

MAHESH RAMRAO KULKARNI

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PERSONAL PROFILE

Date of Birth : July 25th, 1980
Marital Status : Married
Nationality : Indian
Languages Known : English, Hindi, Marathi

CAREER OBJECTIVE

To work in a challenging environment and take up responsibilities where I can contribute significantly by leveraging on my academic skills and work experience.

CREDENTIALS

Industrial Ph. D. (Chemical Sciences) – Savitribai Phule Pune University, Pune, India. **2014-2019.**

Dissertation: Studies and Synthesis of Nitrogen Containing Heterocycles of Biological Importance: Mainly Analogs of 1,3,4-Oxadiazole, 3,4-Dihydroisoquinolin-1(2*H*)-One and Development of Synthetic Methodologies

Master of Science (Organic Chemistry) - Swami Ramanand Teerth Marathwada University, Nanded, India. (67.00%, **2004**).

Bachelor of Education (Science) - Swami Ramanand Teerth Marathwada University, Nanded, India. (70.25 %, **2003**).

Bachelor of Science in Chemistry - Swami Ramanand Teerth Marathwada University, Nanded, India. (66.06%, **2001**).

Intellectual Property Rights Course – “General course on intellectual property” from World Intellectual Property Organization, Geneva, Switzerland (80 %, **2008**).

PROFESSIONAL EXPERIENCE

Company – Piramal Discovery Solutions, Ahmedabad, Gujarat, India.

Position – **Senior Research Scientist**

Duration - From Sept. 2014 to till date.

Organic Chemistry Skills:

- Working with the route finding team on various projects. The job descriptions include design the new synthetic route for advanced intermediates and complex molecules. Assist the team members to optimize the reaction sequence.
- Working with the **PoC** (Proof of concept) team on various projects. The job descriptions include design and optimise the new route (patentable and scalable) for API molecule and advanced API intermediates.
- Experience in structure elucidation of organic compounds using various spectral data, such as ^1H NMR, ^{13}C NMR, 2D-NMR, MS, spectroscopy, etc.
- Route scouting, route selection, feasibility study.
- Good knowledge of designing synthetic routes and a sound practical hand at performing reactions on mg to kg scale.
- Identify experimental problems and resolve them by proper trouble shooting.
- Experience in carrying out air-sensitive/ anhydrous reactions.

Data Management Skills:

- A critical aspect of the job involves data management for the project and presenting work to the project leadership on a regular basis through both oral presentations and written reports. I have been extensively involved in collating and analysis of data for team to emphasize project achievements.
- Extensive experience of chemical, patent and web search engines.
- Have regularly carried out literature search (using Reaxys, esp@ce.net, USUPTO) and proposing new synthetic schemes for advanced intermediates, API molecules and NCE's.
- Have always taken additional responsibilities for smooth functioning of the lab and project.

Team Handling:

- Handling the team of Nine chemists, assisting the team members to solve the chemistry related problems, providing required literature, coach to solve them problem independently, coaching junior colleagues to for writing reports, experimental protocols.
- Good trainer for the new trainee joining the lab, providing training regarding scientific and experimental skill, yearly giving training to two new joiners.
- **Project Trainee:** Have providing the necessary training to the project trainees to my laboratory, suggesting the topic of dissertation work and supervising them to complete their dissertation work within timeline, yearly completing the project with two trainees.

Time Management:

- Always pre planned with other departments to make key decision to advance project. This help to reduce TAT for decision making, improve productivity and timely delivery of project. (eg. ADL department to analyze key experimental results to seamlessly generate real time data, Purchase for chemicals, Engineering for maintenance of lab facility, QA department for issuance of lab notebook, EHS department etc.).

Company – Piramal Enterprises Ltd. Goregaon, Mumbai.

