Curriculum vitae

Mr.Nomula Vishnu

Department of Organic Synthesis and Process Chemistry
CSIR-Indian Institute of Chemical Technology (CSIR-IICT)
Hyderabad, INDIA.
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Educational Qualifications:

Jan 2017-present **: Phd *(Organic chemistry)***
(Academy of scientific and industrial Research)
Department of Organic Synthesis and Process Chemistry
CSIR-Indian Institute of Chemical Technology (IICT),
Hyderabad, India.500007.

July 2013-june 2015 : ***Master of Science* (*Organic Chemistry*)**
First class with "*A grade*"
Osaminia University, Hyd,

June 2009-June 2012: ***Bachelor of Science* (*Chemistry*)**
First class with "*A grade*"
Osmania University, Hyd, India.

Research Experience:

***July 2015 - Dec 2016*: *Research associate* (*Gvk Bio Pvt.Ltd*).**

Biologically active small molecules synthesis.

***Jun2012- jun2013* : *Chemist* (*Heritage Pvt.Ltd, Hyd*).**

Chemical examination of food products.

Symposia Attended:

- Participated in National Conference on **"Advance in chemical science with special reference to molecular spectroscopy, material science and organic electronics" NCACS-2015.**
- Participated in one day workshop **"Safe chemical lab practices" (2017),**
- Participated i n International Conference on **Sustainable Chemistry for Health, Environment, Catalysis and Materials Chemistry 2018,**

Technical Skills:

- Expertise in carrying out reactions in glove box.
- I have well experienced handling like nBuLi, LDA. etc
- **Spectroscopy**: Acquisition and analysis of ^{1}H NMR, ^{13}C NMR, IR, Mass, HRMS spectroscopic data and DEPT experiments
- **Computer software:** MS Office, Mestre nova, Chem Draw, Reaxys and Scifinder.
- Expertise in the preparation and purification of organic molecules from milligram to gram scales.
- Profound efficiency in handling of hygroscopic, air-sensitive reagents and reactions in smaller (milligram) to larger scales.

List of Research Publications:

1. S.D, K.N, **Vishnuvardhan.Nomula,** Prathama S. Mainkar, S.Chendra Shekar*.Gram Scale Solution-Phase Synthesis of Hepta peptide Side Chain of Teixobactin.(***Synlett 2019)***.
2. **Vishnuvardhan.Nomula**, S.N.Rao *, ^{t}BuOK-BF_3Et_2O mediated synthesis of quinazolin-4(*3H*) ones from 2- substituted amides with nitriles and aldehydes, (***Synthetic communication 2021***).
3. **Vishnuvardhan.Nomula,** K.N, Prathama S. Mainkar*, Benzoisothiazolone (BIT): A Fast, Efficient, and Recyclable Redox Reagent for Synthesis of Dalargin. (***Communicated***).
4. **Vishnuvardhan.Nomula,** K.N, Prathama S. Mainkar*, Process development of delamanid.(***To be communicated***).
5. A.S, **Vishnuvardhan.Nomula (equal contribution),** Prathama S mainkar, Abijith sau* Pyridinesulfonyl Fluoride Mediated Deoxyfluorination of Carboxylic Acid to Acyl fluoride Allowing One-Pot Amidation and Esterification. (***communicated)***.

Area of Interest:

1. Total synthesis of biologically active natural products.
2. Discovery and development of novel synthetic methodologies and its application to the synthesis of pharmaceutically active compounds and materials.
3. Organic Materials, Organic Synthesis, Organic Methodology, Medicinal Chemistry.
4. Site selective Functionalization of distal C-H bond in both aromatic & aliphatic system.

5. Photo oregano catalysis chemistry and Flow Chemistry and Electrochemistry.

6. Development of novel methods for the synthesis of bridged head N- hetero cycles Under metal free conditions.

Personal details

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Satate	: Telangan, India

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Shiridi Sai nagar, Taranaka, Hyd, 500017.India,

References:

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Sr .Principal scientist (HOD).
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Dr. Abhijith Sau
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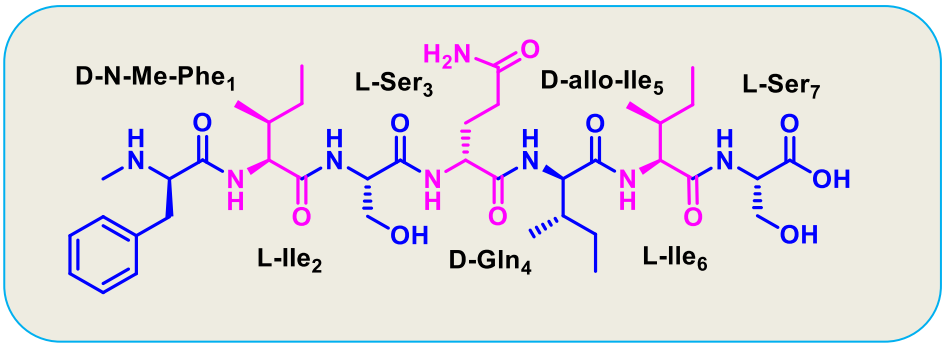
Indian Institute of Technology (IIT-Hyderabad), 502285.
Telangana, India.
E-mail : ***abhijit.sau@gmail.com***.

