
CURRICULUM VITAE

Professor Amit Basak FNA, FASc, FNASc, FAScT
JC Bose National Fellow

PRESENT POSITION

Professor
Department of Chemistry
Head, School of Bioscience
Indian Institute of Technology
Kharagpur 721 302



ACADEMIC QUALIFICATIONS

- a) *Ph. D.* Calcutta University (Supervisor: **Professor S. K. Talapatra**)
- b) *D. Phil.* Oxford University, UK (Supervisor: **Professor Sir J. E. Baldwin**)
- c) *Post Doctoral Fellow* Johns Hopkins University, Baltimore, USA (1987-1991) (**Professor Craig A. Townsend**)

SPECIALIZATION

Broad: Organic Chemistry

VISITING ASSIGNMENTS

Leverhulme Visiting Professor Chemistry Research Laboratory, University of Oxford, UK
Visiting Professor, Johns Hopkins University, Baltimore, USA (Dec, 1997-July, 1999).
Visiting Professor, University of Basque Country, San Sebastian, Spain (May' 2002- July' 2002).

PROFESSIONAL CAREER:

- a) *Indian Institute of Technology, Kharagpur*
 - Professor (August' 04 – present)*
 - Head, School of Bioscience (2014-present)*
 - Associate Professor (Nov'97-July' 04)*

Assistant Professor (April'91-Oct'96)

b) *Presidency College, Calcutta*

Assistant Professor (April'86-April'90)

Lecturer (July'80-Jan'83)

c) *S. A. Jaipuria College*

Lecturer (Sept'78-June'80)

ADMINISTRATIVE EXPERIENCE

Dean (Faculty) (2009-2013)

IIT Kharagpur

Head (2005-2008)

Department of Chemistry

IIT Kharagpur

Head (2014-)

School of Bioscience

IIT Kharagpur

AWARDS AND DISTINCTIONS:

a) *JC Bose National Fellow*

b) *Fellow of Indian Academy of Sciences, Bangalore.*

c) *Fellow of Indian National Science Academy*

d) *Fellow of National Academy of Sciences*

e) *Fellow of West Bengal Academy of Science and Technogy*

f) *Editorial Advisory Board Member, Chemical Communications (2006-2009)*

g) *Leverhulme Visiting Professor, Oxford University, 2011-2012.*

h) *Former Council member, Chemical Research Society of India.*

i) *Former Council member, NOST.*

- j) *Chemical Research Society Medal (Silver, 2015, Bronze 2004) for Contribution to Research.*
- k) *Gold Medalist for securing first position in M.Sc. Examination.*
- l) *Bhuban Mohini Subarna Padak Winner for first position in M. Sc. Examination.*
- m) *State Scholarship for doing D. Phil. at Oxford, UK.*
- n) *National Scholarship Holder.*
- o) *National Science Talent Search Scholar.*
- p) *Programme Advisory Committee Member, DST (2007-2012)*
- q) *Advisory Committee Member CSIR (2011-2014)*
- r) *Pfizer award, IISc, Bangalore, 2016*
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RESEARCH INTERESTS

- a) *Design and Synthesis of Novel Eneidyne as DNA Cleaving Agents.*
- b) *Synthetic potential of Diradical Generating Processes*
- c) *Enzyme Mediated Synthesis.*
- d) *Substrate Analogue Approach for Enzyme Active site identification.*
- e) *Mimics of Secondary Structure of Proteins.*
- f) *Enzyme Inhibition Approach to Drug Design.*
- g) *Drug Delivery*
- h) *Proteomics/Metabolomics*
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SUMMARY OF CONTRIBUTION IN RESEARCH AND TEACHING

- Research activities in the area of chemical biology have centered around the following: radical mediated DNA cleaving agents of medicinal importance,

enediynes in particular; diradical generating reactions and their applications in synthesis; design of anti-TB drugs against new FAS targets; mapping of functional domains in proteins including their capture and more recently, development of matrix-free LDI MS technique for detection of small molecules and metal ions of biological importance.

