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Professional experience

- January, 2012 - Present: Associate Professor, Department of Medicinal Chemistry, NIPER, S.A.S. Nagar (Mohali).
- January, 2007 - January, 2012: Assistant Professor, Department of Medicinal Chemistry, NIPER

Post-Doctoral and Doctoral Research Experience, Education

- 2005-2006:, University of California, Riverside, USA; with Professor Michael C. Pirrung
- 2004-2005: University of Illinois at Chicago, USA; with Professor Gabriel Fenteany
- 2002-2004: University of Tennessee, Knoxville, USA; with Professor George W. Kabalka
- 1996-2001: Ph.D.; Indian Association for the Cultivation of Science, Kolkata; under supervision of Professor Brindaban C. Ranu
- 1994-1996: MSc in Chemistry (Specialization in Organic Chemistry), University of Calcutta
- 1991-1994: BSc in Chemistry, University of Calcutta

Current Research Area

Synthetic Organic Medicinal Chemistry

- Anticancer drug discovery: Design and synthesis of heterocyclic compounds as human DNA topoisomerase I and II inhibitors, Tubulin inhibitors, DNA polymerase inhibitors, and their SAR studies
- Antileishmanial drug discovery: Design and synthesis of heterocyclic compounds as target-specific antileishmanial agents
- Synthesis of biologically relevant heterocyclic and natural product-based compounds
- Synthetic methodology development: Construction of heterocyclic molecular skeletons, C-H bond functionalization, Ylide chemistry, Green chemistry

Award and Recognition:

- Chemical Research Society of India (CRSI) Bronze Medal
- Indian Chemical Society - Professor D. Nasipuri Memorial Award - 2015
- Expert Panel reviewer for CSIR-FIRST Scheme
- Expert Panel Member for DBT- Biotechnology Career Advancement and Re-Orientation Programme (BioCARe), proposals submitted in the area of Compounds of Medicinal Utility
- Selected for ppt-presentation-evaluation stage for DST-SwarnaJayanti Fellowship, Year-2013.

- Work published in *J. Med. Chem.* **2011**, *54*, 5013-5030 was recognized as "highly cited article" (The American Chemical Society appreciated with a certificate)
- Work published in *ACS Med. Chem. Lett.*, **2015**, 6, 481-485 was highlighted by featuring it as a cover art image in one of the issues (April, 2015) of the ACS Med. Chem. Lett.
- Work (*J. Org. Chem.* **2017**, *82*, 2745−2752) was introduced in Synfacts as a highlight article.
- Senior Research Fellowship (CSIR), Govt. of India, 1998-2000
- Junior Research Fellowship (CSIR), Govt. of India, 1996-1998
- Qualified National Eligibility Test (NET), Council of Scientific and Industrial Research (CSIR) for Lectureship and Fellowship, Govt. of India, 1995
- Qualified Graduate Aptitude Test in Engineering (GATE) for Fellowship, Govt. of India, 1996

Membership to professional organization

- Life member, Chemical Research Society of India (CRSI)

Significant research outcome and recognition

1. **Discovery of potent anticancer agents**: Some compounds were found to be more (many-fold) anticancer active than marketed drug and clinical trial agent in *In-vitro* target (enzyme) and cell-based activities, and poor cytotoxic to normal cells. One selected compound was found potent in *in-vivo* efficacy (approx. 50% tumor reduction). Further research is going on.
2. **Discovery of potent antileishmanial agents**: Some compounds were found to be more (many-fold) active than antileishmanial drug miltefosine in promastigote, poor cytotoxic to normal cells compared to miltefosine, safe for cardio- and neuro-pharmacology, and potent in *in-vivo* efficacy. Compounds were patented.
3. **Scaffold-hopping strategy in target-based drug discovery**: We explored for the first time an important approach for exploration of drug-scaffold-hopped compounds as potent anticancer agents that inhibit catalytic role of hTopoIIα. One of the works published in the *J. Med. Chem.* 2011, *54*, 5013-5030 was "highly cited article"- appreciated with the certificate by The American Chemical Society.
4. "**Choice-based change**" approach in drug discovery: An unprecedented strategy for "choice-based change" in site of inhibition towards structure-based discovery of human topoisomerase IIα catalytic inhibitors was discovered (*ACS Med. Chem. Lett.*, 2015, *6*, 481-485). The work was highlighted by featuring it as a cover art image in (April, 2015)- issue of the *ACS Med. Chem. Lett*.
5. **Illustration of research outcome in books**: Some of our published works and new synthetic methods have been illustrated in books published by Wiley and Elsevier and organic chemistry portal.

