

Dr. Mahesh D. Patil

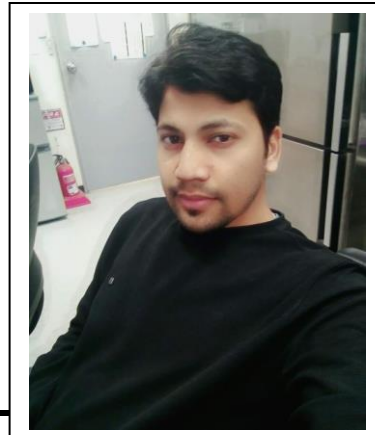
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RESEARCH INTERESTS

- ✓ Biocatalysis and Biotransformations
- ✓ Bioprocess Engineering and Downstream processing
- ✓ Protein Engineering

PROFESSIONAL EXPERIENCE

- ✓ **1st Oct. 2021-Till date:** M. K. Bhan Young Researcher at Center of Innovative and Applied Bioprocessing (CIAB), Mohali
- ✓ **15th March 2020-15th Sept. 2021:** Assistant Manager (R& D), Patil Organics Pvt. Ltd, Mumbai
- ✓ **1st March 2018- 29th Feb. 2020:** KU-Brain Pool Research Fellow, Department of Systems Biotechnology, Konkuk University, Seoul, South Korea
- ✓ **1st Sept. 2017- 28th Feb. 2018:** Postdoctoral Fellow, Protein Engineering Laboratory, Konkuk University, Seoul, South Korea.

EDUCATIONAL QUALIFICATIONS

Sr. No.	Year	Description	Subject	Board/University
1.	July 2017	Ph.D	Pharmaceutical Technology (Biotechnology)	NIPER, Mohali*
2.	2012	M. Tech (Pharm.)	Pharmaceutical Technology (Biotechnology)	NIPER, Mohali
3.	2010	B. Pharmacy	Pharmaceutical Sciences	University of Pune

*NIPER- National Institute of Pharmaceutical Education and Research

PhD Dissertation: Production, Purification and Characterization of Arginine Deiminase from *Pseudomonas putida*

Mentor: Prof. U. C. Banerjee, Dept. of Pharmaceutical Biotechnology, NIPER, Mohali

EDITORIAL ACTIVITIES

- ✓ Served as a Guest Editor for the Special Issue ‘**Catalyzed Synthesis of Chiral Amines**’ of *Catalysts* journal
(https://www.mdpi.com/journal/catalysts/special_issues/chiral_amines)

- ✓ Serving as a reviewer of *ACS Catalysis*, *Green Chemistry*, *ChemCatChem*, *Bioresource Technology*, and several other international peer reviewed journals.

PEER-REVIEWED PUBLICATIONS (as on 10th November 2021)

Publication Summary

Total number of peer-reviewed international publications	:	36
Total Impact Factor	:	>245
Citations (as on 10 th November 2021)	:	> 694
h-index	:	14
i10 index	:	21

List of publications (In reversed chronological order)

