

JKL

Research

Group

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Joydev K. Laha, PhD

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BIOGRAHPY: Dr. Joydev Laha started his independent research career at NIPER S.A.S. Nagar on July 2011. Prior to joining the NIPER, Dr. Laha was employed on a permanent position in the Laboratory for Drug Discovery in Neurodegeneration (LDDN) at Harvard Medical School. Dr. Laha obtained a Ph.D. degree in organic chemistry from the National Chemical Laboratory at Pune under the mentorship of Prof. Ganesh Pandey. He acquired a total of about five years of postdoctoral research experiences in synthetic organic chemistry and medicinal chemistry at the North Carolina State University and Mayo Clinic in the United States. Dr. Laha has versatile research experiences including target-driven method development in organic synthesis, natural product synthesis, and medicinal chemistry research directed to structure-based drug discovery. Over the past five years in his independent career, he has mentored one Postdoctoral Fellow, seven PhDs and thirty one Master's students. Dr Laha and his group have demonstrated a translational application of a laboratory concept to prepare a marketed drug, Sildenafil (Viagra™) [Chem. Comm., 2016, 52, 10245-10248]. He is author or co-author of sixty (60) papers published in peer-reviewed international journals and has two US Patents to his credit. He has been serving referee to the ACS, RSC, Science Direct, and Wiley journals. He has delivered lectures extensively in India and abroad.

Professional Experience

July 2011 to present: Assistant Professor, NIPER S.A.S. Nagar

Mar 2007 to Jul 2011: Postdoctoral Chemist (permanent position), Laboratory for Drug Discovery in Neurodegeneration, HARVARD MEDICAL SCHOOL and Brigham & Women's Hospital, Boston, associated with Dr. Gregory D. Cuny (former Co-Director, LDDN)

Feb 2006 to Mar 2007: Senior Research Fellow, Mayo Clinic, Rochester, United States

Post-doctoral Experience

2001 to 2006 : Postdoctoral Fellow / Research Associate, North Carolina State University, Raleigh, Advisor: Prof. Jonathan S. Lindsey

Industrial Experience

Visiting Scientist (July 23-August 12, 2013 and July 01-July 30, 2014) at Symmetry Biosciences Inc., NC, United States for process development of Gleevac analogues

Education

Ph.D : September 2001, University of Pune (research conducted at National Chemical Laboratory, Pune under the guidance of Prof. Ganesh Pandey), Thesis title: Asymmetric [3+2]-Cycloaddition of Azomethine Ylides: Application to the Synthesis of Natural Products

M. Sc.: October 1993, Organic Chemistry major, Visva-Bharati University, INDIA

B. Sc. : October 1990, Chemistry major, Vidyasagar University, INDIA

Teaching

Course (2 Credit)	Subject	Subject Code	Hours/Week
M. Tech (Pharm.)	Synthetic Aspects of Process Chemistry	PT-560	2 h/week
	Synthetic Bulk Drug Technology	PT-630	2 h/week
M. Tech (Pharm.)	General Lab Exp. Lab Special Exp.	LG-510 LS-610	10 h/week 10 h/week

Ph. D. Technologies for Green Chemistry PT-710 2 h/week

- Curriculum developed for M.Tech. (Pharm.): Synthetic Aspects of Process Chemistry (PT-560)

Areas of Research Interests

- Generation and subsequent reaction of benzyl and acyl radicals, their applications to the synthesis of heterocycles and generic active pharmaceutical ingredients (APIs)
- Understanding organic chemistry of drug degradations and interactions
- New process development for the synthesis of generic drugs and drug intermediates (APIs) utilizing novel catalytic C-H functionalizations, Tandem/Domino/Cascade reactions, or via C-H bond activation
- Design and synthesis of biaryl sulfonamides, atropisomerism in biaryl sulfonamides, preparation of sultams and their ring opening via thermal or photochemical reactions, chemo-enzymatic ring opening of sultams

Extramural Research Grants On-Going

Title	Funding agency	Fund
Development of Metal-Catalyzed Domino Reactions for the Synthesis of Biaryls Containing Five to Eight Member Ring and its applications in the Synthesis of Active Pharmaceutical Ingredients (API) and Natural Products	Council of Scientific and Industrial Research (CSIR), Govt. of India, New Delhi, (Nov 2012-Oct 2015)	Rs. 20 lakhs
Development of Metal-catalyzed Domino Synthesis of Azafluorenes and its Applications in the Synthesis of Compounds Potential as Aromatase Inhibitors, Natural product, and in the Discovery of New Amine Protecting Group	Department of Science and Technology (DST), New Delhi, (May 2015-April 2018)	Rs. 50 lakhs
Strategic Design and Synthesis via Chemoenzymatic approach of Small Molecule Based Hypnotic Agents for Intravenous General Anesthesia	Council of Scientific and Industrial Research (CSIR), Govt. of India, New Delhi, (May 2018-May 2021)	Rs. 30 lakhs