Research Projects (Extramural)

S. No.	Funding Agency	Project title	Rs in lakhs	Duration
1	CSIR	Scaffold hopping of natural alkaloids and analog-focused strategic synthesis: Discovery of target-specific antiproliferative agents	20.5 lakhs	3 years from August, 2021
2	DST	Multifunctional ylides yielding novel masked synthons in construction of privileged heterocyclic scaffolds: A rational integration with target-based anticancer drug discovery	41.4 lakhs	04.12.2020 – 03.12.2023
3	DST	Switch in mode of action of Ellipticine with Etoposide-inspired structural modulation: Towards exploration of new molecular motifs as potential anticancer agents	52.86	4.6.2016 to 31.12.2019
4	CSIR	Natural product inspired novel heterocyclic antitubulin anticancer agents: Design, synthesis and bio-evaluation studies	19.5	2014-17
5	DST	Scaffold hopping of flavonoids: Design, synthetic exploration, and studies of topoisomerase II–targeting anticancer activities	41.62	2012-15
6	DST	Sustainable synthesis and bio-evaluation of hetero-polycyclic compounds as topoisomerase II inhibitors	24.46	2010-13
7	CSIR	Synthesis of tetracyclic indenoindoles and their structural analogs as DNA intercalator and topoisomerase II inhibitor: Organoboron compounds as requisite radical precursors in intramolecular cyclization. The project with additional budget was approved for extension of 6 months.	15.5	2008-12
8	DST	Development of novel reactions for preparation of imidazoles and their use in the synthesis of purines	20	2007-10

N.B.: A project was submitted for DST-SwarnaJayanti Fellowship, I was selected for ppt-presentation-evaluation stage.

Project Title: A new strategy for medicinal chemistry research: Rational switching mode of action of natural product drug

Institutional Research Projects

I) Target-Specific Drug Discovery Research Against Kala Azar, funded by Department of Pharmaceuticals, Ministry of Chemicals and Fertilizers, India

A collaborative mega project with several NIPER Faculty, 2014-2020.

II) Institutional five years plan project; Generation of Lead molecules (Leishmania), funded by Department of Pharmaceuticals, Ministry of Chemicals and Fertilizers, India, 2007-11.

International research collaboration: With University of Florida, USA (through MoU): Project - Design, synthesis and bioevaluation of DNA Polymerase β inhibitors, research is going on for last 2 years, significant progress has been made in identifying new potent compounds.

Students Guided in research

PhD: Awarded the degree- 11 and one student is writing PhD thesis**,** Currently doing research- 5

Master (guided during 3rd and 4th Sem. in research project): Degree awarded - 87,

Currently doing research – 9

Patents (in independent research career)

2. "Novel quinoline-2-aminoalkylcarboxamide compounds as anti-Leishmanial agents" **Sankar K. Guchhait**, Sushma Singh, Shyam S. Sharma, Prati P. Singh, Neha Hura, and Archana P. Shah, P. K. Kaur, N. Dinesh, and G. Yadagiri. Indian Patent, Application no. 201811010817.

1. "Novel indolylquinoline-phenylamidine compounds as antileishmanial agents and the process of preparation thereof." **Sankar K. Guchhait**, Sushma Singh, S. Kumar, V. Chaudhary, G. Priyadarshani, P. K. Kaur, N. Dinesh. Patent No.: 328788, Date of Grant: 01.01.2020, Application No.: 2187/DEL/2014.

Book Chapter:

1. "Late Stage C–H Activation-Functionalization of Drugs, Natural Products, and Biomolecules: In View of Molecular Property and Mechanistic Pathway", Sankar K. Guchhait, Vajja Krishna Rao, Acharya Ayan; a chapter in the book entitled "Handbook of C-H Functionalization (CHF)", edited by Debabrata Maiti, IIT, Bombay, John Wiley & Sons, Ltd, Chichester, UK, **2021**.
2. "Pharmacoinformatics Studies on Human Topoisomerase II: Exploring the Mechanism of Enzyme Inhibition" Chapter 2, pp. 49-142, Neha Tripathi, Rahul Deb, Sankar K. Guchhait and Prasad V. Bharatam*, in the book "Topoisomerase Inhibitors: Classification, Mechanisms of Action and Adverse Effects", Edited by Raj Kumar and Sandeep Singh, Publishers – Nova Science Publishers, International (USA) publishers, **2017**.