- In the past two decades, our group has made significant and original contribution in the area of enediynes (*Chem. Comm.* 2003, 2006, 2008, 2011, *J. Org. Chem.* 2004, *Chem. Rev.* 2003, 2007, *Angew Chem.* 2005, *Angew. Chem.* 2011). This is the first research group to demonstrate the use of a β -lactam ring as a molecular lock in preventing bis-propargyl sulphones from undergoing isomerization to the reactive allenic species. Subsequently, the group has shown that enediynes could be prevented from undergoing Bergman cyclization by fusion with a β -lactam ring (*Chem. Commun.* 1996).
- The group has also made fundamental contribution on identification of various parameters controlling the kinetics of Bergman cyclization like metal ion chelation, intramolecular H-bond, trans-annular interactions and hybridization of remote carbons.
- Mention should also be made on our work on molecules capable of generating diradicals *via* Myers-Saito, Garratt-Braverman and Hopf cyclization, especially the interesting work on relative reactivity towards of bis-propargyl systems towards various pathways (*J. Amer. Chem. Soc.* 2009; *Org. Lett.* 2011, *Chem. Asian J.* 2012, *J. Org. Chem.* 2016, *Tetrahedron* 2013, 2014).
- The synthetic potential of the 2 C-C bond forming Garratt-Braverman reaction and other diradical generating reactions has been exploited to create a series of natural and unnatural skeletons of considerable biological and material's interest (*J. Org. Chem.* 2016, 2014a, 2014b, *Synlett.* 2013).

- Another noteworthy contribution is the development of a matrix free label assisted mass spectrometric technique (LA-LDI MS) to detect small molecules like neuro transmitters, peptides, amino acids and metal ions like zinc (RSC Advances 2015, 2014a,2014b). This novel technique opens up a new new dimension in LDI MS.
- Besides, Professor Basak is actively involved in spreading the general awareness in science amongst the beginners which has encouraged them to take up science as a career option. He is a leading expert in framing curriculum which aims at bridging the gap between chemistry and biology. He has been teaching courses at IIT Kharagpur ranging from fundamentals of organic chemistry to structure/functions of biomolecules/drug design.

SPONSORED RESEARCH ACTIVITIES

Ongoing projects

- **JC BOSE FELLOWSHIP GRANT (DST) PI**
Commencement: 01-12-2011 Completion: 04-04-2020
Total Grant: Rs 1,04,99,000
- **STUDIES ON POLYAROMATIC LABEL-ASSISTED EXTERNAL MATRIX-FREE MASS SPECTROMETRY: EXPLORATION OF A NEW TECHNIQUE FOR DETECTION & ESTIMATION OF SMALL MOLECULES AND METAL IONS OF BIOLOGICAL INTEREST (DST) PI**
Commencement: 20-11-2014 Completion: 19-11-2017
Total Grant: 4490000.00/=
- **LEAD DISCOVERY AGAINST UNEXPLORED TARGETS OF MYCOBACTERIUM TUBERCULOSIS (SGBSI) Co-PI**
Commencement: 01-05-2014 Completion: 30-04-2017
Total Grant: 10000000.00/=

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List of Publications

1. Bhattacharya, P.; Mandal, S. M.; Basak, A. *European Journal of Organic Chemistry* 2016, 1439-1448
2. Shifting the Reactivity of Bis-propargyl Ethers from Garratt-Braverman Cyclization Mode to 1,5-H Shift Pathway To Yield 3,4-Disubstituted Furans: A Combined Experimental and Computational Study Das, J.; Das, E.; Jana, S.; Addy, P. S.; Anoop, A.; Basak, A. *Journal of Organic Chemistry* 2016, 81, 450-457
3. Label-assisted laser desorption/ionization mass spectrometry (LA-LDI-MS): use of pyrene aldehyde for detection of biogenic amines, amino acids and peptides Mandal, A.; Das, A. K.; Basak, A. *RSC Advances* 2015, 5, 106912-106917
4. Synthesis of phthalides from bis-propargyl ethers: use of Garratt-Braverman cyclization to construct the phthalans and IBX as a new reagent for subsequent oxidation Panja, A.; Das, E.; Maji, M.; Basak, A. *Tetrahedron Letters* 2015, 56, 5986-5990
5. Base-Induced Cyclization of Propargyl Alkenylsulfones: A High-Yielding Synthesis of 4,5-Disubstituted 2H-Thiopyran 1,1-Dioxides Hatial, I.; Das, J.; Ghosh, A. K.; Basak, A. *European Journal of Organic Chemistry* 2015, 6017-6024
6. Self-assembled capsules of poly-N-glycidyl histidine ether-tannic acid for inhibition of biofilm formation in urinary catheters Mahata, D.; Mandal, S. M.; Basak, A.; Nando, G. B. *RSC Advances* 2015, 5, 69215-69219
7. Design, synthesis and characterization of dual inhibitors against new targets FabG4 and HtdX of Mycobacterium tuberculosis Banerjee, D. R.; Biswas, R.; Das, A. K.; Basak, A. *European Journal of Medicinal Chemistry* 2015, 100, 223-234
8. Amphotericin B and anidulafungin directly interact with DNA and induce oxidative damage in the mammalian genome Mandal, S. M.; Chakraborty, A.; Hossain, M.; Mahata, D.; Porto, W. F.; Chakraborty, R.; Mukhopadhyay, C. K.; Franco, O. L.; Hazra, T. K.; Basak, A. *Molecular BioSystems* 2015, 11, 2551-2559
9. Synthesis of benzochromenes and dihydrophenanthridines with helical motifs using Garratt-Braverman and Buchwald-Hartwig reactions Bhattacharya, P.; Senapati, K.; Chattopadhyay, K.; Mandal, S. M.; Basak, A. *RSC Advances* 2015, 5, 61562-61574
10. Proteins as Alternate Targets of Eneidyne Bdour, H. M.; Roy, S.; Basak, A. *Letters in Drug Design & Discovery* 2015, 12, 545-557

