of India.*
- *Qualified State Eligibility Test (**SET**), to do lectureship at Graduate level & Postgraduate level in Maharashtra & Goa states of India, Conducted by University of Pune, Pune.*
- *Qualified Graduate Aptitude Test in Engineering (**GATE**) conducted by Indian Institute of Technology, Madras, (IIT) for Admission to Ph.D. at IIT's with all India Rank of **101**.*

Teaching Experience:

- Currently working as an Assistant Professor and Head, in Shri Muktanand College, Gangapur, (NAAC Re-accredited A Grade in IIIrd Cycle), Dist.-Aurangabad, Maharashtra, from 15th Oct-2011 to till date.
- Worked as an Assistant Professor in Deogiri College, Aurangabad, Maharashtra, India, since December-2010 to October-2011.
  - **07** Years Teaching Experience t**o Under-Graduate** Classes.
  - **01** years teaching Experience to **Post-Graduate** Classes.

Research Experience:

- **Worked as a Visiting Fellow** (Nov-2012-Dec-2012) in Jawaharlal Nehru Centre for Advanced Scientific Research, Jakkur, Banglore-560064, India, under the guidance of **Dr. T. Govindaraju,** faculty fellow, New Chemistry Unit, JNCASR, Bangalore under **Visiting Fellowship Programme 2012-13** for one month.
- 2 years of ***Post-doctoral research experience*** in the ***Centre for Marine Natural Products and Drug Discovery***, ***Seoul National University, Seoul, South Korea***.
- Expertise in design and executing multi-step Target Oriented Synthesis & development of scaffolds.
- Experience in the design and synthesis of unnatural β, γ and other amino acids from carbohydrates and their peptides.
- Validation of solution phase reactions with handling of high molecular weight (2000) compounds in solution phase.
- Experience in handling Sulphur and Selenium containing heterocyclic compounds.
- Expertise in handling air and moisture sensitive reactions/reagents; Endured in purification of products in minor amounts.
- Adept in spectral analysis –NMR, IR and Mass; Familiar with CD Spectrometry, HPLC.
- Expertise in handling Brucker NMR-300 MHz and MPLC.
- Conversant with commonly used chemistry related software's like ISIS Draw, ACD Software, ACS CA on CD, Schi Finder.

Administrative Experience

- Currently working as an IQAC Coordinator since January-2016 to till Date.
- Working as a Head of department of Chemistry since July-2016 to till Date.

