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Dr. Prashant K. Metri

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Objective:

To be part of teaching profession, chemical biology research and to pursue an independent career in medicinal chemistry by employing my acquired knowledge and skills.

Academic Qualifications:

Position	Place
May, 2022-Present	**SECAB Institute of Engineering Technology, Vijayapur**
March, 2021- Dec, 2021 **Post-doctoral Research**	INSTEM (Institute for Stem Cell Science and Regenerative Medicine), Bangalore, India (Dr. Praveen Kumar Vemula)
Jan, 2020- March, 2021 **Post-doctoral Research**	Department of Organic Chemistry, University of Mysore, Mysuru, Manasgangotri, Karnataka, India
Jan, 2017-Jan, 2020 **Assistant Professor (Temporary)**	SB Arts and K.C.P Science College, Vijayapur, 586103, Affiliated to Rani Chennamma University Belagavi, Karnataka, India
Sept, 2014-May, 2016 **Post-doctoral research**	Department of MCDB, University of Colorado, boulder, United States of America Research Supervisor: Prof. Ding Xue

August, 2008 – July, 2014 **Ph. D.**	Department of Organic Chemistry Indian Institute of Science Bangalore-560012, India Research Supervisor: Prof. K. R. Prasad
July, 2006 - May, 2008	Master of Science in Organic Chemistry (Gold medalist). First Class with distinction (81.25 %) Department of Chemistry Karnatak University Dharwad **NET-JRF-2008**
2003-2006	Bachelor of Science (Chemistry, Zoology and Biotechnology) First Class with distinction (89.9 %) Karnatak Science College Dharwad Karnatak University, Dharwad.

List of Publications and patent:

- Enantiospecific Total synthesis of (−) Bengamide E.
  Prashant K. Metri, Raphael Schiess and Kavirayani R. Prasad. *Chem. Asian J.* **2013**, *8*, 488.

- **MPK-09**, a Small Molecule Inspired from Bioactive Styryllactone Restores the Wild-Type Function of Mutant p53.
  Prashant K. Metri, Sarwat Naz, Paturu Kondaiah and Kavirayani R. Prasad. *ACS Chem. Biol.* **2013**, *8*, 1429.

- Peptaibols from Tichoderma sp (MSX70741): Isolation, structure elucidation and biological activity. Rivera-Chavez J; Raja HA; **Metri P**; Xue D; Pearce CJ; Oberlies NH. *Planta medica.* **2016**, 82 (S 01): S1.

- Prealamethicin F50 and related peptaibols from Trichoderma arundinaceum: validation of their authenticity via in site chemical analysis. Rivera-Chavez J; Raja HA; Graf TN; Gallagher JM; **Metri P**; Xue D; Pearce CJ; Oberlies NH. *RSC Advances.* **2017,** 7, 45733.

- Enantiospecific formal total synthesis of (+)-dihydrokawain-5-ol. **Prashant K. Metri*.** *Synthetic Communications.* **2020**, *50,* 1361-1366. (Corresponding author).

- Exploring the newer oxadiazoles as real inhibitors of human SIRT2 in hepatocellular cancer cells. Dukanya, Muthu K. Shanmugam, Shobith Rangappa, **Prashant K. Metri**,

Surender Mohan, Basappaa, Kanchugarakoppal S. Rangappa. *Bioorganic Med. Chem Lett.* **2020**, *30*, 127330.

- Anti-proliferative activity and Characterization Data on Oxadiazole Derivatives. Dukanya, Muthu K Shanmugam, Shobith Rangappa, **Prashant K Metri**, Surender Mohan, Basappa, K. S Rangappa. *Data in Brief*. **2020**, *31*, 105979.

- Novel 1,3,4-oxadiazole Targets STAT3 Signaling to Induce Antitumor Effect in Lung Cancer. Vikas H. Malojirao, Swamy S. Girimanchanaika, Muthu K. Shanmugam, Ankith Sherapura, Dukanya, **Prashant K. Metri**, Vellingiri Vigneshwaran, Arunachalam Chinnathambi, Sulaiman Ali Alharbi, Shobith Rangappa, Chakrabhavi Dhananjaya Mohan, Basappa, Bettadathunga T. Prabhakar and Kanchugarakoppal S. Rangappa. *Biomedicines*. **2020**, *8*, 368.