11. Sodium sulfide in methanol: a two-in-one reagent for deprotection of silyl and formation of propargyl sulfide Hatial, I.; Mukherjee, R.; Senapati, K.; Basak, A. *Tetrahedron Letters* 2015, 56, 4275-4279
12. Enediynyl peptides and iso-coumarinyl methyl sulfones as inhibitors of proprotein convertases PCSK8/SKI-1/S1P and PCSK4/PC4: Design, synthesis and biological evaluations Basak, A.; Goswami, M.; Rajkumar, A.; Mitra, T.; Majumdar, S.; O'Reilly, P.; Bdour, H. M.; Trudeau, V. L.; Basak, A. *Bioorganic & Medicinal Chemistry Letters* 2015, 25, 2225-2237.
13. NMR (¹H and ¹³C) based signatures of abnormal choline metabolism in oral squamous cell carcinoma with no prominent Warburg effect, Bag, S.; Banerjee, D. R.; Basak, A.; Das, A. K.; Pal, M.; Banerjee, R.; Paul, R. R.; Chatterjee, J. *Biochemical and Biophysical Research Communications* 2015, 459, 574-578
14. Enediynyl peptides and iso-coumarinyl methyl sulfones as inhibitors of proprotein convertases PCSK8/SKI-1/S1P and PCSK4/PC4: Design, synthesis and biological evaluations Basak, A.; Goswami, M.; Rajkumar, A.; Mitra, T.; Majumdar, S.; O'Reilly, P.; Bdour, H. M.; Trudeau, V. L.; Basak, A. *Biorg. Med. Chem. Lett.* 2015, 25, 2225-2237 .
15. Proteins as alternate targets of Ene-diynes Bdour, H. M.; Roy, S. and Basak, A. *Lett. Drug Des. Dis.* 2015, 12, 545-557.
16. Controlling resistant bacteria with a novel class of β -lactamase inhibitor peptides: from rational design to in vivo analyses Mandal, S. M.; Migliolo, L.; Silva, O. N.; Fensterseifer, I. C. M.; Faria-J, C.; Dias, S. C.; Basak, A.; Hazra, T. K.; Franco, O. L. *Scientific Reports* 2014, 4, 6015.
17. Sonogashira coupling and Garratt-Braverman cyclization in tandem: formation of four C-C bonds leading to the synthesis of aryl dihydro isofurans and isoindoles Ghosh, D.; Pal, P.; Basak, A. *Tetrahedron Letters* (2015), 55, 3934–3937.
18. Crystal structure of dehydratase component HadAB complex of mycobacterial FAS-II pathway Biswas, R.; Dutta, A.; Dutta, D.; Hazra, D.; Banerjee, D. R.; Basak, A.; Das, A. K. *Biochemical and Biophysical Research Communications* 2015, 458, 369-374
19. Inhibition of M. tuberculosis β -ketoacyl CoA reductase FabG4 (Rv0242c) by triazole linked polyphenol-aminobenzene hybrids: Comparison with the corresponding gallate counterpart Banerjee, D. R.; Senapati, K.; Biswas, R.; Das, A. K.; Basak, A. *Bioorganic & Medicinal Chemistry Letters* 2015, 25, 1343-1347.
20. 1,4-Triazole based polyphenol hybrids, Banerjee, D. R.; Dutta, D.; Saha, B.; Basak, A.; Das, A. K. *Indian Pat. Appl.* (2014), IN 2013KO00633 A 20141205.