Publications (in independent research career, corresponding authorship)

Scientometrics for all publications: Average IF – 4.05, Total citations - 2086
h-index – 28, i10-index – 43

59. Exploration of Benzo[*b*]carbazole-6,11-diones as anticancer agents: Synthesis and studies of hTopoIIα inhibition and apoptotic effects, Shailendra Sisodiy, Subarno Paul, Hitesh K. Chaudhary, Preeti Grewal, Gulshan Kumar, Divine P Daniel, Biswajit Das, Deepika Nayak, Sankar K. Guchhait,* Chanakya N. Kundu, Uttam C. Banerjee, *Bioorg. Med. Chem. Lett*. **2021**, *49*, 128274.

58. Annulation of conjugated azine-imine with a sulfoxonium ylide in a noncarbenoid route to synthesize multisubstituted imidazole-fused heterocycles, Sankar K. Guchhait, Meenu Saini, Viren J. Khivsara, and Santosh K. Giri, *J. Org. Chem.* **2021**, *86*, 5380–5387.

57. Microtubule-targeting agents impair kinesin- 2-dependent nuclear transport of β- catenin: Evidence of inhibition of Wnt/β-catenin signaling as an important antitumor mechanism of microtubule- targeting agents, Anuradha Kumari, Omprakash Shriwas, Shailendra Sisodiya, Manas K. Santra, Sankar K. Guchhait, Rupesh Dash, Dulal Panda*, The FASEB Journal*, *https://doi.org/10.1096/fj.202002594R*, **2021**, *35*, 1-16**.**

56. Chan-Lam N–arylation and C–H amination with heteroaromatic ring-NH: An approach to access extended-fused imidazo[1,2-a]-pyridines/pyrazines, Sankar K. Guchhait, Meenu Saini, *New J. Chem.*, **2020**, *44*, 308.

55. C12, a combretastatin-A4 analog, exerts anticancer activity by targeting microtubules; Anuradha Kumari, Shalini Srivastava, Rajesh K. Manne, Shailendra Sisodiya, Manas K. Santra, Sankar K.Guchhait, Dulal Panda, *Biochem. Pharmacol.*, **2019**, *170*, 113663.

54. C-12 Binds to Tubulin at the Colchicine-binding Site and Target Microtubules by Preferentially Binding to GTP-bound Tubulin, Shweta Shyam Prassanawar, Anuradha Kumari, Sankar K Guchhait, Dulal Panda, *The FASEB Journal*, **2019**, *1*, 784.14.

53. Pharmacoinformatics analysis of merbarone binding site in human topoisomerase IIa, Neha Tripathi, Sankar K. Guchhait, Prasad V. Bharatam, *J. Mol. Graph. Model.,* **2019***, 1,* 1-18*.*

52. Combretastatin-Inspired Heterocycles as Antitubulin Anticancer Agents, Neha Hura, Avishkar V. Sawant, Anuradha Kumari, Sankar K. Guchhait, and Dulal Panda, *ACS Omega* **2018**, *3*, 9754−9769.

51. A Combretastatin Analogue C12 Binds to Colchicine Site in Tubulin, Inhibits Spindle Microtubule Dynamics, Activates Mitotic Checkpoint and Induces Apoptosis in Cancer Cells, Anuradha Kumari, Shalini Srivastava, Shweta Shyam Prassanawar, Shailendra Sisodiya, Sankar K.Guchhait, Dulal Panda, *Biophysical Journal* **2018**, *114*, 415.

50. Synthesis of polyfunctionalized pyrroles via a tandem reaction of Michael addition and intramolecular cyanide-mediated nitrile-to-nitrile condensation**,** Sankar K. Guchhait, Shailendra Sisodiya, Meenu Saini, Yesha V. Shah, Gulshan Kumar, Divine P Daniel, Neha Hura and Vikas Chaudhary*, J. Org. Chem.* **2018***, 83,* 5807–5815.