Current Group Members

Post-doctoral Fellow



- Saima Malik (March 2017-present), Post Doctoral Fellow (SERB-NPDF): Application of C-H functionalizations for the Synthesis of Generic APIs of Some Selected Top-selling Marketed Drugs

PhDs



- Mandeep Kaur Hunjan (Joined with NIPER Fellowship, July 2017–Continued): Chemistry of arylglyoxylic acids: Scope and applications



- Upma Gulati (Joined with NIPER Fellowship July 2017–Continued): Novel process for the synthesis of NSAID drugs and their pharmaceutical biology



- Gupta Pankaj Trivenee Prasad (Joined with NIPER Fellowship July 2018–Continued): Second Generation Processes for the Synthesis of Generic APIs of Some Selected Top-selling Marketed Drugs



- Surabhi Panday (Joined with CSIR project Fellowship July 2018–Continued): Exploration of Novel Synthesis and Versatile Reactivity of Templated Bi(hetero)aryl Sultams towards New Process Development of Active Pharmaceutical Ingredients (API's)

Master Students

- Anjali: *Synthesis and understanding the mechanism of action of TB drug isoniazid*
- Shalakra H: *Pyrrole based photosensitizers for applications in Photodynamic Therapy (PDT)*
- Singitham Swetha: *Biomimetic synthesis of indoxyl sulfate, a tyryptophan metabolite and its unexplored reactions*
- Lakshita Anand: *Convergent synthetic approach to NSAID drug diclofenac and understanding its interaction with biomolecules*

- Neha Singh: *Convergent synthesis and drug interaction of anti HIV drug nevirapine*
- Indurthi Harish Kumar: *Novel convergent synthesis of antiepileptic drug carbamazepine and understanding the drug interaction with herbs*
- Sagar Badoni: *Convergent synthesis of NSAID drug indomethacin and understanding the mechanism of interaction with off-target biomolecules*
- Gauri Shankar: *Concise synthesis of Telmisartan and its interaction with food, herbs and alcohol*

Former Group Members

Post-doctoral Research Associate



- Ankur Gupta (Joined with CSIR-RA fellowship March 2013-February 2014), Current Position: Founder of Dugdh Nutraceuticals Ltd., Siliguri and Co-founder of Ceutica & Chemie, Bangalore.

Ph. D.



- Seema Kirar (Joined with DBT fellowship July 2013, Thesis submitted): Applications of nano-particles as drug-delivery agents in Photodynamic therapy



- Bharat Dwivedee (Joined with NIPER fellowship July 2013-September 2018): “Various immobilization of biocatalysts with nano-particles and their uses in organic synthesis”
Current Position: Assistant Professor, Shoolini University, Solan, HP.



- Shubhra Sharma (Joined with NIPER fellowship November 2013-July 2018): “Novel convergent approaches to the synthesis of heterocycles containing sulfonyl functionality”
Current Position: Research Investigator, Johnson & Johnson, Mumbai.



- Ketul V. Patel (Joined with SERB sponsored project fellowship July 2014-July 2018): “New strategies for decarboxylative acylation using α -oxocarboxylic acids towards C-C and C-N bond formation and its applications”
Current Position: Research Investigator, Aten Porus, Lifesciences, Bangalore.



- Rohan A. Bhimpuria (Joined with UGC-JRF fellowship July 2013-April 2018): “Palladium-catalyzed inter- and intramolecular oxidative arylations and alkenylations of 7-

azaindoles and pyrroles” Current Position: Research Investigator, Piramal Healthcare, Ahmedabad.



- Krupal P. Jethava (Joined with NIPER fellowship February 2013-April 2017): Thesis: “Exploration of novel synthetic approaches to the convergent synthesis of nitrogen heterocycles”, Current Position: Postdoctoral Fellow at Purdue University with Prof. Gaurav Chopra



- K. Satyanarayana Tummalapalli (Joined with CSIR-JRF fellowship January 2012-April 2016), Thesis: “Convergent Synthesis of Fused Nitrogen Heterocycles via palladium-Catalyzed Domino and Transition-metal-free Oxidative Reactions”, Current Position: Postdoctoral Fellow at Tianjn University with Prof. Jon Antilla



- Neetu Dayal (Joined with NIPER fellowship July 2012-February 2016), Thesis: “Convergent Synthesis of Tricyclic Fused Nitrogen Heterocycles via Palladium-Catalyzed Mono C(sp²)-H/Double C(sp²)-H Functionalization Strategies” Current Position: Postdoctoral Fellow at Purdue University with Prof. Hermin Sintim