C. List of publications during last five years

1. Novel 10/12-and 11/13-Mixed Helices in α/γ and β/γ-Hybrid Peptides Containing C-Linked Carbo-γ-Amino Acids with Alternating α-and β-Amino Acids. Sharma, G. V. M.; ***Jadhav, V. B.***; Ramakrishna, K. V. S.; Jayaprakash, P.; Narsimulu, K.; Subash, V.; Kunwar, A. C. ***J. Am. Chem. Soc***. 2006**,** *128,* 14657–14668.
2. Differentiation of Two Pairs of Diastereomeric BocN-*C*-Linked-Carbo-γ^4-Amino Acids (γ^4-Caas) in Negative Ion Electrospray Tandem Mass Spectrometry (ESI MS/MS); P. Nagi Reddy, V. Ramesh, R. Srinivas, G.V.M. Sharma, P. Jayaprakash, ***Jadhav, V. B.***, Pendem Nagendar. ***J. of Mass Spectrom,*** **2006**, *41*, 1105-1108.
3. Positive and Negative Ion Electrospray Tandem Mass Spectrometry (ESI-MS/MS of Boc-Protected Peptides Containing Repeats of L-Ala-γ^4-Caa/γ^4-Caa-L-Ala: Differentiation of Some Positional Isomeric Peptides; P. Nagi Reddy, R. Srinivas, M. Ravi Kumar, G. V. M. Sharma and ***Jadhav, V. B.*** *J. Am Soc. Mass Spectrom,* **2007**, *18*, 651-662.
4. Synthesis and Structural Studies of New C-Linked Carbo-β-Amino Acids and Carbo-β-Peptides with 10/12-Mixed Helices, Gangavaram V. M. Sharma, Velaparthi Subash, Nelli Yella Reddy, Kongari Narsimulu, Rapolu Ravi, ***Jadhav, V. B.,*** Upadhyayula S. N. Murthy, K. Harakishore and Ajit C. Kunwar.***Org. Biomol. Chem***. 2008, *6*, 4142-4156.
5. Bioactivity and synthesis of pyrazoline motifs Sunil U. Tekale, ***Vivekanand B. Jadhav***, Rupali L. Magar, Chabubai. S. Patil, Rajita D. Ingle, Saroj R. Bembalkar and Yeshwant B. Vibhute, Chapter-12; Bioactive Heterocycles: Synthesis and Biological Evaluation, Nova Science Publishers. **Pub. Date:** 2012, 4th Quarter, ISBN: 978-1-62257-451-3.
6. Micron Particles of AlN/Al: Efficient, Novel and Reusable Heterogeneous Catalyst for the Synthesis of Bis(indolyl)methanes, Sunil U. Tekale, Suresh S. Shisodia, Sushma S. Kauthale, ***Vivekanand B. Jadhav***, Nilesh S. Kanhe, Savita V. Bhoraskar and Rajendra P. Pawar, ***Synthetic Communication,*** 2012, 43, 13, 1849-1858.
7. Trichloroacetic Acid Mediated Solvent-free Synthesis of Bis(indolyl)methanes Utilizing Grinding Technique, ***Vivekanand B. Jadhav***, Sunil U. Tekale, Rajendra P. Pawar, ***Journal of Chemistry and Chemical Sciences,*** (ISSN 2229 – 760X), Vol. 2 (2& 3), 128-137, 2012.
8. Bioactive Dihydropyrimidines: An overview, ***Vivekanand B. Jadhav,*** Harish V. Holla, Sunil U. Tekale, Rajendra P. Pawar, ***Der Chemica Sinica,*** 2012, 3(5):1213-1228.
9. ZnO nanoparticle-catalyzed efficient one-pot three-component synthesis of 3,4,5-trisubstituted furan-2(5H)-ones, Sunil U. Tekale, Sushma S. Kauthale, Vijay P. Pagore, ***Vivekanand B. Jadhav***, Rajendra P. Pawar, Journal of the Iranian Chemical Society, 2013, DOI, 10.1007/s13738-013-0266-9.

10. Silica gel supported polyamine: A versatile catalyst for one pot synthesis of 2-amino-4H-chromene derivatives, R. L. Magar, P. B. Thorat, ***V. B. Jadhav***, S. U. Tekale, S. A. Dake, B. R. Patil, R. P. Pawar, ***Journal of Molecular Catalysis A: Chemical***, 2013, 374–375, 118–124.

11. Application Progress of Recent Advances in Some Copper Catalyzed Coupling Reactions, Sunil U. Tekale, ***Vivekanand B. Jadhav***, Vijay P. Pagore, Sushma S. Kauthale, Digambar D.Gaikwad, Rajendra P. Pawar, ***Mini-Reviews in Organic Chemistry,*** 2013, 10, 281-301.

12. *5-SulphoSalicyclic Acid Mediated Expedious Synthesis of Bis (indolyl) Methanes,* ***Vivekanand B. Jadhav***, ***Elixir Appl. Chem.*** 70 (2014), 24010-24014.

13. Grinding induced solvent free, catalyst free synthesis of β-enaminones and β-enamino esters, Sunil U. Tekale, ***Vivekanand B. Jadhav***, Shivaji B. Mundea and Rajendra P. Pawar, ***Der Chemica Sinica***, 2015, 6(1):38-41.

14. Ammonium trifluoroacetate mediated efficient synthesis of bis (indolyl) methanes, ***Vivekanand B. Jadhav***, Srinivas L. Nakkalwar, Sunil U. Tekale, Shivaji B. Munde and S. B. Patwari, ***Der Chemica Sinica,*** 2015, 6(2):20-24.