36. Pritam Giri[#] Amol D. Pagar,[#] **Mahesh D. Patil** and Hyungdon Yun, Chemical Modification of Enzymes to Improve Biocatalytic Performance. *Biotechnology Advances* 2021, *In press*, DOI: [10.1016/j.biotechadv.2021.107868](https://doi.org/10.1016/j.biotechadv.2021.107868) (IF-14.227)
35. Taresh P Khobragade, Seongseon Yu, Hyunsang Jung, **Mahesh D Patil**, Sharad Sarak, ..., Hyungdon Yun, Promoter Engineering-mediated Tuning of Esterase and Transaminase Expression for the Chemoenzymatic Synthesis of Sitagliptin Phosphate at the kilogram-scale, *Biotechnology and Bioengineering* 2021, 118, 3263-3268; DOI: [10.1002/bit.27819](https://doi.org/10.1002/bit.27819) (IF-4.53)
34. **Mahesh D. Patil**,[#] Amol D. Pagar,[#] Dillon T. Flood, Tae Hyeon Yoo, Philip E. Dawson, Hyungdon Yun, Recent Advances in Biocatalysis with Chemical Modification and Expanded Amino Acids Alphabet, *Chemical Reviews* 2021, 121, 6173-6245; DOI: [10.1021/acs.chemrev.0c01201](https://doi.org/10.1021/acs.chemrev.0c01201) (IF-60.62) [#] Equal contribution
33. Gopal Patel, **Mahesh D Patil**, Sujit Tangadpalliwar, Shivraj Hariram Nile, Prabha Garg, Guoyin Kai, Uttam Chand Banerjee, Machine Learning Modeling for Ultrasonication-Mediated Fermentation of *Penicillium brevicompactum* to Enhance the Release of Mycophenolic Acid, *Ultrasound in Medicine & Biology* 2021, 47, 777-786; DOI: [10.1016/j.ultrasmedbio.2020.11.018](https://doi.org/10.1016/j.ultrasmedbio.2020.11.018) (IF-2.998)
32. Sharad Sarak, Sihyong Sung, Hyunwoo Jeon, **Mahesh D Patil**, Taresh P Khobragade, Amol D Pagar, Philip E Dawson, Hyungdon Yun, An Integrated Cofactor/Co-Product Recycling Cascade for the Biosynthesis of Nylon Monomers from Cycloalkylamines, *Angewandte Chemie International Edition* 2020, 60, 3481-3486; DOI: [10.1002/anie.202012658](https://doi.org/10.1002/anie.202012658) (IF-15.336)
31. Sharad Sarak, Hyunwoo Jeon, **Mahesh D Patil**, Taresh P Khobragade, Amol D Pagar, Sihyong Sung, Hee-Wang Yoo, Byung-Gee Kim, Sung Ho Yoon, Hyungdon Yun, Enzymatic Synthesis of Aliphatic Primary ω -Amino Alcohols from ω -Amino Fatty Acids by Carboxylic Acid Reductase, *Catalysis Letters* 2020, 150, 3079-3085; DOI: [10.1007/s10562-020-03233-9](https://doi.org/10.1007/s10562-020-03233-9) (IF-3.186)
30. Gopal Patel, Taresh P Khobragade, Sachin R Avaghade, **Mahesh D Patil**, Shivraj Hariram Nile, Guoyin Kai, Uttam Chand Banerjee, Optimization of media and culture conditions for the production of tacrolimus by *Streptomyces tsukubaensis* in shake flask and fermenter level, *Biocatalysis and Agricultural Biotechnology* 2020, 29, 101803; DOI: [10.1016/j.bcab.2020.101803](https://doi.org/10.1016/j.bcab.2020.101803) (Cite Score -3.9)
29. Gopal Patel, Neeraj Singh Thakur, Varun Kushwah, **Mahesh D Patil**, Shivraj Hariram Nile,