Research summery

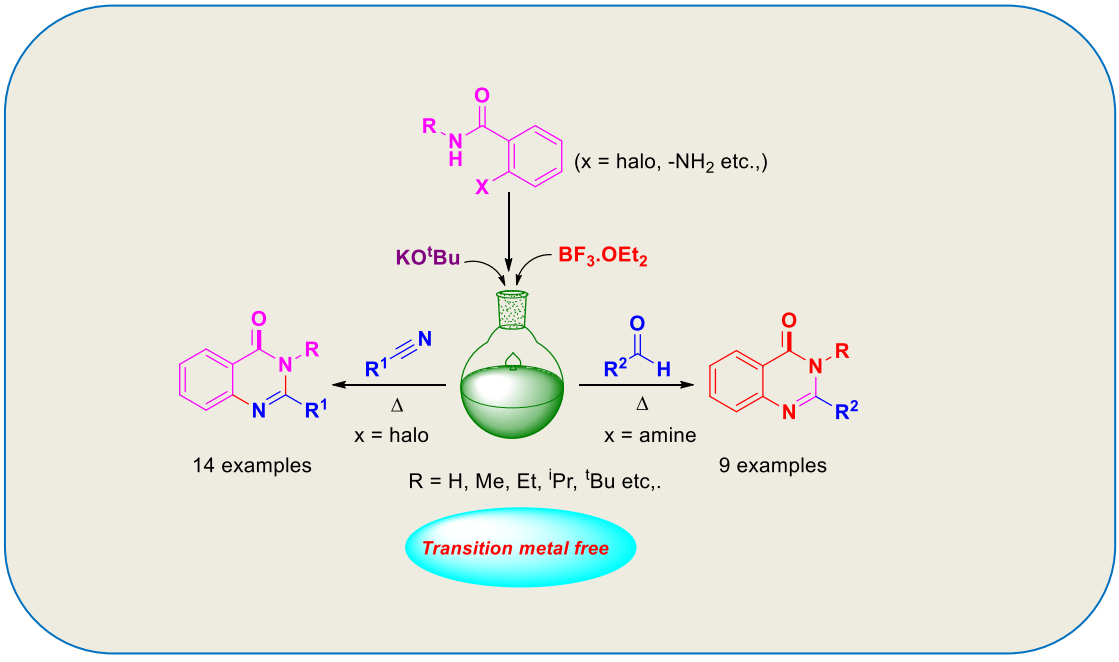
1).Gram Scale Solution-phase Synthesis of Heptapeptide Side Chain of Teixobactin.

We report herein a scalable synthesis of linear heptapeptide side chain of the depsipeptide natural product texiobactin through solution phase. The synthesis of heptapeptide was achieved through an efficient coupling of suitably protected tripeptide and tetrapeptide comprising of three D-amino acids and four usual L-amino acid subunits.



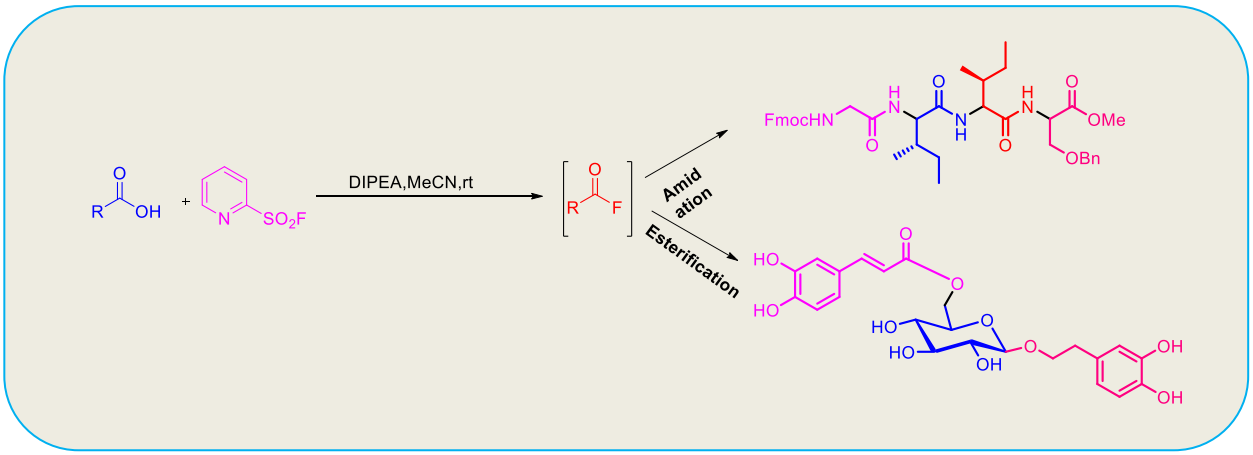
2). KO^{t}Bu-BF_3.OEt_2 mediated synthesis of quinazolin-4(3H)-ones from 2-substituted amides with nitriles and aldehydes.