M. Tech (Pharm.)

Batch **2016-18** (Name, Thesis Title, Year of passing, and current affiliation in India)

- Radhika Gandhi: Efforts towards benzylic C-H functionalization via radical reactions
- Neelam Manral: New process development for the synthesis of anti-psychotic drug, clozapine and degradation of NSIDs
- Yogesh Sonawane: Synthesis of biaryl sultams and its N-S bond for the synthesis of BMS-207940
- Digambar Mangale: Intramolecular radical acylation for the synthesis of drug intermediates and efforts towards the synthesis of diazepam
- Monika Tomar: Synthesis of quinazoline via tandem decarboxylative N-acylation/intramolecular cyclization
- Sudheer Kayande: Intramolecular oxidative coupling for the synthesis of sultam drug intermediate
- Mahesh Hakale: Benzylic C-H acylation at late-stage functionalization of drug intermediates

Batch **2015-17** (Name, Thesis Title, Year of passing, and current affiliation in India)

1. Aitha Manoj Kumar: Novel process for the drug development of Clozapine 2017 (Precision Business Insights, Hyderabad)
2. Mule Gajanan: Novel process development for the synthesis of the drug Eesomeprazole (Alkem Laboratories, Mumbai)
3. Ganesh Solanke: Novel synthetic approach for Darifenacin 2017 (GreyB Services, Mohali)
4. Surabhi Pandey: Novel approach for the synthesis of Diclofenac Epolamine
5. Mukul Jain: New synthetic route development for Letrozole synthesis 2017 (GreyB Services, Mohali)
6. Sheetal Sharma: Novel process development for the synthesis of Solifenacin 2017 (Gracure Pharmaceutical Ltd., Baddi)
7. Vanya Vashisht: Novel process drug development of Tadalafil (IMS, New Delhi)

Batch **2014-16** (Name, Thesis Title, Year of passing, and current affiliation in India)

1. Misha Sharma, "*Enzymatic decarboxylative benzylation*" 2016 (Novartis, Hyderabad)
2. Mandeep Kaur Hunjan, "*Application of dehydrogenative coupling in the synthesis of N-heterocycles*" 2016 (PhD scholar at NIPER SAS Nagar)
3. Ramteja Adari, "*Study of metal-catalyzed decarboxylative arylations to the fused N-heterocycles*" 2016 (Reckitt Benckiser, Gurgoan)
4. Sagar Kumar Patel, "*Novel approaches for the synthesis of fluorenones*" 2016 (PhD Scholar at NIPER , Ahmadabad)
5. Gurudutt Dubey, "*Efforts towards the synthesis of fluorenones and azafluorenones by palladium-catalyzed decarboxylative arylation*" 2016 (PhD Scholar at NIPER S.A.S. Nagar)
6. Shruti Sharma, "*Biocatalytic approach towards the synthesis of enantiopure drug intermediates*" 2016, (BresMed, Gurgoan)

Batch **2013-15** (Name, Thesis Title, Year of passing, and current affiliation in India)

1. Akshay Nair, "*Study of metal-catalyzed decarboxylative benzylation of alpha-oxo acids*", 2015 (PhD Scholar IIT Bombay)
2. Atithi Arya, "*A study towards the synthesis of Carbazole derivatives*", 2015 (Novartis, Hyderabad)
3. Dilip Prajapati, "*Applications of dehydrogenative cross-coupling to the synthesis of fused N-heterocycles*", 2015 (Centiss Pharma, Gurgoan)
4. Nidhi Patel, "*Study of metal-catalyzed decarboxylative C-C bond formation of Alkynyl Carboxylic Acids*", 2015 (Torrent Pharma, Ahmedabad)
5. Urvashi Jawharani, "*Studies toward the synthesis of benzo-fused Sultam by Palladium-catalyzed directed C-H activation*", 2015

Batch **2012-14** (Name, Thesis Title, Year of passing, and current affiliation in India)

1. Ketul Patel, "*Direct ortho-benylation of primary heteroaryl amides*", 2014 (PhD scholar at NIPER SAS Nagar)
2. Anuja Jain, "*Transition-metal catalyzed decarboxylative benzylation of aromatic carboxylic Acids*", 2014 (Assistant Professor in a College, Jabalpur)
3. Kartavya Balat, "*Transition metal-catalyzed decarboxylative cross-coupling of α -oxo Acids*", 2014 (Intas Pharmaceuticals, Ahmedabad)
4. Roli Jain, " *α -Arylation of ketones present in N-Heterocycles*", 2014 (Sun Pharma. Ltd., Mumbai)
5. Bhaskar Singh Rathore, "*1,3-dipolar cycloaddition reaction of porphyrins for the synthesis of new photosensitizers*", 2014 (Drug Inspector, Chattisgarh)
6. Manoj Kadam, "*Palladium-catalyzed direct o-benylation of primary benzamide with bromobenzyl bromide and 4-bromomethyl pyridine*", 2014 (Emcure Pharma, Pune)
7. Gitanjali Madan, "*Synthesis of Bioconjugatable Photosensitizers for Photodynamic Therapy (PDT) of Cancer*", 2014