49. Drug-Clinical Agent Molecular Hybrid: Synthesis of Diaryl(trifluoromethyl)pyrazoles as Tubulin Targeting Anticancer Agents, Neha Hura, Afsana Naaz, Shweta S. Prassanawar, Sankar K. Guchhait, and Dulal Panda; *ACS Omega* **2018***, 3,* 1955−1969*.*

48. A nitrile-stabilized ammonium ylide as a masked C–C=N synthon in heterocyclization with amidine–imine: 3-component assembly to fused pyrimidine scaffolds, Sankar K. Guchhait, Meenu Saini, Divyani Sumkaria and Vikas Chaudhary *Chem. Commun.* **2017**, *53*, 6941–6944.

47. Synthesis of polysubstituted 2-aminoimidazoles via alkene diamination of guanidine with conjugated α-bromoalkenones, Sankar K. Guchhait, Neha Hura, and Archana P. Shah, *J. Org. Chem.* **2017**, *82*, 2745−2752. The article was highlighted for its important insight in *Synfacts* **2017**, *13*, 0472.

46. Pyridine C3-arylation of nicotinic acids accessible via a multicomponent reaction: an entry to all substituted-3,4-diarylated pyridines, Sankar K. Guchhait, Neha Hura, Kanchan Sinha and Dulal Panda, *RSC Adv.*, **2017**, 7, 8323–8331.

45. Scaffold-Hopping of Aurones: 2-Arylideneimidazo[1,2-*a*]pyridinones as topoisomerase IIα-inhibiting anticancer agents, Garima Priyadarshani, Anmada Nayak, Suyog M. Amrutkar, Sarita Das, Sankar K. Guchhait, Chanakya N. Kundu, and Uttam C. Banerjee, *ACS Med. Chem. Lett.* **2016**, *7*, 1056−1061.

44. Scaffold-hopping of bioactive flavonoids: Discovery of arylpyridopyrimidinones as potent anticancer agents that inhibit catalytic role of topoisomerase IIα, Garima Priyadarshani, Suyog Amrutkar, Anmada Nayak, Uttam C. Banerjee, Chanakya N. Kundu, Sankar K. Guchhait, *Eur. J. Med. Chem*. **2016**, *122*, 43-54.

43. Novel combretastatin–2-aminoimidazole analogues as potent tubulin assembly inhibitors: Exploration of unique pharmacophoric impact of bridging skeleton and aryl moiety, Vikas Chaudhary, Jubina Balan Venghateri, Hemendra Pal Singh Dhaked, Anil Shamraj Bhoyar, **Sankar K Guchhait**, Dulal Panda, *J. Med. Chem.* **2016**, *59,* 3439−3451.

42. Oxidative dearomatization of indoles via Pd-catalyzed C–H oxygenation: An entry to C2-quaternary indolin-3-ones; **Sankar K. Guchhait**, Vikas Chaudhary, Vijay A. Rana, Garima Priyadarshani, Somnath Kandekar, Maneesh Kashyap, *Org. Lett.* **2016**, *18*, 1534-1537.

41. Identification of leads for antiproliferative activity on MDA-MB-435 human breast cancer cells through pharmacophore and CYP1A1-mediated metabolism, Prajwal P Nandekar, Kailas Khomane, Vikas Chaudhary, Vijay P Rathod, Roshan M Borkar, Murali Mohan Bhandi, R Srinivas, Abhay T Sangamwar**, Sankar K Guchhait**, Arvind K Bansal, *Eur. J. Med. Chem.* **2016**, *115*, 82-93.

40. A reaction of 1,2-diamines and aldehydes with silyl cyanide as cyanide pronucleophile to access 2-aminopyrazines and 2-aminoquinoxalines, Sankar K. Guchhait, Garima Priyadarshani and Nikhil M. Gulghane, *RSC Adv.*, **2016**, *6*, 56056–56063.

39. Pd-Catalyzed Ag(I)-promoted C3-arylation of pyrido[1,2‑a]pyrimidin-4-ones with bromo/iodo-arenes, **Guchhait, S. K**.; Priyadarshani, G.; *J. Org. Chem.*, **2015,** *80*, 8482−8488.