15. Ammonium chloride catalyzed microwave-assisted synthesis of tetrahydrobenzo[b]pyrans, Vijay P. Pagore, Sunil U. Tekale, ***Vivekanand B. Jadhav***, Rajendra P. Pawar, ***Iranian Journal of Catalysis,*** 6(2), 2016, 189-192.

16. Tetra-n-butyl ammonium hydroxide mediated one pot synthesis of Pyrano[2, 3-d]pyrimidinone derivatives, ***Vivekanand B. Jadhav*** , Mohasim M. Patel, Iran. Chem. Commun. 5 (2017) 115-120

- ***Text Book***

1. Prepared Text book of Chemistry entitled, **"Progessive Chemistry",** R. P. Pawar, S. U. Tekale, V. P. Pagore, ***V. B. Jadhav,*** as per revised syllabus for B.Sc. First Year Students of Dr. Babasaheb Ambedkar Marathwada University, Aurangabad, Maharashtra. Publisher- Educational Publishers & Distributors, Aurangabad, July-2013, **ISBN No-978-93-80876-43-6**.
2. Prepared five Reference book of Chemistry by, V. B. Jadhav, as per revised syllabus for B.Sc./M.Sc. Students of Various Universities across India. Publisher- Oxford Book Publishers & Distributors, Jaipur, April-2014, as follows.
   a. Fundamentals in Inorganic Chemistry-**ISBN-10:** 9350302659.
   b. Concepts in Analytical Inorganic Chemistry-**ISBN-10:** 9350302640.
   c. Developments in Analytical Inorganic Chemistry-**ISBN-10:** 9350302667.
   d. New Trends in Analytical Inorganic Chemistry**-ISBN-10:** 9350302675
   e. Chemical Applications in Inorganic Chemistry-**ISBN-10:** 9350302683

- **Reviewer**

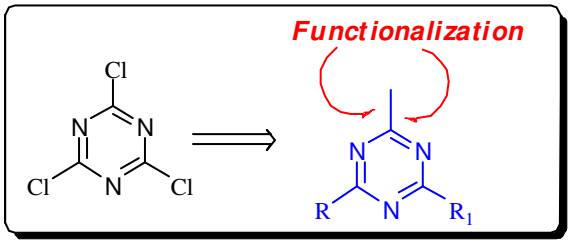
1. "International Journal of Engineering Research and Technology", International Research Journal.
2. "Journal of Chemistry & Chemical Sciences", Reviewer & member of Editorial Advisory Board.
3. Reviewer of Rasayan Journal of Chemistry.

References:

Dr. G. V. M. Sharma	Chief Scientist, CSIR-Indian Institute of Chemical Technology, Council of Scientific and Industrial Research, Ministry of Science & Technology, Government of India Tarnaka, Hyderabad-500007, Telangana, INDIA Ph.: 9440802785 Email: **esmvee@iict.res.in** and sharmagvm@yahoo.com
Dr. Heonjoong Kang	The Center for Marine Natural Products and Drug Discovery (CMDD) School of Earth and Environmental Sciences (SEES) Seoul National University, NS-80 Seoul 08826, Korea Office: 82-2-880-5730 Cellular: 82-10-5449-0207 Fax: 82-2-887-0210 E-mail: ***hjkang@snu.ac.kr***
Dr. S. B. Patwari	Board of Studies, Swami Ramanand Teerth Marathwada University, Nanded, Associate Professor & Head, Department of Chemistry, Lal Bahadur Shastri College, Dharmabad, Maharashtra. Pin-431005. Ph.: **9423626280** Email: sbpatwari67@gmail.com & **Sbp.67@gmail.com**
Dr. R. M. Mulani	I/C Registrar, Swami Ramanand Teerth Marathwada University, Nanded, Professor, School of Life sciences, Swami R. T. M. University, Nanded, Maharashtra. Ph.: +91-9657224391 Email: mulani1961@gmail.com