21. Reversal of regioselectivity in acetylation and deacetylation of aryl-naphthalene diols and diacetates by Amano lipase Panja, A; Banerjee, D R; Basak, A *RSC Advances* 2014, 4, 54235-54243.
22. Challenges and future prospects of antibiotic therapy: from peptides to phages utilization Mandal, Santi M.; Roy, Anupam; Ghosh, Ananta K.; Hazra, Tapas K.; Basak, Amit; Franco, Octavio L. *Frontiers in Pharmacology* 2014, 5, 1-12
23. Glucose directly promotes antifungal resistance in the fungal pathogen, *Candida* spp. Mandal, S M.; Mahata, D; Migliolo, L; Parekh, A; Addy, P S.; Mandal, M; Basak, A *Journal of Biological Chemistry* 2014, 289, 25468-25473.
24. Label-assisted laser desorption/ionization mass spectrometry (LA-LDI-MS): an emerging technique for rapid detection of ubiquitous cis-1,2-diol functionality Addy, P S; Bhattacharya, A; Mandal, S M.; Basak, A *RSC Advances* 2014, 4, 46555-46560.
25. Trienediynes on a 1,3,5-trisubstituted benzene template: a new approach for enhancement of reactivity Hatial, I; Jana, S; Bisai, S; Das, M; Ghosh, A K; Anoop, A; Basak, A *RSC Advances* 2014, 4, 28041-28045.
26. Garratt-Braverman cyclization on basic alumina: a green protocol with improved selectivity Ghosh, D; Biswas, S; Ghosh, K; Basak, A *Tetrahedron Letters* 2014, 55, 3934-3937.
27. Polyaromatic label-assisted laser desorption ionization mass spectrometry (LA-LDI MS): a new analytical technique for selective detection of zinc ion Addy, P S; Basu Roy, S; Mandal, S M; Basak, A *RSC Advances* 2014, 4, 23314-23318.
28. Asymmetric Garratt-Braverman cyclization: a route to axially chiral aryl naphthalene-amino acid hybrids Mitra, T; Jana, S; Pandey, S; Bhattacharya, P; Khamrai, U K.; Anoop, A; Basak, A *Journal of Organic Chemistry* 2014, 79, 5608-5616.
29. Cloning, expression, crystallization and preliminary X-ray diffraction studies of staphylococcal superantigen-like protein 1 (SSL1) Dutta, D; Dutta, A; Bhattacharjee, A; Basak, A; Das, A. *Acta Crystallographica, Section F: Structural Biology Communications* 2014, 70, 600-603.
30. Selectivity in Garratt-Braverman Cyclization of Aryl-/Heteroaryl-Substituted Unsymmetrical Bis-Propargyl Systems: Formal Synthesis of 7'-Desmethylkealiquinone Das, J; Mukherjee, R; Basak, A *Journal of Organic Chemistry* 2014, 79, 3789-3798.
31. Design and synthesis of azobenzene template based sulfonamide for capture of HCAII: dependence of efficiency on E-Z geometry Addy, P S; Saha, B; Panja, A; Das, A; Basak, A *Tetrahedron Letters* 2014, 55, 2625-2628.
32. Synthesis of bicyclic γ -lactam derivatives by intramolecular carbene insertion and aza-