KOtBu-BF3.OEt2 mediated synthesis of quinazolin-4(3H)-ones from 2-substituted amides with nitriles and aldehydes have been developed. In this protocol, a variety of nitriles as well as aldehydes react with 2-substituted benzamides to corresponding quinazolin-4(3H)-ones products in good to moderate yields, via the cleavage of C-X and C-N bonds and the formation of double C-N bonds simultaneously, in presence of potassium tert-butoxide.



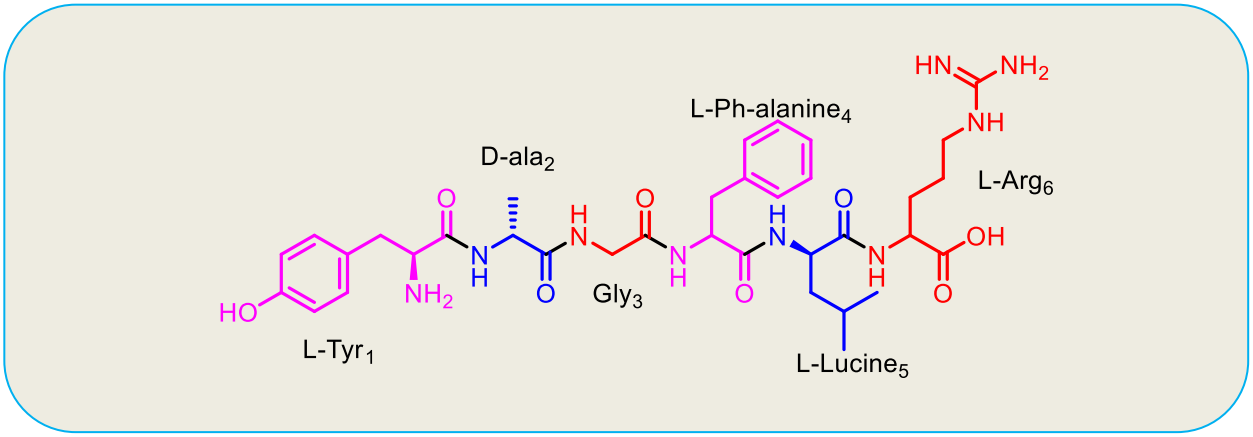
3) Pyridinesulfonyl Fluoride Mediated Deoxyfluorination of Carboxylic Acid to Acyl fluoride Allowing One-Pot Amidation and Esterification.(*manuscript submitted*).

One of the most used reactions in medicinal chemistry is amide bond synthesis. We report amide bond formation reaction through deoxyfluorinated carboxylic acids under mild conditions using 2-pyridine sulfonyl fluoride. The reaction procedure has been used in a one-pot synthesis of amide and ester via in situ generations of acyl fluorides. This one-pot synthetic method provides easy access to amides and esters andusing this method we have synthesizedsequential tetrapeptide and calceolarioside-B glycoside with high yield.