38. Synthesis of 2-arylpyridopyrimidinones, 6-aryluracils and tri- and tetra-substituted conjugated alkenes via Pd-catalyzed enolic C–O bond activation-arylation, **Guchhait, S. K**.; Priyadarshani, G.; *J. Org. Chem.*, **2015**, *80***,** 6342−6349.

37. Switch in site of inhibition: a strategy for structure-based discovery of human topoisomerase IIα catalytic inhibitors, Baviskar, A. T.; Amrutkar, S. M.; Trivedi, N.; Chaudhary,

V.; Nayak, A.; **Guchhait, S. K.**; Banerjee, U. C.; Bharatam, P.V.; Kundu, C. N. *ACS Med. Chem. Lett.*, **2015**, *6*, 481-485.
(This article/work was considered by the Editor, as an excellent piece of research and was highlighted by featuring it as cover art image in one of the issues (April, 2015) of the *ACS Med. Chem. Lett*.)

36. Scaffold-hopping and hybridization based design and building block strategic synthesis of pyridine-annulated purines: discovery of novel apoptotic anticancer agents, Chaudhary, V.; Das, S.; **Guchhait, S. K.**; Kundu, C. *RSC Adv.*, **2015**, *5*, 26051-26060.

35. Desilylative activation of TMSCN in chemoselective Strecker–Ugi type reaction: functional fused imidazoles as building blocks as an entry route to annulated purines, **Guchhait, S. K.**; Chaudhary, V. *Org. Biomol. Chem.*, **2014**, *12*, 6694-6705. (Cited in ChemInform, 2015, 46, DOI: 10.1002/chin.20150603)

34. α,β-Epoxy Esters in Multiple C–O/C–N Bond-Breaking/Formation with 2-Aminopyridines; Synthesis of Biologically Relevant (Z)-2-Methylene-imidazo[1,2-a]pyridin-3-ones, **Guchhait, S. K.**; Priyadarshani, G.; Hura, N. *Synlett*, **2014**, *25*, 1692-1696.

33. Combretastatin A-4 Inspired Novel 2-Aryl-3-arylamino-imidazopyridines/pyrazines as Tubulin Polymerization Inhibitors, Antimitotic and Anticancer Agents, Sanghai, N.; Jain, V.; Preet, R.; Kandekar, S.; Das, S.; Trivedi, N.; Mohapatra, P.; Priyadarshani, G.; Kashyap, M.; Das, D.; Sathapathy, S, R.; Sidharth, S.; **Guchhait, S. K.**; Kundu. C.; Bharatam, P. V. *Med. Chem.* Commun. **2014**, *5*, 766-782.

32. One-pot preparation of isocyanides from amines and their multicomponent reactions: crucial role of dehydrating agent and base, **Guchhait, S. K.**; Priyadarshani, G.; Chaudhary, V.; Seladiya, S. R.; Shah, T. M.; Bhogayta, N. P. *RSC Adv.*, **2013**, *3*, 10867–10874.

31. "Structural Elaboration of a Natural Product: Identification of 3, 3′-Diindolylmethane Aminophosphonate and Urea Derivatives as Potent Anticancer Agents, Kandekar, S.; Preet, R.; Kashyap, M.; Kashyap, M.; Prasad, R.; Mohapatra, P.; Das, D.; Satapathy, S. R.; Sidharth, S.; Jain, V.; Choudhari, M.; Kundu, C. N.; **Guchhait, S. K.**; Bharatam, P. V. *Chem.Med.Chem*. **2013**. *11*, 1873-1884.

30. Indenoindolone derivatives as topoisomerase II–inhibiting anticancer agents, Kashyap, M.; Kandekar, S.; Baviskar, A. T.; Das, D.; Preet, R. Mohapatra, P.; Satapathy, S. R.; Siddharth, S.; **Guchhait, S. K.**; Kundu, C. N.; Banerjee, U. C. *Bioorg. Med. Chem. Lett.* **2013**, *23*, 934-938.

29. C–H Bond Functionalization Under Metalation−Deprotonation Process: Regioselective Direct Arylation of 3‑Aminoimidazo[1,2−*a*]pyrazine. **Guchhait, S. K.**; Kandekar, S.; Kashyap, M.; Taxak, N.; Bharatam, P. V. *J. Org. Chem.* **2012**, *77*, 8321-8328.