- Wittig reaction Roy, B; Hatial, I; Ghosh, D; Addy, P S; Basak, A *Journal of the Indian Chemical Society* 2013, 90, 1841-1851.
33. Design, synthesis and characterization of novel inhibitors against mycobacterial β -ketoacyl CoA reductase FabG4 Banerjee, D R; Dutta, D; Saha, B; Bhattacharyya, S; Senapati, K; Das, A K.; Basak, A *Organic & Biomolecular Chemistry* 2014, 12, 73-85.
 34. A one-pot Garratt-Braverman cyclization and Scholl oxidation route to acene-helicene hybrids Mitra, T; Das, J; Maji, M; Das, R; Das, U K; Chattaraj, P K.; Basak, A *RSC Advances* 2013, 3, 19844-19848.
 35. The Ugi four-component reaction enables expedient synthesis and comparison of photoaffinity probes Bush, J T.; Walport, L J.; McGouran, J F.; Leung, I K. H.; Berridge, G; van Berkel, S S.; Basak, A; Kessler, B M.; Schofield, C J. *Chemical Science* 2013, 4, 4115-4120.
 36. Reactivity of conformationally constrained bispropargyl sulfones: complete preference for 6π -electrocyclization process Ghosh, D; Jana, S; Panja, A; Anoop, A; Basak, A *Tetrahedron* 2013, 69, 8724-8730.
 37. An unexpected one step domino conversion of TMS-alkynes to protected ketones in 4-chromenone system Bhattacharya, P; Basak, A *Tetrahedron Letters* 2013, 54, 5137-5139.
 38. 1,3,5-Trisubstituted benzenes as fluorescent photoaffinity probes for human carbonic anhydrase II capture Addy, P; Saha, B; Pradeep, N. D.; Das, A K.; Bush, J T.; Lejeune, C; Schofield, C J.; Basak, A *Chemical Communications* (Cambridge, United Kingdom) 2013, 49, 1930-1932.
 39. Exploring the scope of Bergman cyclization mediated cascade reaction of alkenyl enediynes: synthesis of [5]helicene and amino acid appended [4]helicenes Roy, S; Basak, A *Tetrahedron* 2013, 69, 2184-2192.
 40. Garratt-Braverman cyclization, a powerful tool for C-C bond formation Mondal, Sayantan; Mitra, T; Mukherjee, R; Addy, P S; Basak, A *Synlett* 2012, 23, 2582-2602.
 41. Synthesis of highly efficient pH-sensitive DNA cleaving aminomethyl N-substituted cyclic enediynes and its L-lysine conjugate Hatial, I; Addy, P S.; Ghosh, A K.; Basak, A *Tetrahedron Letters* 2013, 54, 854-857.
 42. A chemo-enzymatic route to differentially protected aryl naphthalenes Panja, A; Ghosh, D; Basak, A *Bioorganic & Medicinal Chemistry Letters* 2013, 23, 893-896.
 43. Synthesis and reactivity of enediyne-nucleobase hybrids: effect of intramolecular π -stacking Roy, S; Bag, S S; Basak, A *Tetrahedron* 2012, 68, 8600-8611.

44. An interesting competition between 6π -electro- and Garratt-Braverman cyclization in bis-diene-allene sulfones: synergy between experiment and theory Mondal, S; Basak, A; Jana, S; Anoop, A *Tetrahedron* 2012, 68, 7202-7210.
45. Synthesis of 1-indol-3-yl-carbazoles via Garratt-Braverman cyclization Mukherjee, R; Basak, A *Synlett* 2012, 23, 877-880.
46. Gelatin-based emulsion gels for diffusion-controlled release applications Thakur, G; Naqvi, M Ali; Rousseau, D; Pal, K; Mitra, A; Basak, A *Journal of Biomaterials Science, Polymer Edition* 2012, 23, 645-661.
47. Reactivity of Bispropargyl Sulfones under Basic Conditions: Interplay Between Garratt-Braverman and Schmittel/Myers-Saito Cyclization Pathway Mukherjee, R; Mondal, S; Basak, A; Mallick, D; Jemmis, E D. *Chemistry - An Asian Journal* 2012, 7, 957-965.
48. Characterization and scanning electron microscopic investigation of crosslinked freeze dried gelatin matrices for study of drug diffusivity and release kinetics Thakur, G; Mitra, A; Basak, A; Sheet, D *Micron* 2012, 43, 311-320.
49. A facile Garratt-Braverman cyclization route to intercalative DNA-binding bis-quinones Addy, P S; Dutta, S; Biradha, K; Basak, A *Tetrahedron Letters* 2012, 53, 19-22.
50. Synthesis of Angularly Fused Aromatic Compounds from Alkenyl Eneidyne by a Tandem Radical Cyclization Process Roy, S; Anoop, A; Biradha, K; Basak, A *Angewandte Chemie, International Edition* 2011, 50, 8316-8319.
51. Design, synthesis and inhibition activity of a novel cyclic enediyne amino acid conjugates against MPtpA Chandra, K; Dutta, D; Mitra, A; Das, A K.; Basak, A *Bioorganic & Medicinal Chemistry* (2011), 19(10), 3274-3279.
52. Genipin crosslinked drug-gelatin composite for drug transport and cytocompatibility Thakur, G; Mitra, A; Basak, A *Biomedical Engineering* (Singapore, Singapore) (2011), 23(2), 113-118.
53. A Garratt-Braverman route to aryl naphthalene lignans Mondal, S; Maji, M; Basak, A *Tetrahedron Letters* 2011, 52, 1183-1186.
54. Selectivity in Garratt-Braverman Cyclization: An Experimental and Computational Study Maji, M; Mallick, D; Mondal, S; Anoop, A; Bag, S S; Basak, A; Jemmis, E D. *Organic Letters* 2011, 13, 888-891.
55. Crosslinking of gelatin-based drug carriers by genipin induces changes in drug kinetic profiles in vitro Thakur, G; Mitra, A; Rousseau, D; Basak, A; Sarkar, S; Pal, K *Journal of Materials Science: Materials in Medicine* 2011, 22, 115-123.
56. Design, synthesis and inhibition activity of novel cyclic peptides against protein tyrosine