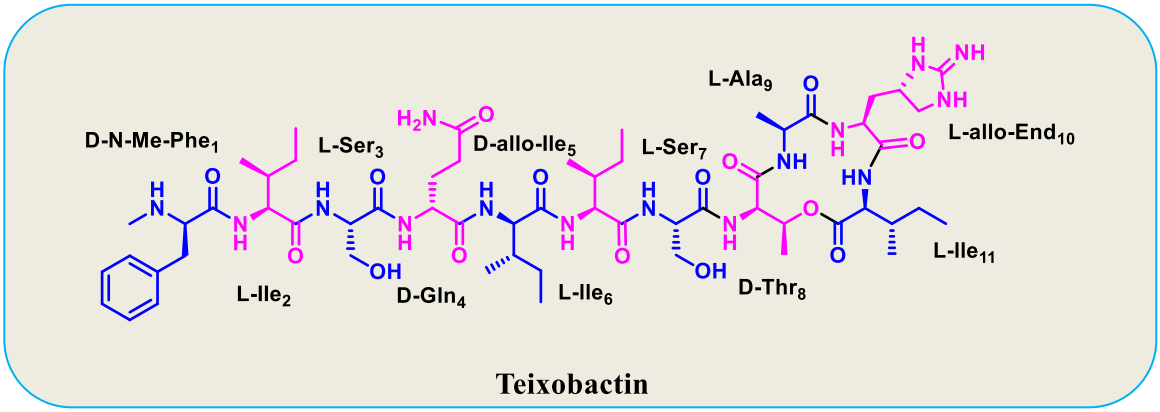
4) Benzoisothiazolone (BIT): A Fast, Efficient, and Recyclable Redox Reagent for Synthesis of Dalargin. (*Communicated*).

Here in we report benzoisothiazolone (BIT) mediated scalable synthesis of Dalargin in solid phase synthesis using Fmoc strategy.



5) Approach towards the total synthesis of Texiobactin in solution phase (Failure work).

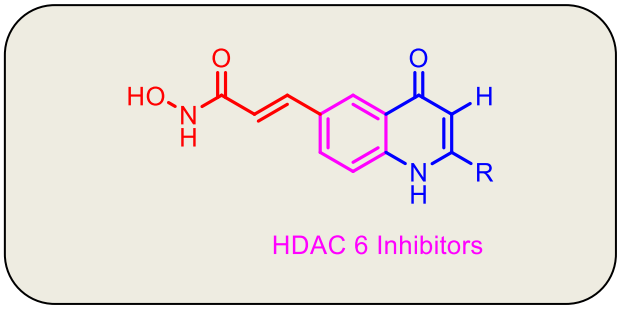
The emergence of drug resistant strain of the pathogenic pathogenic bacteria has compromised the effectiveness of a growing number of clinically employed antibiotics Mycobacterium tuberculosis (Mtb), the etiological agent of tuberculosis (TB), is an example of a pathogen to which widespread resistance to frontline antibiotic treatments has developed. In our group we tried solution phase total synthesis.



Teixobactin

6) We designed and synthesized (Histone deacetylase) HDAC 6 Inhibitors.

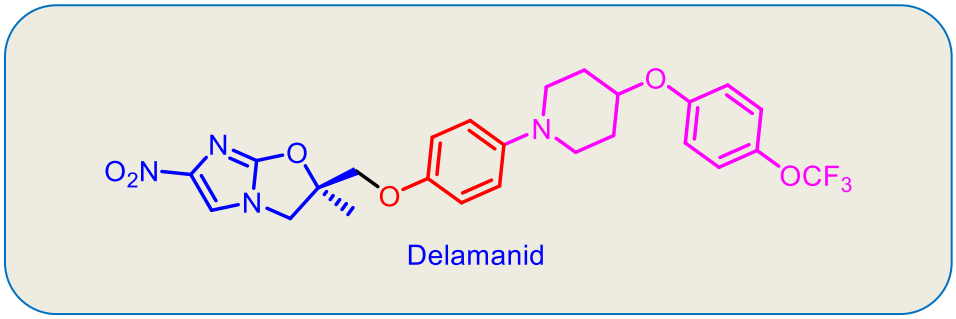
Histone deacetylase (HDACs) are essential for maintaining homeostasis by catalyzing histone deacetylation. Aberrant expression of HDACs is associated with various human diseases. Although HDAC inhibitors are used as effective chemotherapeutic agents in clinical practice, their applications remain limited due to associated side effects induced by weak isoform selectivity. HDAC6 displays unique structure and cellular localization as well as diverse substrates and exhibits a wider range of biological functions than other isoforms. HDAC6 inhibitors have been effectively used to treat cancers, neurodegenerative diseases, and autoimmune disorders without exerting significant toxic effects. Progress has been made in defining the crystal structures of HDAC6 catalytic domains which has influenced the structurebased drug design of HDAC6 inhibitors.



HDAC 6 Inhibitors

7) .Process development of Delamanid .

Delamanid is an anti-tuberculosis agent derived from the nitro-dihydro-imidazooxazole class of compounds that inhibits mycolic acid synthesis of bacterial cell wall. It is used in the treatment of multidrug-resistant and extensively drug-resistant tuberculosis (TB) in a combination regimen.



Delamanid