Present Work in My Laboratory

Currently I am working on the DST, Govt. of India sponsored project entitled, ***"Synthesis and Biological Evaluation of 4, 6-disubstituted 2-Functionalized 1, 3, 5-Triazine Hybrids for Therapeutic Importance."*,** where I will be exploring functionalization of 2 positions of disubstituted triazine for its anticancer and antituberculosisis activity. We have synthesised various derivatives and analogous to test against various Cancer cell lines. We are happy to know that one of our derivatives is showing excellent anticancer activity which we tested in **Dr. Dhiman Sarkar,** Organic Chemistry, Division, CSIR-National Chemical Laboratory, Pune, Maharashtra, India.



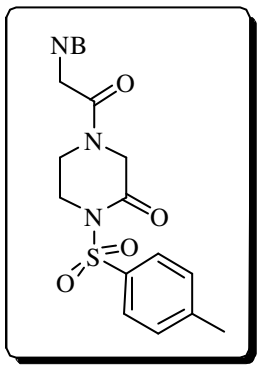
Further we will be looking for a highly potent compound with diverse structural scaffolds, which can be collected and a novel functionality will be generated suitably. Further one active part of one scaffold/compound will be connected with other active part of another scaffold through **"Molecular Hybridisation Approach Concept."** Thus molecular hybridization of active structural subunit will be carried out to generate more potent, diverse structural scaffold, whose activity can be checked to check whether they show enhanced, decreased activity for the same disease or show more potent activity for some other diseases.

Carried During Visiting Fellowship Programme 2012-13 in

Jawaharlal Nehru Centre for Advanced Scientific Research, Jakkur, Bangalore.

(Phase-I, Nov-2012 to Dec-2012)

During my visiting fellowship Programme in JNCASR, Bangalore, I worked on the "Synthesis of Self Activated PNA Monomer for The Synthesis of PNA Oligomers and Their Studies" Pioneering discovery of Peptide nucleic acid i.e. PNA by Nielsen et al. in 1991 which has received great attention owing to its many favourable properties including chemical and thermal stability, resistance to nucleases and proteases, stronger and faster binding affinity to the complementary nucleic acid, hybridization under low salt concentration, and higher specificity and sensitivity to a single mismatch. Specially, PNA has attracted major attention at the interface of chemistry and biology because of its interesting chemical, physical, and biological properties and its potential to act as an active component for diagnostic, molecular biological and pharmaceutical applications. Generally, As is the case in the peptide synthesis, two protection group strategies have been used for the preparation of PNA oligomers: Boc/Cbz and Fmoc/Bhoc. However, these methods have serious drawbacks due to harsh reaction conditions and side reactions during either monomer synthesis and/or PNA oligomer synthesis. Due to the strong electron-withdrawing effect of the sulfonyl group, the acyl group of acyl-sulfonamide is easily attacked by nucleophiles after alkylation which was applied in the safety-catch strategy for the synthesis of a peptide thioester for native chemical ligation of the peptide. Using these characteristics of Bts, we designed self-activated cyclic PNA monomers. Herein we tried to synthesize a new type of cyclic PNA monomer and a new efficient method of PNA oligomer synthesis using Tosyl as an amine-protecting group as shown below.

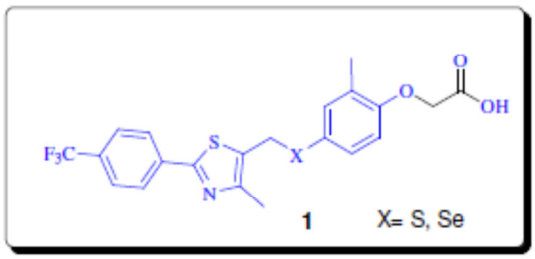


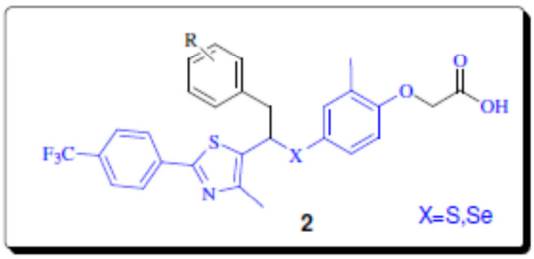
During the first phase of my tenure of Visiting Fellowship Programme a feasible route for the synthesis of self activated PNA monomer is planned and also a facile synthesis was achieved successfully. In the second phase of my visit I will try to successfully achieve the macro scale

synthesis of PNA monomer which will be utilized for PNA oligomer synthesis and its bio-mimetic applications thereof.