- Sanyog Jain, Uttam Chand Banerjee, Guoyin Kai, Liposomal delivery of mycophenolic acid with quercetin for improved breast cancer therapy in SD rats, *Frontiers in Bioengineering and Biotechnology* 2020, 8, Article 631; DOI: [10.3389/fbioe.2020.00631](https://doi.org/10.3389/fbioe.2020.00631) (IF- 5.890)
28. Gopal Patel, Neeraj Singh Thakur, Varun Kushwah, **Mahesh D Patil**, Shivraj Hariram Nile, Sanyog Jain, Guoyin Kai, Uttam Chand Banerjee, Mycophenolate co-administration with quercetin via lipid-polymer hybrid nanoparticles for enhanced breast cancer management, *Nanomedicine: Nanotechnology, Biology and Medicine* 2020, 24, 102147. DOI: [10.1016/j.nano.2019.102147](https://doi.org/10.1016/j.nano.2019.102147) (IF-6.458)
 27. Yumi Won, Hyunwoo Jeon, Amol D. Pagar, **Mahesh D. Patil**, Saravanan P. Nadarajan, Dillon T. Flood, Philip E. Dawson, Hyungdon Yun, *In Vivo* Biosynthesis of Tyrosine Analogs and Their Direct Incorporation in a Residue-Specific Manner For Enzyme Engineering, *Chemical Communications* 2019, 55, 15133-15136; DOI: [10.1039/C9CC08503C](https://doi.org/10.1039/C9CC08503C) (IF-6.222)
 26. Hee-Wang Yoo, Joonwon Kim, **Mahesh D Patil**, Beom Gi Park, Sung-yeon Joo, Hyungdon Yun, Byung-Gee Kim, Production of 12-Hydroxy Dodecanoic Acid Methyl Ester using a Signal Peptide Sequence-Optimized Transporter Alkl and a Novel Monooxygenase, *Bioresource Technology* 2019, 291, 121812; DOI: [10.1016/j.biortech.2019.121812](https://doi.org/10.1016/j.biortech.2019.121812) (IF-9.642).
 25. **Mahesh D Patil**, Sanghan Yoon, Hyunwoo Jeon, Taresh P Khobragade, Sharad Sarak, Amol D Pagar, Yumi Won, Hyungdon Yun, Kinetic Resolution of Racemic Amines to Enantiopure (*S*)-amines by a Biocatalytic Cascade Employing Amine Dehydrogenase and Alanine Dehydrogenase, *Catalysts* 2019, 9, 600; DOI: [10.3390/catal9070600](https://doi.org/10.3390/catal9070600) (IF-4.146).
 24. Kiran D Bhilare, **Mahesh D Patil**, Sujit Tangadpalliwar, Ashok Shinde, Prabha Garg, Uttam Chand Banerjee, Machine Learning Modelling for the Ultrasonication-Mediated Disruption of Recombinant *E. Coli* for the Efficient Release of Nitrilase, *Ultrasonics* 2019, 98, 72-81. DOI: [10.1016/j.ultras.2019.06.006](https://doi.org/10.1016/j.ultras.2019.06.006) (IF-2.89).
 23. **Mahesh D Patil**,[#] Sanghan Yoon,[#] Sharad Sarak, Hyunwoo Jeon, Geon-Hee Kim, Taresh P Khobragade, Sihyong Sung, Hyungdon Yun, Deracemization of Racemic Amines to Enantiopure (*R*)-and (*S*)-amines by Biocatalytic Cascade Employing ω -Transaminase and Amine Dehydrogenase, *ChemCatChem* 2019, 11, 1437-1440; DOI: [10.1002/cctc.201900080](https://doi.org/10.1002/cctc.201900080) (IF-5.686);
[#]Equal authorship
 22. Geon-Hee Kim, Hyunwoo Jeon, Taresh P Khobragade, **Mahesh D Patil**, Sihyong Sung, Sanghan Yoon, Yumi Won, Sharad Sarak, Hyungdon Yun, Glutamate as an Efficient Amine Donor for the Synthesis of Chiral β -and γ -Amino Acids Using Transaminase, *ChemCatChem* 2019, 11, 1437-1440; DOI: [10.1002/cctc.201802048](https://doi.org/10.1002/cctc.201802048) (IF-5.686)
 21. **Mahesh D. Patil**, Vijay P. Rathod, Umesh R. Bihade, Uttam Chand Banerjee, Purification and characterization of arginine deiminase from *Pseudomonas putida*: Structural insights of the differential affinities of L-arginine analogues, *Journal of Bioscience and Bioengineering* 2019, 127, 129-137; DOI: [10.1016/j.jbiosc.2018.07.021](https://doi.org/10.1016/j.jbiosc.2018.07.021) (IF-2.894)
 20. Yumi Won, Amol D Pagar, **Mahesh D Patil**, Philip E Dawson, Hyungdon Yun, Recent Advances in Enzyme Engineering through Incorporation of Unnatural Amino Acids, *Biotechnology and Bioprocess Engineering* 2019, 24, 592-604; DOI: 10.1007/s12257-019-0163-x (IF-2.836)
 19. Geon-Hee Kim, Hyunwoo Jeon, Taresh P. Khobragade, **Mahesh D Patil**, Sihyong Sung, Sanghan Yoon, Yumi Won, In Suk Choi, Hyungdon Yun, Enzymatic synthesis of sitagliptin intermediate using a novel ω -transaminase, *Enzyme and Microbial Technology* 2019, 120, 52-60; DOI:

[10.1016/j.enzmictec.2018.10.003](https://doi.org/10.1016/j.enzmictec.2018.10.003) (IF-3.493)

18. Gopal Patel, Kush Biswas, **Mahesh D. Patil**, Yusuf Chisti, Uttam Chand Banerjee, Bioreactor studies of production of mycophenolic acid by *Penicillium brevicompactum*, *Biochemical Engineering Journal* 2018, 140, 77-84; DOI: [10.1016/j.bej.2018.09.007](https://doi.org/10.1016/j.bej.2018.09.007) (IF-3.978)
17. **Mahesh D. Patil**, Gideon Grogan, Hyungdon Yun, Biocatalyzed C–C Bond Formation for the Production of Alkaloids, *ChemCatChem* 2018, 10, 4783-4804; DOI: [10.1002/cctc.201801130](https://doi.org/10.1002/cctc.201801130) (IF-5.686)
16. **Mahesh D. Patil**, Gideon Grogan, Andreas S. Bommarius, Hyungdon Yun, Oxidoreductase-Catalyzed Synthesis of Chiral Amines, *ACS Catalysis* 2018, 8, 10985–11015; DOI: [10.1021/acscatal.8b02924](https://doi.org/10.1021/acscatal.8b02924) (IF-13.084)
15. Hyunwoo Jeon, Sharad Sarak, Sang-Hyuk Lee, Han-Seop Bea, **Mahesh D. Patil**, Geon-Hee Kim, Byung-Gee Kim, Jong In Won, Hyungdon Yun, Characterization of ELP-fused ω -Transaminase and Its Application for the Biosynthesis of β -Amino Acid, *Biotechnology and Bioprocess Engineering* 2018, 23, 481-489; DOI: [10.1007/s12257-018-0268-7](https://doi.org/10.1007/s12257-018-0268-7) (IF-2.836)
14. **Mahesh D. Patil**, Ashok S. Shinde, Gopal Patel, Kiran D. Bhilare, Manoj J. Dev and Uttam Chand Banerjee, Combined Effect of Attrition and Ultrasound on the Disruption of *Pseudomonas putida* for the Efficient Release of Arginine Deiminase, *Biotechnology Progress* 2018, 34, 1185-1194; DOI: [10.1002/btpr.2664](https://doi.org/10.1002/btpr.2664) (IF-2.681)
13. Md Ahsan, **Mahesh D. Patil**, Hyunwoo Jeon, Sihyong Sung, Taeowan Chung, Hyungdon Yun, Biosynthesis of Nylon 12 Monomer, ω -Aminododecanoic Acid Using Artificial Self-Sufficient P450, AlkJ and ω -TA, *Catalysts* 2018, 8, 400; DOI: [10.3390/catal8090400](https://doi.org/10.3390/catal8090400) (IF-4.146).
12. **Mahesh D. Patil**, Gideon Grogan, Andreas Bommarius and Hyungdon Yun, Recent Advances in ω -Transaminase-Mediated Biocatalysis for the Enantioselective Synthesis of Chiral Amines, *Catalysts* 2018, 8, 254; DOI: [10.3390/catal8070254](https://doi.org/10.3390/catal8070254) (IF-4.146).
11. Kiran D Bhilare, **Mahesh D. Patil**, Sujit Tangadpalliwar, Manoj J. Dev, Prabha Garg, and Uttam Chand Banerjee. Machine learning modelling for the high-pressure homogenization-mediated disruption of recombinant *E. coli*. *Process Biochemistry* 2018, 71, 182-190; DOI: [10.1016/j.procbio.2018.05.001](https://doi.org/10.1016/j.procbio.2018.05.001) (IF-3.757).
10. Sihyong Sung, Hyunwoo Jeon, Sharad Sarak, Md Murshidul Ahsan, **Mahesh D. Patil**, Wolfgang Kroutil, Byung-Gee Kim, Hyungdon Yun, Parallel anti-sense two-step cascade for alcohol amination leading to ω -amino fatty acids and α,ω -diamines, *Green Chemistry* 2018, 20, 4591-4595; DOI: [10.1039/C8GC02122H](https://doi.org/10.1039/C8GC02122H) (IF-10.182).
9. Md Murshidul Ahsan, Sihyong Sung, Hyunwoo Jeon, **Mahesh D. Patil**, Taeowan Chung, Hyungdon Yun. Biosynthesis of Medium-to Long-Chain α , ω -Diols from Free Fatty Acids Using CYP153A Monooxygenase, Carboxylic Acid Reductase, and *E. coli* Endogenous Aldehyde Reductases. *Catalysts* 2018, 8, 4; DOI: [10.3390/catal8010004](https://doi.org/10.3390/catal8010004) (IF-4.146).
8. Md. Murshidul Ahsan, Hyunwoo Jeon Saravanan P. Nadarajan, Taeowan Chung, Hee-Wang Yoo, Byung-Gee Kim, **Mahesh D. Patil**, and Hyungdon Yun, *Biotechnology Journal* 2017, 13, 1700562; DOI: [10.1002/biot.201700562](https://doi.org/10.1002/biot.201700562) (IF-4.677).
7. **Mahesh D. Patil**, Manoj J. Dev, Sujit Tangadpalliwar, Gopal Patel, Prabha Garg, Yusuf Chisti, Uttam Chand Banerjee, Ultrasonic disruption of *Pseudomonas putida* for the release of arginine