- phosphatase A from Mycobacterium tuberculosis Chandra, K; Dutta, D; Das, A K.; Basak, A *Bioorganic & Medicinal Chemistry* 2010, 18, 8365-8373.
57. Design, synthesis and reactivity of C₂-symmetric azobenzene-based amino acid-bis(propargyl sulfones) Mitra, D; Banerjee, D R; Das, A K; Basak, A *Bioorganic & Medicinal Chemistry Letters* 2010, 20, 6831-6835.
58. Synthesis and ribonuclease A inhibition activity of resorcinol and phloroglucinol derivatives of catechin and epicatechin: Importance of hydroxyl groups Dutta, S; Basak, A; Dasgupta, S *Bioorganic & Medicinal Chemistry* 2010, 18, 6538-6546.
59. Design, synthesis and inhibition activity of novel cyclic peptides against protein tyrosine phosphatase A from Mycobacterium tuberculosis Chandra, K; Dutta, D; Das, A K.; Basak, A. *Bioorganic & Medicinal Chemistry* 2010, 18, 8365-8373.
60. Design, synthesis and reactivity of C₂-symmetric azobenzene-based amino acid-bis(propargyl sulfones) Mitra, D; Banerjee, D R; Das, A K; Basak, A. *Bioorganic & Medicinal Chemistry Letters* 2010, 20, 6831-6835.
61. Synthesis and ribonuclease A inhibition activity of resorcinol and phloroglucinol derivatives of catechin and epicatechin: Importance of hydroxyl groups Dutta, S; Basak, A; Dasgupta, S. *Bioorganic & Medicinal Chemistry* 2010, 18, 6538-6546.
62. C₂-symmetric Azobenzene-Amino acid Conjugates and Their Inhibition of Subtilisin Kexin Isozyme-1 Basak, A; Mitra, D; Das, A K; Mohottalage, D and Basak, A *Bioorg. Med. Chem. Lett.* 2010, 20, 3977-3981.
63. Design and Synthesis of Ene-diyne-based Peptide with Selective Peptide Cleavage Activity Roy, S and Basak, A. *Chem. Commun.* 2010, 46, 2283-2285.
64. Which One Is Preferred: Myers-Saito Cyclization of Ene-Yne-Allene or Garratt-Braverman Cyclization of Conjugated Bisallenic Sulfone? A Theoretical and Experimental Study Basak, A; Das, S; Mallick, D; Jemmis, E. D. *J. Am. Chem. Soc.* 2009, 131, 15695-15704.
65. Biofunctionalized, Phosphonate-Grafted, Ultrasmall Iron Oxide Nanoparticles for Combined Targeted Cancer Therapy and Multimodal Imaging (pNA) Das, M; Mishra, D; Dhak, P; Gupta, S; Maiti, T. K; Basak, A; Pramanik, P; *SMALL* 2009, 5, 2883-2893.
66. Design, synthesis and bioactivity of Catechin / Epicatechin and 2-azetidinone derived chimeric molecules Roy, B.; Chakraborty, A.; Ghosh, S. K.; Basak, A *Bioorg. Med. Chem. Lett.* 2009, 17, 000.
67. Synthesis of C₂-symmetric bis-indolyl sulfones Mitra, T.; Das, S.; Basak, A *Tetrahedron Lett.* 2009, 50, 5846-5849.