8. Lekshmi Vijay, “Rational synthesis of various Building blocks towards the development of Porphyrin Photosensitizers”, 2014, (Indegene, Kerala)
9. Sumant Kumar Bhaskar, “Metal catalyzed N-arylation of electron-deficient Heterocyclic Amines”, 2014

Batch **2011-13** (Name, Thesis Title, Year of passing, and current affiliation in India)

1. Pooja Shah, “Palladium-catalyzed convergent synthesis of dibenzoazepinones and fused oxazocines”, 2013 (Lupin Pharma, Mumbai)
2. Swati Singh, “Synthesis of 6H-isoindolo[2,1-a]indole and its derivatives”, 2013 (Quantum Solutions, Chandigarh)
3. Rohan Bhimpuria, “Synthesis of indole[2,1-a]isoquinolino-6(5H)-one and related heterocycles through palladium-catalyzed Domino reaction”, 2013 (Currently PhD scholar at NIPER SAS Nagar)
4. Shivanand Kaurav, “Effort toward the synthesis of Azafluorenes by palladium-catalyzed Decarboxylative Coupling”, 2013 (Currently working for Himadi Solutions Pvt Ltd., New Delhi)

Research Collaboration

International

- Symmetry Biosciences Inc., NC, United States (Scale up of API)

National

- Prof. Prasad B. Bharatam, NIPER S.A.S. Nagar (Computational)
- Prof. Uttam C. Banerjee, NIPER S.A.S. Nagar (Biology, enzymatic reactions)
- Dr. Ipsita Roy, NIPER S.A.S. Nagar (Biology, enzymatic reactions)
- Prof. Shyam S. Sharma, NIPER S.A.S. Nagar (Pharmacology)
- Dr. Jaideep Saha, Center of Biomedical Research, Lucknow
- Dr. Silviu Pharmachem Pvt. Ltd., Pune, Maharashtra (Scale up of API)

Honors & Achievements

- Associate Editor, CRIPS journal

- Member, National Advisory Board, ICNP-2015, April 10-12, 2015
- Convener, symposium “Frontiers in Organic Chemistry” from 5-6th July, 2013 at CBMR, Lucknow
- External examiner of PhD thesis
- Biography listed in Marquis Who’s Who in the World 27th Edition 2010
- Serving referee to the *American Chemical Society*, *Royal Society of Chemistry*, *Science Direct*, and *Wiley Journals*

Professional Affiliations

- Consultant, Symmetry Biosciences Inc., NC, United States
- Member, American Chemical Society (2003-11)
- Member, International Union of Pure and Applied Chemistry (IUPAC) (2007-11)

Awards & Fellowships

- Award of appreciation by NIPER S.A.S. Nagar on technology day May 11, 2018
- Rajnibhai V. Patel PharmInnova Award 2017-18 jointly with Mr. Gurudutt Dubey



- Best composition award: “Large-Scale Synthesis of a Meso-Substituted Dipyrromethane; 5-Phenyldipyrromethane” *SyntheticPages*, 2006: 248 (<http://www.syntheticpages.org/pages/248>)
- Awarded CSIR (Council of Scientific & Industrial Research, New Delhi, India) research fellowship for graduate studies from February 1995-January 2000
- Qualified GATE (Graduate Aptitude Test in Engineering, a National Level Test for graduate research fellowship) in December 1993 with 91.77 percentile
- Awarded National Scholarship in class 10th standard
- Prize for ranking 2nd in Madhyamik Examination within the school