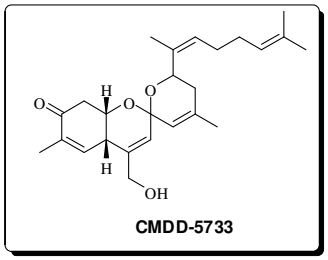
Work Carried During Postdoctoral Period

Several studies have suggested important roles of PPAR notably, the potent PPAR agonist GW501516 in regulating lipid metabolism and energy homeostasis in muscle and fat. These results suggest that $PPAR_{\delta}$ agonists might be useful in the treatment of diseases associated with the metabolic syndrome, such as dyslipidemia, and insulin resistance. To further elucidate the molecular mechanisms and pharmacological responses, I carried out synthesis of library of novel organic compounds for the activation of PPARγ, $PPAR_{\delta}$ and PPARα to explore a single therapeutic tool for the simultaneous treatment of obesity and type II diabetes, which are the foremost concern in the public health throughout the world. As described below, in initial period, while working, I guided juniors on the synthesis of some lead analogues of PPAR agonists compounds with basic skeleton as shown below.





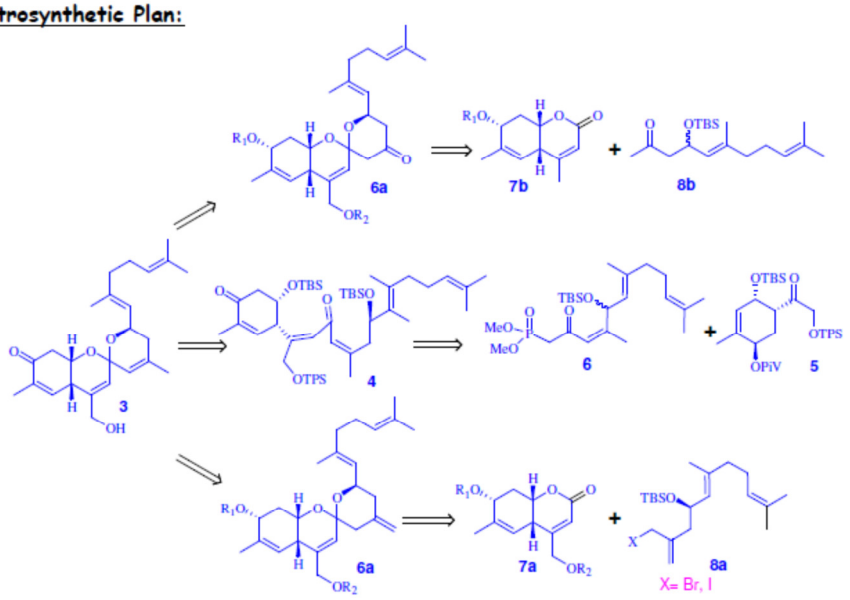
Further I worked towards the total synthesis of CMDD-5733 a marine natural product, having potent **LXR agonist activity**. CMDD-5733 is a novel, new tricyclic sesterterpenoid skeleton containing marine natural product with, an interesting spiroketal hydrobenzopyran moiety which is unprecedented in natural products. Although similar natural product named **Alotaketal** and **Phorbaketal** are further reported in the literature Thereafter, I carried out total synthesis of **CMDD-5733** i.e. **Phorbaketal A** with a proposed skeleton and stereochemistry, to confirm its correct skeletal structure and absolute configuration.