- Development of a New Arylamination Reaction Catalyzed by Polymer Bound 1,3-(Bisbenzimidazolyl)Benzene Co (II) Complex and Generation of Bioactive Adamanate Amines. Baburajeev Chumadathil Pookunoth, Shilpa Eshwar Rao,Suresha Nayakanahundi Deveshegowda, Prashant Kashinath Metri, Kashifa Fazl-Ur-Rahman, Ganga Periyasamy, Gayathri V irupaiah, Babu Shubha Priya, Vijay Pandey, Peter E. Lobie, Rangappa Knchugarakoppal Subbegowda, Basappa. *Catalysts.* **2020**, *10*(11), 1315.

- Development of 1-(4-(substituted)piperazin-1-yl)-2-((2-((4-methoxybenzyl)thio)pyrimidin-4-yl)oxy)ethenone as Poly (ADP-Ribose) polymerase cleavage entity in human breast cancer cells. Suresha Nayakanahundi Deveshegowda, Prashant K Metri, Muthu K Shanmugam, Shobith Rangappa, Ananda Swamynayaka, Mahendra Madegowda, Arunachalam Chinnathambi, Sulaiman Ali Alharbi, Vijay Pandey, Kwang Seok Ahn, Peter E. Lobie, and Basappa Basappa. *Molecules, 2022 (accepted manuscript).*

- Indian Patent (1728\CHE\2013). Title: Compounds for activation of mutant p53 protein and process thereof. Inventors Kavirayani Prasad, Pataru Kondaiah**, Prashant Metri**, Sarwat Naz.

Projects Undertaken during Msc:

- Undergone training at Indira Gandhi Centre for Atomic Research Kalpakkam 603102, Tamil Nadu, India from 28/0 5/2007 to 06/06/2007 and carried out the project on *"Supercritical Fluid Extraction of Organic compounds"*

- Carried out the project on "Separation of Uranium from Thorium using HPLC "under the supervision Dr. N. Sivaraman, scientific officer (G) Fuel chemistry Division, Chemistry Group, Indira Gandhi Centre for Atomic Research KALPAKKAM-603102, Tamil Nadu, India.

Research Interests:

- Design and synthesis of molecules that target DYRK1A gene considered to be responsible for Down syndrome.
- Synthesis and structural activity relationship of biologically important organic compounds.
- Reactivation of mutant p53 using low molecular weight compounds and peptides.
- Asymmetric synthesis of natural products.

Skills profile:

- Expertise in handling Horner-Wadsworth-Emmons reaction, Grubbs' Ring Closing Metathesis reaction and several stereoselective organic reactions.
- Expertise in the preparation and purification of organic molecules from gram to milligram scales.
- Tissue culture, mammalian cell line maintenance and treatments.
- Cytotoxicity/Apoptosis assays- MTT assay, DNA fragmentation, TUNEL, Annexin V positivity.
- Western blot, Genomic DNA isolation, RNA isolation, Replica plating, Gel Contraction assay.
- Real time and Semi-quantitative PCR and transfection studies.

Technical Expertise:

- Well-versed with Chemistry: Computer packages like Microsoft Office (Word, Powerpoint, Excel), ChemDraw, SciFinder Scholar, Reaxys etc.
- Knowledge of techniques and expertise in handling instruments like IR**, NMR, HRMS, HPLC** for the characterization of organic compounds.

Awards and Fellowships:

- ***Gold medal (1st rank)*** *in M.Sc organic chemistry from Karnatak University, Dharwad Karnataka.*
- Qualified **UGC-NET JRF** conducted in **2008**.
- Qualified GATE (**Graduate Aptitude Test in Engineering) Exam 2008.**

Conference and Presentations:

1. Oral presentation in the **IX J-NOST Conference** held at Indian Institute of Science Education

and Research Bhopal during 4th -6th December 2013.