Peer-Reviewed Publications

60. Laha, J. K.; Manral, N.; Hunjan M. K. “K₂S₂O₈ Mediated Thermal Decarboxylation of Arylacetic Acids in Water: Implications on Degradation of Non-steroidal Anti-inflammatory Drugs (NSAIDs)” (manuscript submitted)
59. Mandal, S.; Bera, T.; Dubey, G.; Saha, J.; Laha, J. K. "Uses of K₂S₂O₈ in Metal-Catalyzed and Metal-Free-Oxidative Transformations" *ACS Catal.* **2018**, *8*, 5085-5144. [Impact factor: 11.34]
58. Laha, J. K.; Patel, K. V.; Tummalapalli, K. S. S.; Hunjan. M. K. “Palladium-Catalyzed Serendipitous Synthesis of Arylglyoxylic Amides from Arylglyoxylates and N,N-Dialkylamides in the Presence of Halopyridines” *ACS Omega* **2018**, *5*, 8787-8793. [Impact factor: Not available]
57. Dwivedee, B. P.; Soni, S.; Laha, J. K.; Banerjee, U. C. “Facile immobilization of *Pseudomonas fluorescens* lipase on polyaniline nanofibers (PANFs-PFL): a route to develop robust nanobiocatalyst” *Int. J. Biol. Macromol.* **2018**, *119*, 8-14. [Impact factor: 3.92]
56. Laha, J. K.; Patel, K. V.; Saima, Pandey, S.; Solanke, G.; Vashisht, V. “Scope of Regioselective Suzuki Reactions in the Synthesis of Arylpyridines and Benzylpyridines and Subsequent Intramolecular Cyclizations to Azafluorenes and Azafluorenones” *New J. Chem.*, **2018**, *42*, 16069-16074. [Impact factor: 3.27]

55. Laha, J. K.; Sharma, S. "Palladium-Catalyzed Intramolecular Oxidative Arylations for the Synthesis of Fused Biaryl Sulfones" *ACS Omega* **2018**, *5*, 4860-4870. [Impact factor: Not available]
54. Dwivedee, B. P.; Soni, S.; Laha, J. K.; Banerjee, U. C. "Self assembly through sonication: an expeditious and green approach for the synthesis of organic-inorganic hybrid nanopetals and their application as biocatalyst" *ChemNanoMat* **2018**, *4*, 670-681. [Impact factor: 3.17]
53. Kirar, S.; Thakur, N. S.; Laha, J. K.; Bhaumik, J.; Banerjee, U. C. "Development of Gelatin Nanoparticle-Based Biodegradable Phototheranostic Agents: Advanced System to Treat Infectious Diseases" *ACS Biomater. Sci. Eng.* **2018**, *4*, 473-482. [Impact factor: 3.23]
52. Dwivedee, B. P.; Soni, S.; Sharma, M.; Bhaumik, J.; Laha, J. K.; Banerjee, U. C. "Promiscuity of Lipase-Catalyzed Reactions for Organic Synthesis: A Recent Update" *ChemistrySelect* **2018**, *3*, 2441-2466. [Impact factor: 1.57]
51. Laha, J. K.; Sharma, S.; Kirar, S.; Banerjee, U. C. "Design, Sustainable Synthesis, and Programmed Reactions of Templated N-Heteroaryl Fused Vinyl Sultams" *J. Org. Chem.*, **2017**, *82*, 9359-9359. [Impact factor: 4.89]
50. Laha, J. K.; Bhimpuria, R.A.; Aitha, M. K. "Post-Synthetic Diversification of Pyrrole Fused Benzosultams via Trans-Sulfonylations and Reactions on the Periphery of Pyrrole" *Org. Chem. Front.* **2017**, *4*, 2170-2174. [Impact factor: 4.95]
49. Laha, J. K.; Patel, K. V.; Sharma, S. "Palladium-Catalyzed Decarboxylative *ortho*-Acylation of Tertiary Benzamides with Arylglyoxylic Acids" *ACS Omega* **2017**, *2*, 3806-3815 [Impact factor: Not available]
48. Laha, J. K.; Hunjan, M. K.; Bhimpuria, R. A.; Kathuria, D.; Bharatam, P. V. "Geometry Driven Intramolecular Oxidative Cyclization of Enamides: An Umpolung Annulation of Primary Benzamides with Acrylates for the Synthesis of 3-Methyleneisoindolin-1-ones" *J. Org. Chem.*, **2017**, *82*, 7346-7352 [Impact factor: 5.45]
47. Laha, J. K.; Sharma, S.; Bhimpuria, R.A.; Dayal, N.; Dubey, G.; Bharatam, P. V. "Integration of Oxidative Arylation with Sulfonyl Migration: One-Pot Tandem

Synthesis of Densely Functionalized (NH)-Pyrroles” *New J. Chem.*, **2017**, *41*, 8791-8803. [Impact factor: 3.21]