28. A chemoselective Ugi-type reaction in water using TMSCN as a functional isonitrile equivalent: generation of heteroaromatic molecular diversity, **Guchhait, S. K.**; Chaudhary, V.; Madaan, C. *Org. Biomol. Chem.* **2012**, *10*, 9271-9277. (Cited in ChemInform, 2013, 44, DOI: 10.1002/chin.201318035)

27. One-Pot Three-Step Cu-Catalyzed Five/Four-Component Reaction Constructs Polysubstituted Oxa/Thia-zolidin-2-imines**,** Madaan, C.; Saraf, S.; Priyadarshani, G.; Reddy, P. P.; **Guchhait, S. K**.; Kunwar, A. C.; Sridhar, B. *Synlett*, **2012**, *23*, 1955-1959.

26. Intramolecular oxidative coupling of 3-indolylarylketones with Pd(II)-catalysis under air: convenient access to indenoindolones, **Guchhait, S. K.**; Kashyap. M.; Kandekar, S. *Tetrahedron Lett.* **2012**, *53*, 3919.

25. $CuSO_4$–Glucose for In Situ Generation of Controlled Cu(I)-Cu(II) Bi-catalysts: Multicomponent Reaction of Heterocyclic Azine and Aldehyde with Alkyne, and Cycloisomerization Towards Synthesis of N-Fused Imidazoles**, Guchhait, S. K.**; Chandgude, A. L.; Priyadarshani, G. *J. Org. Chem.* **2012**, 77, 4438.
(The work was highlighted in an organic chemistry portal, http://www.organic-chemistry.org/abstracts/lit3/627.shtm)

24. Scaffold hybridization in generation of indenoindolones as anticancer agents that induce apoptosis with cell cycle arrest at G2/M phase, Kashyap, M.; Das, D.; Preet, R.; Mohapatra, P.; Satapathy, S. R.; Siddharth, S.; Kundu, C. N., **Guchhait, S. K.** *Bioorg. Med. Chem. Lett.* **2012**, *22*, 2474.

23. Friedel–Crafts 3-(2-bromo)benzoylation of indoles and intramolecular direct arylation: An efficient route to indenoindolones, **Guchhait, S. K.**; Kashyap, M. *Synthesis*, **2012**, 619.

22. N-Fused imidazoles as novel anticancer agents that inhibit catalytic activity of topoisomerase IIα and induce apoptosis in G1/S phase. Baviskar, A. T.; Madaan, C.; Ranjan Preet; Mohapatra, P.; Jain, V.; Agarwal, A. **Guchhait, S. K**.; Kundu, C. N.; Banerjee, U. C.; Bharatam, P. V. *J. Med. Chem.* **2011**, *54*, 5013-5030. The article was recognized as "**highly cited article**", (American Chemical Society appreciated with certificate).

21. $ZrCl_4$–Mediated regio- and chemoselective Friedel-Crafts acylation of Indole. **Guchhait, S. K.**; Kashyap, M.; Kamble, H. *J. Org. Chem.* **2011**, *76*, 4753-4758.

20. Groebke-Blackburn-Bienaymé multicomponent reaction in scaffold modification of adenine, guanine, and cytosine: Synthesis of aminoimidazole-condensed nucleobases. **Guchhait, S. K.**; Madaan, C. *Tetrahedron Lett* **2011**, *52*, 56-58.

19. Towards molecular diversity: dealkylation of *tert*-butyl amine in Ugi-type multicomponent reaction product establishes *tert*-butyl isocyanide as a useful convertible isonitrile. **Guchhait, S. K**.; Madaan, C. *Org. Biomol. Chem.* **2010**, 3631-3634.

18. Direct C-H bond arylation of (hetero)arenes with aryl and heteroarylboronic acids. **Guchhait, S. K.**; Kashyap, M.; Saraf, S. *Synthesis* **2010**, 1166.

17. A new process of multicomponent Povarov reaction-aerobic dehydrogenation: Synthesis of polysubstituted quinolines. **Guchhait, S. K.**; Madaan, C.; Jadeja, K. *Tetrahedron Lett* **2009**, *50*, 6861-6865.