2. International Symposium on Emerging Challenges and Approaches in **Cancer Biology IISc CENTENARY YEAR CONFERENCE** during 21st to 24th February 2009.
3. Oral presentation **in Pfizer Symposium** on Organic Chemistry held at Indian Institute of Science, Bangalore 2012.
4. **"**IISc Centenary Conference**"** 12th-16th Dec 2008, Indian Institute of Science, Bangalore, India.
5. Attended One Day Seminar on "**RECENT TRENDS IN CHEMISTRY**" held at Karnatak University, Dharwad, India on 18th February 2008.
6. Two day National Workshop on "Theory and Principles of characterization Techniques in Physics on 24 and 25 October 2017 organized by SB Arts and KCP Science college Vijayapur.

References:

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Personal information:

Gender	: Male
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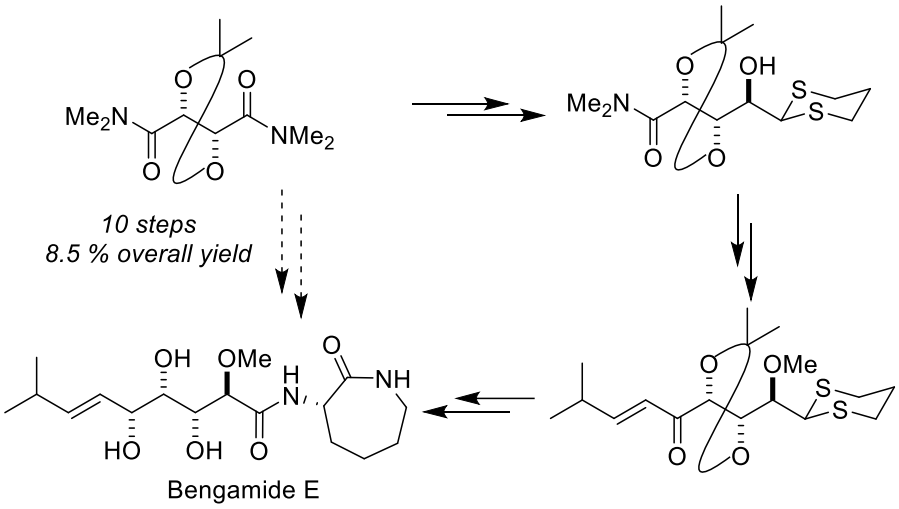
Research Summary:

1.

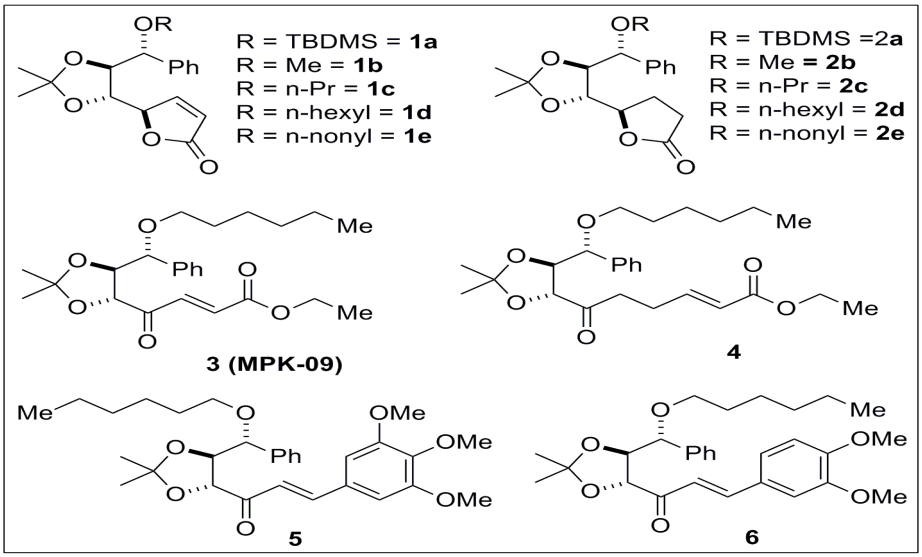
My research work deals with the enantiospecific total synthesis of (–)-Bengamide E. Bengamide E was isolated from the jaspidase sponges by the Crew research group. Enantiospecific total synthesis of Bengamide E was accomplished in 8.5% overall yield in a linear sequence of 10 steps starting from the *bis*-(dimethylamide) unit of tartaric acid as chiral pool precursor. Present approach involves the effective use of tartaric acid as a four-carbon, four hydroxy building blocks by the desymmetrization strategy. Key features of the synthesis includes combination of the addition of 1, 3-dithian-2-yllithium, stereoselective reduction and Horner-Wadsworth-Emmons reaction. Bengamides possess significant cytotoxic activity. This synthetic route will help in synthesizing bengamide analogues and to study their activity.