deiminase: Kinetics and predictive models, *Bioresource Technology* 2017, 233, 74–83. DOI: [10.1016/j.biortech.2017.02.074](https://doi.org/10.1016/j.biortech.2017.02.074) (IF-9.642).

6. **Mahesh D. Patil**, Manoj J. Dev, Ashok Shinde, Kiran D. Bhilare, Gopal Patel, Yusuf Chisti, Uttam Chand Banerjee, Surfactant-mediated permeabilization of *Pseudomonas putida* and its immobilization for the biotransformation of L-arginine to L-citrulline, *Process Biochemistry* 2017, 63, 113-121. DOI: [10.1016/j.procbio.2017.08.002](https://doi.org/10.1016/j.procbio.2017.08.002) (IF-3.757).
5. Gopal Patel, **Mahesh D. Patil**, Surbhi Soni, Yusuf Chisti, Uttam Chand Banerjee, Production of mycophenolic acid by *Penicillium brevicompactum* using solid state fermentation, *Applied Biochemistry and Biotechnology* 2017, 182, 97-109; DOI: [10.1007/s12010-016-2313-3](https://doi.org/10.1007/s12010-016-2313-3) (IF-2.926).
4. **Mahesh D. Patil**, Jayeeta Bhaumik, Suboj Babykutty, Uttam Chand Banerjee, Dai Fukumura, Arginine dependence of tumor cells: targeting a chink in cancer's armor, *Oncogene* 2016, 35, 4957–4972; DOI: [10.1038/onc.2016.37](https://doi.org/10.1038/onc.2016.37) (IF-9.867).
3. **Mahesh D. Patil**, Kiran D. Shinde, Gopal Patel, Yusuf Chisti, Utaam Chand Banerjee, Use of response surface method for maximizing the production of arginine deiminase by *Pseudomonas putida*, *Biotechnology Reports* 2016, 10, 29–37. DOI: [10.1016/j.btre.2016.03.002](https://doi.org/10.1016/j.btre.2016.03.002) (CiteScore- 6.0)
2. **Mahesh D. Patil**, Gopal Patel, Balaji Surywanshi, Naeem Shaikh, Prabha Garg, Yusuf Chisti, Uttam Chand Banerjee, Disruption of *Pseudomonas putida* by high pressure homogenization: a comparison of the predictive capacity of three process models for the efficient release of arginine deiminase, *AMB Express* 2016, 6, 84. DOI: [10.1186/s13568-016-0260-6](https://doi.org/10.1186/s13568-016-0260-6) (IF-3.298).
1. Gopal Patel, **Mahesh D. Patil**, Surbhi Soni, Taresh P. Khobragade, Yusuf Chisti, Uttam Chand Banerjee, Production of mycophenolic acid by *Penicillium brevicompactum*- A comparison of two methods of optimization, *Biotechnology Reports* 2016, 11, 77-85. DOI: [10.1016/j.btre.2016.07.003](https://doi.org/10.1016/j.btre.2016.07.003) (CiteScore- 6.0)