46. Laha, J. K.; Jethava, K. P.; Sharma, S. “Synthesis of mono N-sulfonyl imidazolidines by 1,3-dipolar cycloaddition strategy, an alternative to selective N-sulfonylation, and their ring cleavages to 1,2-diamines” *Eur. J. Org. Chem.* **2017**, 4617-4624. [Impact factor: 3.06]
45. Dwivedee, B. P.; Bhaumik, J.; Laha, J. K.; Banerjee, U. C. “Development of Nanobiocatalysts through the Immobilization of *Pseudomonas fluorescens* Lipase for Applications in Efficient Kinetic Resolution of Racemic Compounds” *Bioresour. Technol.* **2017**, *239*, 464-471. [Impact factor: 5.65]
44. Laha, J. K.; Bhimpuria, R. A.; Mule G. B. Site-selective Oxidative C-4 Alkenylation of (NH)-Pyrroles Bearing an Electron Withdrawing C-2 Group,” *ChemCatChem.* **2017**, *9*, 1092-1096. [Impact factor: 4.72]
43. Laha, J. K.; Jethava, K. P.; Patel, S.; Patel, K. V. Intramolecular Acylation of Unactivated Pyridines or Arenes via Multiple C–H Functionalizations: Synthesis of all Four Azafluorenones and Fluorenones” *J. Org. Chem.*, **2017**, *82*, 76–85. [Impact factor: 4.78]
42. Laha, J. K.; Bhimpuria, R. A.; Hunjan, M. K. “Intramolecular Oxidative Arylations in 7-Azaindoles and Pyrroles: Revamping the Synthesis of Fused N-Heterocycle Tethered Fluorenes” *Chem. Eur. J.* **2017**, *23*, 2044-2050 (**Frontispiece Hot Article**) [Impact factor: 5.77]
41. Laha, J. K.; Jethava, K. P. “Access to Imidazolidine-Fused Sulfamidates and Sulfamides Bearing a Quaternary Center via 1,3-Dipolar Cycloaddition of Nonstabilized Azomethine Ylides” *J. Org. Chem.* **2017**, *82*, 3597–3604. [Impact factor: 4.78]
40. Laha, J. K.; Patel, K. V.; Dubey, G.; Jethava, K. P. Intramolecular Minisci acylation under silver-free neutral conditions for the synthesis of azafluorenones and fluorenones” *Org. Biomol. Chem.* **2017**, *15*, 2199-2210. [Impact factor: 3.56]
39. Laha, J. K.; Patel, K. V.; Tummalapalli, K. S. S.; Dayal, N. "Formation of Amides, their Intramolecular Reactions to the Synthesis of N-Heterocycles, and

- Preparation of a Marketed Drug, Sildenafil: A Comprehensive Coverage" *Chem. Comm.*, **2016**, 52, 10245-10248. [Impact factor: 6.56]
38. Laha, J. K.; Bhimpuria, R. A.; Prajapati, D. V.; Dayal, N. Sharma, S. "Palladium-Catalyzed Regioselective C-2 Arylation of 7-Azaindoles, Indoles and Pyrroles with Arenes" *Chem Commun.* **2016**, 52, 4329-4332. [Impact factor: 6.56]
37. Laha, J. K.; Tummalapalli, K. S. S.; Jethava, K. P. " Implications of Dynamic Imine Chemistry for the Sustainable Synthesis of Nitrogen Heterocycles via Transimination Followed by Intramolecular Cyclization" *Org. Biomol. Chem.* **2016**, 14, 2473-2479. [Impact factor: 3.56]
36. Bhaumik, J.; Gogia, G.; Kirar, S.; Vijay, L.; Thakur, N. S.; Banerjee, U. C.; **Laha, J. K.** "Bioinspired Nanophotosensitizers: Synthesis and Characterization of Porphyrin-Noble Metal Nanoparticle Conjugates" *New J. Chem.* **2016**, 40, 724-731. [Impact factor: 3.21]
35. Prasad, S.; Negi, V. S.; Laha, J. K.; Roy I. "Differential Effect of a Chemical Denaturant on Activity and Stability of Serine Protease in Non-aqueous Media" *J. Mol. Catal.B. Enzym* **2016**, 134, 32-36. [Impact factor: 2.19]
34. Laha, J. K.; Sharma, S.; Dayal, N. "Palladium-Catalyzed Regio- and Chemo-selective Reactions of 2-Bromobenzyl Bromides: Expanding the Scope for the Synthesis of Biaryls Fused to a Seven-Membered Sultam" *Eur. J. Org. Chem.* **2015**, 7885-7891. [Impact factor: 3.06]
33. Laha, J. K.; Jethava, K. P.; Patel, S. " Scope of Successive C-H Functionalizations of the Methyl Group in 3-Picolines: Intramolecular Carbonylation of Arenes to the Metal-free Synthesis of 4-Azafluorenones" *Org. Lett.* **2015**, 17, 5890-5893. [Impact factor: 6.73]
32. Laha, J. K.; Tummalapalli, K. S. S.; Nair, A.; Patel, N. "Sulfate Radical Anion (SO₄^{•-}) Mediated C(sp³)-H Nitrogenation/Oxygenation in N-Aryl Benzylic Amines Expanded the Scope for the Synthesis of Benzamidine/oxazine Heterocycles" *J. Org. Chem.* **2015**, 80, 11351-11359. [Impact factor: 4.78]
31. Laha, J. K.; Dayal, N. "A Tandem Approach to Functionalized Carbazoles from Indoles via Two Successive Regioselective Oxidative Heck Reactions Followed