(Published in *Chem.Asian J.* 2013, *8*, 488-493).

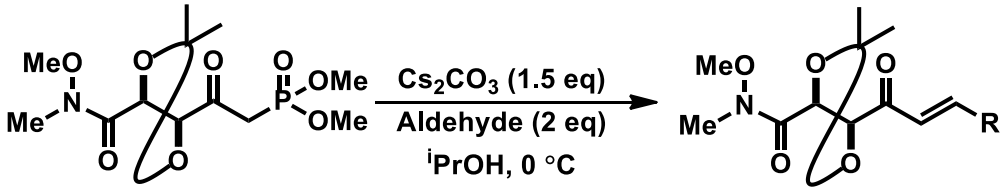
2.

My second paper deals with the MPK-09 a small molecule inspired from bioactive Styryllactone restores the wild-type function of Mutant p53. A library of compounds were synthesized by the elaboration of γ-hydroxy butyramides derived from tartaric acid amide involving controlled addition of grignard reagent followed by stereoselective reduction. During the course of this synthetic investigation, we investigated the sensitivity of compounds (chart below) against cancer cell lines mainly, BT474 (mut p53, E285K), A549 (wt p53) and HeLa (wt p53) differing in their p53 status.



(Published in *ACS Chem. Biol.* 2013, *8*, 1429-1434)

3. My third paper deals with desymmetrization of *bis*-Weinreb amide of L-(+)-tartaric acid with controlled addition of anion generated from dimethyl methylphosphonate.



HWE type reaction of phosphonate with all aldehydes including aryl, aliphatic aldehydes with chiral centers next to the aldehyde functionality underwent facile olefination to yield the unsaturated ketones in good yields. Application of the synthesized unsaturated ketones in the synthesis of various molecular architectures of therapeutic importance was undertaken.

Gabosines are secondary metabolites comprising hydroxylated branched cyclohexanone derivaties isolated from the culture broaths of a number of a number of Streptomycetes. The key reactions during the synthesisis of 4-*epi* Gabosine A are HWE reaction, stereoselective reduction and ring closing metathesis.

Dihydrokawain-5-ol is a unique 6-alkyl-5-hydroxy-5,6-dihydropyran-2-one isolated from the methanol extracts of the kava plant (Piper mythisticum), a Polynesian shrub of the pepper family and it shows promising biological activities. Stereoselective total synthesis of this natural product from L-(+) tartaric acid is described in this section. Key features of the synthesis include stereoselective reduction, bood Oleifination and ring closing metathesis.

(*Synthetic Communications.* **2020**, *50*, 1361-1366.)

4. Postdoctoral Research work.

There are several nucleoside analogue agents under development which have potent anti-viral activity against HBV (Hepatatis B-virus) such as adefovir, entecavir, dipivoxil etc. But most of these drugs are not effective for all kinds of HBV patients with twelve different genotypes. Some of the patients develop resistance after treatment to a particular drug. Hide 1 purified from fungi consists of a mixture of three 20 amino-acid peptides. The aim of this project

is to find out lead compound that can be optimized for further therapeutic development. Initially, we tested the mixure for its anti-HBV activity and later separated the three peptides and looked whether they have same or better activity than the mixture. To test the activity of the purified peptide, we used MTT assay for cytotoxicity and invitro protein binding assays to study interaction between Bcl-2 and HBx. The structure activity relationship was studied to know which amino acids will increase activity and specificity. The structure activity relationship was studied to know which amino acids will increase activity and specificity. Our lead molecule has shown better activity in terms of selectivity and specificity to HBV expressing cells as shown in below figure (HepG2.2.15, Hep3B and HepG2-N10).