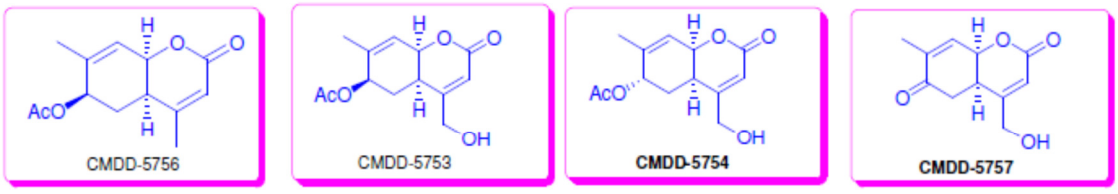
The retro synthetic plan for the synthesis of this molecule is outlined as below which can be visuavalized by three ways one from the Horner-Witting olefination of two fragments 5 and 6 followed by acid catalysed spiro-cyclization while other will be Barbier type metal allylation

between 7a and 8a to give the final product using Samarium Iodide or other metals and final one is base catalyzed addition of methyl ketone to coumarin derivatives.

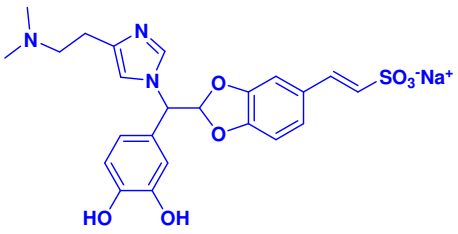
The Retrosynthetic Plan:



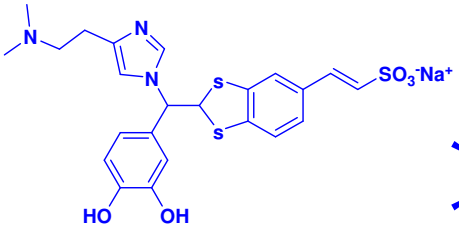
I have completed synthesis of Fragment **5** and **6** (minor amt of yield) successfully but failed to get addition product **4**. Again I tried to synthesize **3** through Samarium Iodide mediated Barbier type coupling between **7a** & **8a** which also failed to get any desired product. Finally I prepared Methyl Ketone derivative of Geraniol moiety **8b** and carried base mediated coupling with **7b**, which also failed to get any desired product. Currently work towards finishing the total synthesis of this molecule is going in our lab by one more approach which has positive result, so not presented in this present approaches. Again from the above intermediate, I have completed synthesis of novel unnatural chiral coumarin CMDD-5754 & it's analogues as possible potent PPAR ligands as follows.



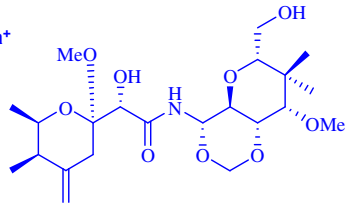
a. During Postdoctoral stay, I was a team leader of seven people. During which, I actively designed, a flexible route for the synthesis of Sulphur analogue of a potent marine natural product **Wondonin,** whose scheme is running successfully in our lab presently and having structure as follows. I also directed the scalable synthesis of two fragments of Theopederin E successfully.



Original Molecule



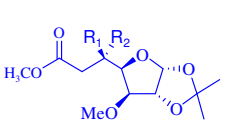
Our Sulphur Analague



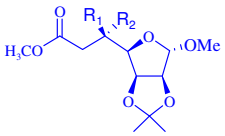
Theopederin E

Work Carried During Ph.D. Period in IICT Hyderabad

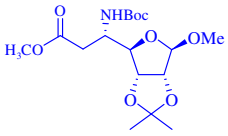
- During PhD, I synthesized a new class of β-amino acids **1-6**, (β^3-Caas) and γ-amino acids **7-8** utilizing different **carbohydrate** side chains as shown below. The main idea behind the study was to understand the impact of sterochemical as well as other structural features of the carbohydrate side chains on the helix formation in mixed β-peptides