16. A highly flexible and efficient Ugi-type multicomponent synthesis of versatile N-fused

aminoimidazoles. **Guchhait, S. K.**; Madaan, C.; Thakkar, B. S. *Synthesis* **2009**, 3293-3300.

15. An efficient regioselective versatile synthesis of N-fused 2- and 3-aminoimidazoles via Ugi-type multicomponent reaction mediated by zirconium(IV) chloride in polyethylene glycol-400. **Guchhait, S. K.;** Madaan, C. *Synlett* **2009**, 628.

Publications in post-doctoral and doctoral periods

14. Synthesis and structure-activity relationships of metal-ligand complexes that potently inhibit cell migration. Beshir, A. B., **Guchhait, S. K.**, José, A. G.; Fenteany, G. *Bioorg. Med. Chem. Lett.* **2008**, *18*, 498.

13. Convenient synthesis of α,β-unsaturated phosphonates via a Mizoroki-Heck reaction of arylboronic acids with diethyl vinylphosphonate. Kabalka, G. W.; **Guchhait, S. K.;** Naravane, A. *Tetrahedron Lett .* **2004**, *45*, 4685.

12. Convenient synthesis of α,β-unsaturated sulfones via a Mizoroki-Heck reaction of arylboronic acids with phenyl vinyl sulfones. Kabalka, G. W.; **Guchhait**, **S. K.** *Tetrahedron Lett .* **2004**, *45*, 4021.

11. Synthesis of diprotected monosubstituted hydrazine derivatives from *tert*-butyl carbazates and boronic acids. Kabalka, G. W.; **Guchhait**, **S. K.** *Org. Lett*. **2003**, *5*, 4129.

10. Synthesis of (E)- and (Z)-alkenylphosphonates using vinylboronates. Kabalka, G. W.; **Guchhait, S. K.** *Org. Lett*. **2003**, *5*, 729.

9. Zinc tetrafluoroborate–catalyzed Mannich-type reaction of aldimines and silyl enol ethers in aqueous medium. Ranu, B. C.; Samanta, S.; **Guchhait**, **S. K.** *Tetrahedron* **2002**, *58*, 983.

8. Selective reduction of terminal alkynes to alkenes by indium metal. Ranu, B. C.; Dutta, J.; **Guchhait**, **S. K.** *J. Org. Chem*. **2001**, *66*, 5624.

7. Indium metal as a reducing agent. Selective reduction of carbon-carbon double bond in highly activated conjugated alkenes. Ranu, B. C.; Dutta, J.; **Guchhait**, **S. K.** *Org. Lett*. **2001**, *3*, 2603.

6. Stereoselective reduction of aryl-substituted gem-dibromides to vinyl bromides by indium metal. Ranu, B. C.; Samanta, S.; **Guchhait**, **S. K.** *J. Org. Chem*. **2001**, *66*, 4102.

5. Construction of bicyclo[2.2.2]octanone systems by microwave-assisted solid phase Michael addition followed by Al_2O_3-mediated intramolecular aldolisation. An eco-friendly approach. Ranu, B. C.; **Guchhait**, **S. K.;** Ghosh; K.; Patra, A. *Green Chemistry*, **2000**, 5.

4. A convenient and efficient procedure for selective deprotection of acetates by titanium(IV) isopropoxides. Ranu, B. C.; **Guchhait, S. K.;** Saha, M. *J. Indian Chem. Soc.* **1999**, *76*, 547. (Special issue dedicated to Professor D. Nasipuri, India on the occasion of his 75th birth anniversary)

3. Catalytic hydrogen transfer reductions using ammonium formate. A review. Ranu, B. C.; Sarkar, A.; **Guchhait; S. K.;** Ghosh, K. *J. Indian Chem. Soc*. **1998**, *75*, 690-694. (Special issue dedicated to Professor Sukh Dev, India on the occasion of his 75th birthday)

2. Stereoselective debromination of aryl-substituted *vic*-dibromide with indium metal. Ranu, B. C.; **Guchhait, S. K.;** Sarkar, A. *J. Chem. Soc., Chem. Commun*., **1998**, 2113.

1. Chemoselective hydrogenation of α, β-unsaturated sulfones and phosphonates via palladium-assisted hydrogen transfer by ammonium formate. Ranu, B. C.; **Guchhait, S. K.;** Ghosh, K. *J. Org. Chem*. **1998**, *63*, 5250.