Research Associate

JAN 2008 – March 2011

Junior Research Scientist

April 2011 – March 2014

Research Scientist

April 2014 – Sept. 2014

Research Activities

- Design, synthesis, characterization and biological evaluation of NCE's for inflammation, metabolic disorder and cancer.
- Designing of new molecule to improve potency, selectivity and pharmacokinetic properties.
- Establish SAR studies, translate potency into efficacy and reduce toxicity, HIT identification, LEAD identification and lead optimization from target based and compound based approaches.
- Involved in scale up and process development of active molecules.

Data Management and team work:

- Maintained project related data in proper format and team work to advance project, helping junior colleagues for smooth working in laboratory, collaboration with other departments for improvement of productivity and reduce turnaround time.

Company – Cipla Ltd. Kurkumbh, Tal.- Daund, Dist. – Pune.

Position – **R&D Officer**

Duration - From Nov.2005 to Jan. 2008

Research Activities

- Process development of API
- Identification, isolation of impurities and impurities profiling.
- Troubleshooting.
- Process optimization and process validation of product.
- Scale up and technology transfer to the production department.
- User test for the new raw material for identification of new potential vendor.
- Optimized the process of meloxicam and successfully transferred the technology to production department.
- Products handled – Meloxicam, Carvedilol, Alendronate sodium.
- Developed the scalable process of Neverapine hemihydrate for the particle size of >40 μ and completed validation batches on plant scale.

Teaching experience

- As a PG teacher in chemistry in Yogeshwari Mahavidyalaya Ambajogai, Dist. Beed, Maharashtra from Aug. 2004 to Oct. 2005.

STRENGTHS

- Research experience in the field of Synthetic organic chemistry, Medicinal chemistry, Heterocyclic chemistry, Drug Discovery, New Chemical Entities (NCEs), Route scouting and process developments.
- Optimization and development of processes, new synthetic methodologies for drug molecule, NCE's, intermediates and synthesis of molecular library for biological evaluations.
- Expertise in handling reactions from mg to kg scale.
- Expertise in scientific literature search from various search engines and databases viz. Scopus, PubMed, Reaxys, SciFinder
- Knowledge of patent evaluation-reading and verifying patents. Identifying the areas of inventions eligible for obtaining protection of intellectual property and exploring opportunities to develop non infringing method for of lucrative patents.

TECHNICAL SKILLS

- Purification – Expert in various isolation and purification techniques viz. silica gel column chromatography, Combiflash ISCO (Flash purification system) column, Yamzon (Flash purification system), recrystallization, preparative TLC, high vacuum distillation.
- Expertise in handling microwave (Biotage and CEM, Anton-Par), LCMS
- Handling moisture and air sensitive reactions.

PUBLICATIONS

- Design, synthesis and in-vitro evaluation of 3,4-dihydroisoquinolin-1(2H)-one based Piperlongumine analogues as an anticancer agent. **Mahesh R. Kulkarni**, Nitin P. Lad, Nitin D. Gaikwad. *J. Heterocyclic Chemistry*, **2021**, 58, 1359-1377. [doi: 10.1002/jhet.4264](https://doi.org/10.1002/jhet.4264)
- N-Chlorosuccinamide (NCS)- N,N-dimethylformamide (DMF) a reagent for Oxidation of benzylic alcohols to aldehydes and ketones. **Mahesh R. Kulkarni**, Nitin P. Lad, and Nitin D. Gaikwad. *Molecular Diversity*, **2020**, 24, 437-442. [doi: 10.1007/s11030-019-09954-3](https://doi.org/10.1007/s11030-019-09954-3)
- Thionyl chloride mediated synthesis of 2-azaindolizine sulfur-bridged dimers by C-H bond direct Chalcogenation of imidazo[1,5-a]pyridines. **Mahesh R. Kulkarni**, Nitin P. Lad, Shashikant M. Patil, Nitin D. Gaikwad. *J Chin Chem Soc.* **2020**; 1– 8. [doi: 10.1002/jccs.201900516](https://doi.org/10.1002/jccs.201900516)
- Recent Advances in Synthesis of 3,4-Dihydroisoquinolin-1(2H)-one. **Mahesh R. Kulkarni**, Nitin D. Gaikwad. *ChemistrySelect*, **2020**; 5, 8157. [doi: 10.1002/slct.202002131](https://doi.org/10.1002/slct.202002131)
- Recent advances towards the synthesis of 4H-quinolizin-4-one, **Mahesh R. Kulkarni**, Nitin D. Gaikwad. *Tetrahedron*, **2020**, 76, 131409, [doi: 10.1016/j.tet.2020.131409](https://doi.org/10.1016/j.tet.2020.131409)