1-R_1= NHBoC; R_2=H
2-R_2= NHBoC; R_1=NHBn



3-R_1= NHBoC; R_2=H
4-R_2= NHBoC; R_1=NHBn



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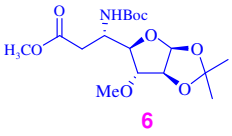

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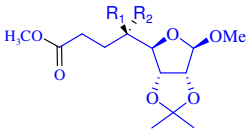
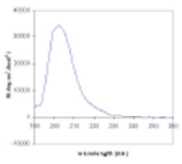
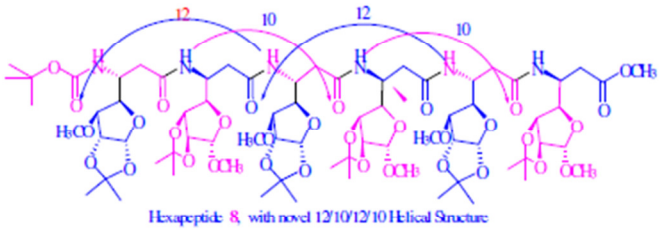


7-R_1= NHBoC; R_2=H
8-R_2= NHBoC; R_1=NHBn

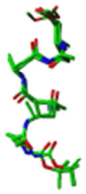
- New mixed β-peptides 7-14 were prepared from the above β-Caas based on the 1:1 alternating use of (R)-β-Caa and (S)-β-Caa, utilizing the concept of 'alternating chirality'. The peptides from β-Caa(x)-**1** and β-Caa(l)-**3**; & from β-Caa(x)-**1** and or β-Caa(r)-**5** revealed robust 12/10-helices, which is confirmed by H^1-NMR study and well supported by CD spectra, MD studies.



CD Spectrum

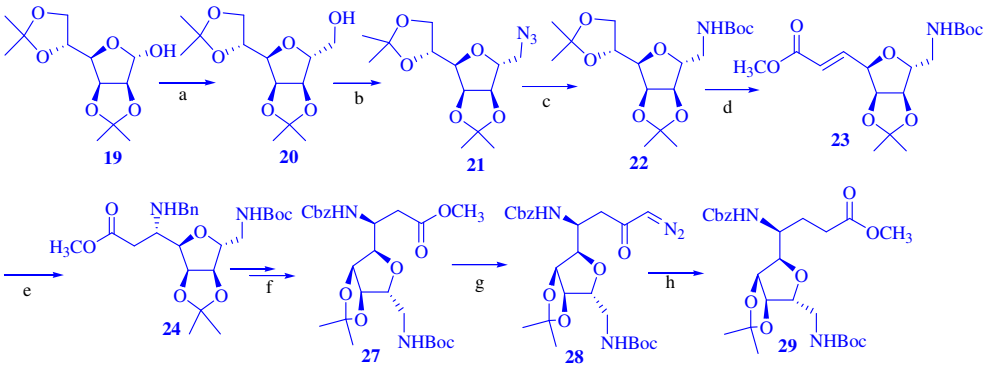


Hexapeptide 8 with novel 12/10/12/10 Helical Structure



MD Structure

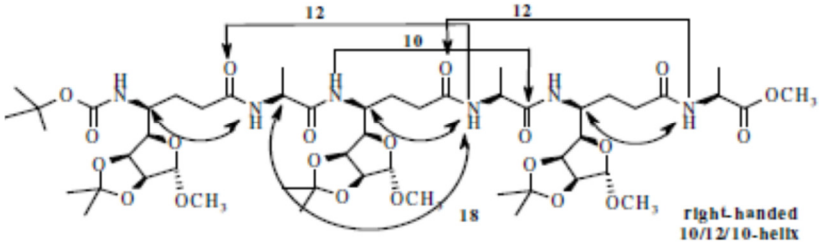
- However, the peptides from **β-Caa(l)-3** and **β -Caa(Da)-6** have shown rotamers, while, from **β-Caa(l)-3** and **β-Caa(r)-4** indicated no conformations. The above study amply projects that the compatibility of side chains is essential in giving peptides with helical structures.