- by Thermal Electrocyclization" *Org. Lett.* **2015**, *17*, 4742–4745. [Impact factor: 6.73]
30. Laha, J. K.; Dayal, N.; Jethava, K. P.; Prajapati, D. V. "Access to Biaryl Sulfonamides by Palladium-Catalyzed Intramolecular Oxidative Coupling and Subsequent Nucleophilic Ring Opening of Heterobiaryl Sultams with Amines" *Org. Lett.* **2015**, *17*, 1296–1299. [Impact factor: 6.73]
29. Laha, J. K.; Dayal, N.; Jain, R.; Patel, K. "Palladium-Catalyzed Regiocontrolled Domino Synthesis of *N*-Sulfonyl Dihydrophenanthridines and Dihydrodibenzo[*c,e*]azepines: Control over the Formation of Biaryl Sultams in the Intramolecular Direct Arylation" *J. Org. Chem.* **2014**, *79*, 10899–10907. [Impact factor: 4.78]
28. Laha, J. K.; Jethava, K. P.; Dayal, N. "Palladium-Catalyzed Intramolecular Oxidative Coupling Involving Double C(sp²)-H Bonds for the Synthesis of Annulated Biaryl Sultams" *J. Org. Chem.* **2014**, *79*, 8010–8019. [Impact factor: 4.78]
27. Laha, J. K.; Tummalapalli, K. S. S.; Gupta, A. "Transition-Metal-Free Tandem Oxidative Removal of Benzylic Methylene Group by C–C and C–N Bond Cleavage Followed by Intramolecular New Aryl C–N Bond Formation under Radical Conditions" *Org. Lett.* **2014**, *16*, 4392–4395. [Impact factor: 6.73]
26. Laha, J. K.; Dayal, N.; Singh, S. Bhimpuria, R. A. "Dual Catalysis in Domino *N*-Benzoylation/Intramolecular C–H Arylation: Regio- and Chemoselective Synthesis of Annelated Nitrogen Heterocycles" *Eur. J. Org. Chem.* **2014**, 5469–5475. [Impact factor: 3.06]
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Invited Lectures/Oral Presentations In Conference/Meetings

1. "Amide Formation via Radical Acylation and its Application in the Synthesis of Fused Nitrogen Heterocycles and generic APIs", *Invited lecture*, CBMR lecture series, Lucknow, July 04, **2018**
2. "Recent Trends of Chemical & Biological Sciences in Medicine, Natural Products, and Drug Discovery", *Invited lecture*, International Conference, Bhubaneswar, March 3-5, **2017**
3. "Recent Trends in Chemistry Research" *Invited lecture*, Two Day National Seminar, Visva-Bharati University, Santiniketan, March 25-27, **2017**
4. PAC-Organic Chemistry Meeting, *Invited Presentation*, IISER Bhopal, January 19-20, **2017**
5. "Metal-Catalyzed Convergent Synthesis of Fused Nitrogen Heterocycles", *Invited lecture*, CBMR, Lucknow, May 11, **2015**
6. "Palladium-Catalyzed Regio- and Chemoselective Reactions of 2-Bromobenzyl bromides: Expanded the Scope of the Synthesis of Diverse N-Heterocycles", *Invited lecture*, Innovative Applications of Chemistry in Pharmacology & Technology (IC-IACPT-2015), Berhampur university, Berhampur, February 06-08, **2015**.
7. "Palladium-catalyzed direct ortho-benzylation of benzamides", *Oral*

- Presentation, 246th ACS National Meeting and Exposition, Indianapolis, Indiana September 8-12, **2013**.
8. “Synthesis of phenazines by palladium-catalyzed N-arylation of 1,2-diamino(hetero)arenes with 1,2-dihalo(hetero)arenes”, Oral Presentation, 246th ACS National Meeting and Exposition, Indianapolis, Indiana September 8-12, **2013**.
 9. “Palladium-catalyzed domino N-benzoylation/C-H arylation approach to the synthesis of fused N-heterocycles”, Oral Presentation, 246th ACS National Meeting and Exposition, Indianapolis, Indiana September 8-12, **2013**.
 10. “Development of macrocycles based photosensitizers for potential applications in photodynamic therapy”, *Invited lecture*, 3rd International Conference on Natural Polymers & Biomaterials, Kothyaam, Kerala, October 26-28, **2012**.
 11. “General method for the synthesis of alpha-, beta, gamma- and delta-carbolines by photo-induced intramolecular arylation of anilidopyridines” Oral Presentation, 241st ACS National Meeting, Anaheim, CA, United States, March 27-31, **2011**.
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Abstract Of Papers In Conference/Meetings