OTHER QUALIFICATIONS

Exam.	Conducting Agency	Year	Subject	Remark
CSIR-UGC- NET	CSIR	2012	Life Sciences	Qualified (AIR 42)
DBT-JRF-Program	DBT	2012	Biotechnology and Applied biology	Qualified (AIR 52)
GATE-2012	IIT, Delhi	2012	Biotechnology	Qualified (AIR 66)
GATE-2011	IIT, Madras	2011	Biotechnology	Qualified (AIR 1430)
GPAT-2010	AICTE	2010	Pharmaceutical Sciences	Qualified (AIR 519)
GATE-2009	IIT, Roorkee	2009	Pharmaceutical Sciences	Qualified (AIR 3215)

EXTRAMURAL FUNDING

- ✓ Served as a **Principal Investigator** for the project ‘*Development of Industrial Production Technology for Diabetic Drug Sitagliptin Using Enzyme Catalysts Technology*’ funded by Ministry of Trade, Industry and Energy of South Korea (MOTIE, Korea) (Grant No. [10076343](#)) (Project cost- ~USD 50,000 per annum)

PROFESSIONAL MEMBERSHIP & AWARDS

- ✓ Awarded with ‘**International Young Researcher Award 2020-21**’ by International Institute of Organized Research (I₂OR)
- ✓ Lifetime member of International Society for Research and Development (Membership ID: SR4150900539)
- ✓ Lifetime member of Asian Federation of Biotechnology (Membership ID: KR01137)

CONFERENCE/POSTER PRESENTATION/ WORKSHOPS

1. Attended ‘**2018-KSIEC Fall meeting**’, at ICC, Jeju, South Korea (31-10-2018 to 02-11-2018)
2. Hands-on-participation & training program on “**Basic mammalian cell culture, Cytotoxicity assays, Fluorescence microscopy & Flow cytometry techniques**” at Genelon Institute of Life Sciences, Bangalore, (5-12-2016 to 23-12-2016)
3. The ‘**Short Term Course on Advances in Industrial Biotechnology**’, Organized by Department of Biotechnology, Dr. B. R. Ambedkar National Institute of Technology, Jalandhar, India (30-11-2015 to 04-12-2015).
4. Poster presentation “**Optimization of process parameters for the production of arginine deiminase from *Pseudomonas putida***” in Bioprocessing India 2014, jointly organized by Institute of Chemical Technology, Mumbai and Indian Institute of Technology (IIT) Bombay, Mumbai (17-12-2014 to 20-12-2014).
5. Seminar on “**Recent Trends and Regulation of Medical Devices**”, jointly organized by Drugs Control Administration Punjab and NIPER, Mohali (November 2013)
6. Poster presentation “**Studies on process parameters for the production of Leishmanial Acetyl co-A synthetase from recombinant *E. coli***” in “World Congress on Biotechnology” held at Hyderabad, 4-5-2012 to 6-5-2012.