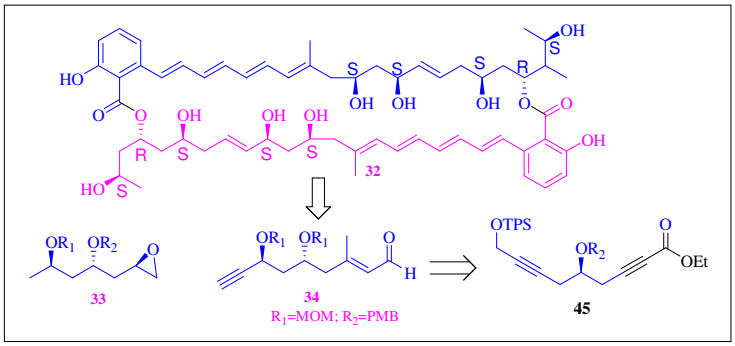
- Again, I accomplished **first synthesis** of a new class of water soluble γ^4-amino acids with carbohydrate side chain with a polar arm for making water soluble biologically valued

peptides, whose peptides showed **moderate biological activity** and work is underway for further modification for enhanced biological activity, as shown below.

- Synthesized, first design on a 'new motif' in **α/γ-hybrid peptides,** having hetereogeneous backbone for 12/10-helix devoid of β-amino acid, giving first experimental proof to Hoffmann's theoretical prediction (Published in **JACS**. *2006***,** *128,* 14657–14668).



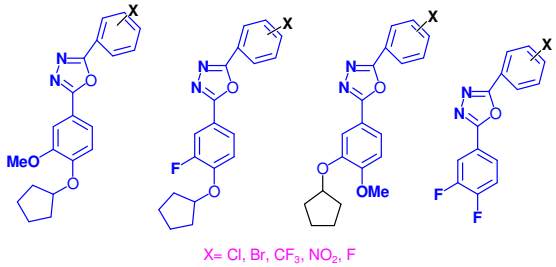
- Talking about target oriented multistep synthesis; I have synthesized C1 to C7 fragment and entire carbon frame work (C8 to C16) of **Marinomycin A.** Thus I acquired skills in the air sensitive multi-step, organic synthesis of chiral compounds of therapeutic importance from milligrams to multigram quantity.



- I have handled and worked on research projects both **independently** and as **a team member**.

b. During Ph.D. I handled two **Indo-French project**, guiding two juniors, working on three different aspects with synthesis of C-alkylated, N-alkylated sugar amino acids and their catalytic use in asymmetric synthesis and some proposed biological actions through click chemistry.

c. Working in a team, I successfully devised a scheme for the synthesis of 1.3 Oxadiazole and synthesized various derivatives for their potential antiansthmatic activity.



d. Again I completed synthesis of potentially bioactive **Pyrimidine, Dihydropyrimidine** and **bis-indole glycoconjugates** with different Sugars like D-mannose, D-glucose, D-galactose and D-ribose for making these conjugates successfully as shown below

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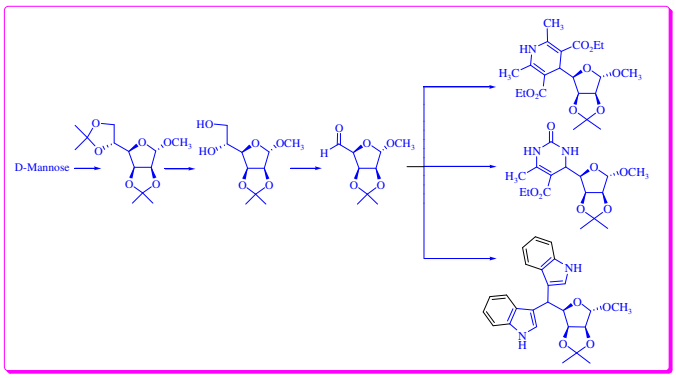

e. While working independently, I standardized the scheme for the synthesis of Pyran containing amino acid synthesis successfully. While work is underway in our lab for further modification for more biological activity and peptide synthesis etc.