1. Jethava, K. P.; Patel, S.; **Laha, J. K.** “Scope of Successive C–H Functionalizations in Arylpyridines: Utilizing Methyl Group as Latent Carbonyl Functionality”, 3rd International Symposium on C-H Activation (ISCHA3) held at University of Montreal, Quebec, Canada, 30 May to 2 June **2016**.
2. Jethava, K. P.; Patel, S.; Patel, V. K.; **Laha, J. K.** “A Unified Strategy to the

Synthesis of All Four Azafluorenones and Fluorenones via Multiple C (sp³/sp²)-H Functionalizations”, 21st International Conference on Organic Synthesis (ICOS21) held at IIT-Bombay, Mumbai, India December 11-16, **2016**.

3. Sharma, S.; Bhimpuria, R. A.; Dayal, N.; **Laha, J. K.** “*A Novel Sulfonyl Migration in Pyrrole Nucleus: One-Pot Synthesis of Highly Functionalized (NH)-Pyrroles*”, 21st International Conference on Organic Synthesis (ICOS21) held at IIT-Bombay, Mumbai, India December 11-16, **2016**.
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7. Bhaumik, J.; Thakur, N. S., Kirar, S.; **Laha, J. K.**; Banerjee, U. C. “*Bioinspired and Programmable Nanotheranostics and their Use in the Development of Nanophotosensitizers*”, Oral Presentation, 250th National American Chemical Society meeting, Boston, MA, USA, August 16-20, **2015**.
8. Banerjee, U. C.; Bhaumik, J.; Dwivedee, B. P.; **Laha, J. K.** “*Multimodal nanobiocatalysis: Toward the synthesis of pharmaceutically relevant enantiopure drugs and drug intermediates*”, Oral Presentation, 250th National American Chemical Society meeting, Boston, MA, USA, August 16-20, **2015**.

9. Bhaumik, J.; **Laha, J. K.**; Banerjee, U. C. “Combining Nanotheranostics and Photomedicine: Design and Synthesis of Nanophotomedicine for Cancer Treatment”, Oral Presentation, 4th World Congress on Cancer Science and Therapy, Chicago, Illinois, USA, October 20-22, **2014**.
10. Bhaumik, J.; **Laha, J. K.**; Banerjee, U. C. “Nanotheranostic Photosensitizers: Method Development for Photodynamic Therapy”, Oral Presentation, NanoSciTech 2014, Panjab University, Chandigarh, India, February 13-15, **2014**.
11. Dayal, N.; **Laha, J. K.** “Tactic for the installation of sulphonamidepharmacophores on biaryls via palladium-Catalyzed oxidative coupling: access to functionalized 2-arylindoles, rarely explored in drug discovery”, 250th ACS National Meeting, Boston, Massachusetts, USA, August 16-20, **2015**.
12. Dayal, N.; Jethava, K. P.; Prajapati, D. V.; **Laha, J. K.** “Access to Biaryl Sulfonamides by Palladium-Catalyzed Intramolecular Oxidative Coupling and Subsequent Nucleophilic Ring Opening for the Installation of SulfonamidePharmacophores on Biaryls”, Sipra Innovative Pharma Research Awards, SIPRA LABS LTD, Hyderabad, July 2-3, **2015**.
13. Bhaumik, J.; **Laha, J. K.**; Banerjee, U. C. “Combining Nanotheranostics and Photomedicine: Design and Synthesis of Nanophotomedicine for Cancer Treatment”, 7th Young Investigators Meeting, Srinagar, India, March 27-31, **2015**.
14. Dayal, N.; Singh, S.; Bhimpuria, R.; **Laha, J. K.** “Regio- and Chemoselective Synthesis of Annelated Nitrogen Heterocycles via Dual Catalysis in Domino N-Benylation/Intramolecular C–H Arylation”, International Symposium on Recent Advances In Medicinal Chemistry (ISRAM), NIPER, Mohali, September 8-10, **2014 (BEST POSTER AWARD)**
15. Bhaumik, J.; Gogia, G.; Vijay, L.; Ghanghoria, A.; Kumar, P.; Ahanger, I. A.; Mittal, A. K.; **Laha, J. K.**; Banerjee, U. C. Banerjee “Development of Biocompatible Theranostic Nanophotosensitizers for Photodynamic Therapy and Various Biomedical Applications”, 6th International Conference on Nano Science and Technology (ICONSAT 2014), Chandigarh, India, March 2-5, **2014**.

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19. **Laha, J. K.**; Lindsey, J. S. “*Synthesis of 13-acetylchlorins: Simple models for chlorophylls*”, 229th ACS National Meeting, San Diego, CA, United States, March 13-17, **2005**, ORGN-54