- Synthesis of 1, 8-naphthyridines: a recent update (microreview), **Mahesh R. Kulkarni**, Nitin D. Gaikwad. *Chemistry of Heterocyclic Compounds*, **2020**, 56, 976-978. [doi: 10.1007/s10593-020-02762-w](https://doi.org/10.1007/s10593-020-02762-w)
- Synthesis and *in-vitro* evaluations of 6-(hetero)-aryl-imidazo[1,2-*b*]pyridazine -3- sulfonamide's as an inhibitor of TNF- α production. Pandit, S. S.; **Kulkarni, M. R.**; Pandit, Y. B.; Lad, N. P.; Khedakar, V. M. *Bioorg. Med. Chem. Lett.* **2018**, 28, 24-30. doi.org/10.1016/j.bmcl.2017.11.026
- Synthesis and biological evaluation of imidazo[1,2-*b*]pyridazines as inhibitors of TNF- α production. **Kulkarni, M. R.**; Ghosh, U.; Pandit, Y. B.; Lad, N. P.; Pandit, S. S. *Molecular Diversity*, **2018**, 22, 545-560. [doi: 10.1007/s11030-017-9798-8](https://doi.org/10.1007/s11030-017-9798-8)
- Discovery of tetrahydrocarbazoles as dual pERK and pRb inhibitors. **Kulkarni, M.**; Mane, M.; Ghosh, U.; Sharma, R.; Lad, N.; Srivastava, A.; Kulkarni-Almeida, A.; Kharkar, P.; Khedkar, V.; Pandit, S. *Eur. J. Med. Chem.* **2017**, 134, 366-378. doi.org/10.1016/j.ejmech.2016.12.022
- Piperlongumine derived cyclic sulfonamides (sultams): synthesis and *in vitro* exploration for therapeutic potential against *HeLa* cancer cell lines. Lad, N.; Kulkarni, S.; Sharma, R.; Mascarenhas, M.; **Kulkarni, M.**; Pandit, S. *Eur. J. Med. Chem.* **2017**, 126, 870-878. doi.org/10.1016/j.ejmech.2016.12.022
- Methylsulfonyl benzothiazoles (MSBT) derivatives: search for new potential antimicrobial and anticancer agents. Lad, N.; Manohar, Y.; Mascarenhas, M.; Pandit, Y.; **Kulkarni, M.**; Sharma, R.; Salkar, K.; Suthar, S.; Pandit, S. *Bioorg. Med. Chem. Lett.* **2017**, 27, 1319-1324. doi.org/10.1016/j.bmcl.2016.08.032.

Manuscript communicated/ under submission:

- Synthesis and evaluation of 5-aryl-2-thio-1,3,4-oxadiazole derivatives for tumor necrosis factor- α (TNF- α) production inhibitory activity.
Mahesh Kulkarni, Nitin D. Gaikwad (Submitted to *Eur. J. Med. Chem.*).
- Design, synthesis of novel Piperlongumine analogues as an anticancer agent.
Mahesh R. Kulkarni, Nitin P. Lad, Nitin D. Gaikwad (Manuscript under preparation).