Invited Lectures delivered

1. "**Natural product-inspired scaffold hopping and strategic synthesis: A promising path to potent in-vivo active chemotypes**" in the International Conference on Chemistry for Human Development (ICCHD-2020) organized by "Professor Asima Chatterjee Foundation, Kolkata" in collaboration with University of Calcutta and Heritage Institute of Technology in Kolkata on 9-11 January, 2020.

2. "**Creating new by natural product-inspired synthetic organic medicinal chemistry**" in the CRIKC chemistry symposium (CCS-2019) organized together by Chandigarh-based five research organizations in IISER, Mohali, 2nd-3rd November, 2019.

3. **"Unique chemistry-based molecular diversity-feasible synthesis integrated with Natural Product inspired and Scaffold hopping strategies: Discovery of target-based anticancer agents"** in the national conference on Recent Advances in Organic and Bioorganic Chemistry (RAOBC), IISER Mohali, 22-24 March, 2019.

4. "**Target-based natural product-inspired scaffold hopping strategy: SAR-feasible synthesis and discovery of Flavone and Combretastatin analogs with anticancer profiles"** delivered as an invited talk in Aurigene Discovery Technologies Ltd, Hyderabad on 1st February, 2019.

5. "**Natural product-inspired target-based drug discovery: Identification of unique analogs with anticancer profiles**" delivered in the international conference, Drug Discovery India-2019, Breakthrough Research in Medicinal Chemistry, organized by Select Biosciences in Mumbai, 17-18th January, 2019.

6. "**Integration of Natural Product Inspired/Scaffold-Hopping Approach and SAR-Feasible Synthesis: Discovery of Target-based Anticancer Agents"** delivered a seminar lecture in NCL, Pune on 20th April, 2018**.**

7. "**Natural Product Scaffold-Hopping and C-H Functionalization/Synthon-based Synthesis of N-Heterocycles: Discovery of Target-based Anticancer Agents"** in the national conference on "Symposium on Contemporary Facets in Organic Synthesis 2017 (CFOS-17)" held at IIT Roorkee on 22nd-24th December, 2017.

8. "**Starting from Drug and Trekking the Topoisomerase and Tubulin-Tour: Discovery of Novel**

Anticancer Agents" in the national conference on "new frontiers in chemistry – from fundamentals to applications-II" held at BITS – Pilani, Goa Campus, on January 28-29, 2017.

9. **"Sustainable Organic–Medicinal Chemistry: Discovery of Topoisomerase II-Targeting Anticancer Agents"** in the national conference on "Organic Chemistry in Sustainable Development: Recent Advances and Future Challenges *(OCSD-2016)*" held at BITS-Pilani, Rajasthan, on August 29-30, 2016.

10. **"Starting from Drug and Scaffold Hopping in Target-based Medicinal Chemistry Research: Discovery of Novel Topoisomerase IIα–Inhibiting Anticancer Agents", Professor D. Nasipuri Memorial Award Lecture 2014** in the 52nd Annual Convention of Chemists of the Indian Chemical Society held at JECRC University, Jaipur, on December 28 – 30, 2015.

11. "**Trekking the Topoisomerase-Tour in Medicinal Chemistry Research: Discovery of Novel Topoisomerase IIα–Catalytic Inhibiting Anticancer Agents**" in the International Conference in Chemistry held on December 16-18, 2014, organized by Jadavpur University, Kolkata.

12. "**A rational approach in medicinal chemistry research: Discovery of novel topoisomerase IIα–targeting anticancer agents"** in the 50th "Annual Convention of Chemists-2013" organized by Indian Chemical Society, held at the Department of Chemistry & Centre of Advanced Studies in Chemistry, Punjab University, Chandigarh-160 014, on December 04-07, 2013.

13. "**Discovery of Topoisomerase IIα–targeting Novel Anticancer Agents**" in the "**MEDCHEM 2013**" conference on "**Advances in Anticancer Drug Discovery and Development**", organized by Indian Institute of Technology, Madras and AstraZeneca Bangalore, October 25-26, 2013.

14. "**Green Chemistry in Medicinal Chemistry Research: Development of Novel Anticancer Agents**", Symposium on Green Chemistry and Nanotechnology, Agartala, 2012.