Patents:

- Sharma R., Ghosh U., More T., **Kulkarni M.**, Bajaj K., Burudkar S., Rizvi. Z.; Imidazopyridine compounds and uses thereof, **WO 2014/080241 A1** Publication date 30 May 2014.
- Sharma R., Kulkarni S., **Kulkarni M.**, Mukherjee S., Burudkar S. Imidazoquinoline compounds as bromodomain inhibitors. PCT Patent Application no: **WO2015/049629 A1**, Publication date 09 April 2015.
- Sharma R., Kulkarni S., **Kulkarni M.**, Mukherjee S.; Substituted Pyrazoloquinazoline Compounds as Bromodomain Inhibitors, US provisional patent application no.: **62/085,721**, Application date 30 NOV. 2015.

- Roy A., Mandal A., **Kulkarni M.**, Chavan k., Krushnamurthee D., *et al.* A Process For The Preparation Of Droxidopa, **WO2016/147132A1**, Application date 18 MARCH. 2015.
- Roy A., Mandal A., **Kulkarni M.**, Chavan k., Krushnamurthee D., *et al.* Process For The Preparation Of Droxidopa, **WO2016/147133A1**, Application date 18 MARCH. 2015.

POSTERS AND PRESENTATIONS

- Substituted 3-(phenyl thiomethyl)-4*H*-chromen-4-one as potent inhibitors of inflammatory cytokines. Usha Ghosh, Tulsidas More, Sandeep Burudkar, **Mahesh Kulkarni**, Gautam Agarwal, Nilesh Dagia, Rajiv Sharma Presented at **Gordon Research Conference**, New London ,USA.
- The discovery of 3-((5-phenyl-1,3,4-oxadiazol-2-yl)thio)benzo- [*b*]thiophene 1,1-dioxide based inhibitors of tumor necrosis factor-alpha (TNF- α) production. Tulsidas More, **Mahesh Kulkarni**, Usha Ghosh, Gautam Agarwal, Nilesh Dagia, Rajiv Sharma presented at **15th ISCB International Conference, Rajkot, India, 4 Feb 2011.**
- Synthesis and evaluation of 6-Aryl-imidazo[1,2-*b*]pyridazine-3- sulphonamides for tumor necrosis factor-alpha (TNF- α) production inhibitory activity. **Mahesh Kulkarni**, Sandeep Burudkar, Usha Ghosh, Gautam Agarwal, Nilesh Dagia, Rajiv Sharma. Presented at **19th ISCB International Conference, Udaipur, India, 2-5th March 2013.**
- Discovery, Synthesis and Evaluation of Substituted Tetrahydrocarbazoles as Dual Pathway Inhibitors **Kulkarni Mahesh**, Ghosh Usha, Sharma Rajiv, Pandit Shivaji. Presented at **3rd NIPiCON International Conference, Ahmedabad, India, 21-23th Jan. 2016.**
- Design, Synthesis and biological evaluation of imidazo[1,2-*b*] pyridazines as an anti-inflammatory agents, **Kulkarni Mahesh**, Pandit Shivaji. Presented at **National Research Seminar on Emerging Trends in Chemical Sciences (ETCS), PVP College of arts, Science and commerce, Loni-Pravaranagar, Tal. Rahata, Dist. Ahmednagar, Maharashtra, India, 20-21th Jan. 2017.**
- Metal free synthesis of 2-azaindolizine sulfur-bridged dimers by *C-H* bond direct Chalcogenation of imidazopyridine[1,5-*a*]pyridines
Mahesh R. Kulkarni, Nitin P. Lad, Nitin D. Gaikwad, Oral Presentation at,
National Level Conference On, “INNOVATION & SUSTAINABLE DEVELOPMENT MADE BY CHEMISTRY IN 21st CENTURY” (ISDMC-2019) Organized By, Department Of Chemistry, Hutatma Rajguru Mahavidyalaya Rajgurunagar, Pune-410505, Maharashtra, 7 & 8 January 2019.

REFERENCES

Can be produced whenever required.