68. Synthesis of β -lactam fused enediynes by intramolecular Kinugasa reaction: comparison of reactivity with monocyclic analogues Basak, A, Pal, R.; Das, S. *Int. J. Chem.* 2009, 1, 63-74.
69. Design and synthesis of enediyne-peptide conjugates and their inhibiting activity against chymotrypsin Dutta, S.; Basak, A, Dasgupta, S. *Bioorg. Med. Chem.* 2009, 17, 3900-3908.
70. Aza Hopf cyclization: synthesis and reactivity of cyclic azadienyne Mandal, S.; Basak, A, *Tetrahedron Lett.* 2009, 50, 3641-3644.
71. Design and synthesis of bisenediyne bissulfones and their reactivity under basic condition . Das, S, Basak, A, *Bioorg. Med. Chem.Lett.* 2009, 19, 2815-2818.
72. Bio-functionalization of magnetite nanoparticles using an aminophosphonic acid coupling agent: new, ultradispersed, iron-oxide folate nanoconjugates for cancer-specific targeting Das, M.; Mishra, D.; Maiti, T. K.; Basak, A, Pramanik P. *Nanotechnology* 2008, 19, 415101.
73. Asymmetric Cyclopropanation using amino acid as chiral auxiliary Mitra, D.; Sengupta, A.; Biradha K and Basak A, *Tetrahedron Asymm*, 2008, 19, 2678.
74. Synthesis of isoxazoline-fused bicyclic enediynes via intramolecular nitrile oxide-alkene cycloaddition. Basak A; Pal, R. *Synlett* 2008, 2115-2118
75. Design, synthesis and RNase A inhibition activity of catechin and epicatechin and nucleobase chimeric molecules. Roy B.; Dutta S.; Chowdhary, A.; Basak, A, Dasgupta S. *Bioorg. Med. Chem.Lett* 2008, 18, 5411-5414.
76. Design, synthesis and DNA-cleaving efficiency of photoswitchable dimeric azobenzene-based C2-symmetric enediynes. Basak, A, Mitra, D.; Kar, M.; Biradha K. *Chem. Commun.* 2008, 3067-3069.
77. Benzofused N-substituted cyclic enediynes: Activation and DNA-cleavage potential. Basak, A;. Kar M *Bioorg. Med. Chem.Lett* 2008, 16, 4532-4537.
78. Synthesis of highly strained enediynes and dienediynes Basak, A, Roy, S. K.; Basak, A, *Current Topics in Medicinal Chemistry* 2008, 8, 487-504.
79. Comparison of catalytic activities between esterase and lipase in the synthesis of drug, flavor and amide compounds. Patil, D.; Nag., S; Basak, A, Nag A. *International Journal of Chemical Sciences* 2008, 6, 11-16.
80. Studies on the porcine liver esterase-catalyzed hydrolysis of pentaacetyl catechin and epicatechin: Application to the synthesis of novel dimers and trimers. Basak, A, Das, S.; Bisai, S. *Bioorg. Med. Chem. Lett.* 2008, 18, 4900-4903.

81. Activation of enediynes via intramolecular iodoetherification. Das, S.; Basak, A, *Synlett* 2008, 501-504.
82. Synthesis of β -lactams using the Kinugasa reaction Pal, R.; Ghosh, S. C; Chandra, K; Basak, A *Synlett* 2007, 15, 2321-2330.
83. Kinugasa reaction under click chemistry conditions Basak, A, Chandra K.and Pal, R. *Synlett*, 2007, 1585-1588.
84. Synthesis and reactivity of azobenzene-based bispropargyl sulfones: Interesting comparison between cyclic and acyclic systems. Mitra, D.; Kar, M.; Pal, R.; Basak, A *Bioorg. Med. Chem. Lett.* 2007, 17, 4514-4517.
85. Design, Synthesis, and Biological Activity of Unnatural Enediynes and Related Analogues Equipped with pH-Dependent or Phototriggering Devices Kar, M.; Basak, A *Chem. Rev.* 2007, 107, 2861-2890.
86. Wear characteristic and biocompatibility of some hydroxyapatite-collagen composite acetabular cups Chowdhury, S. K. R ;. Kulkarni A. C; Basak, A; Roy S. *WEAR* 2007, 262, 1387-1398
87. Synthesis and reactivity of a 9-membered azaenediyne: importance of proximity effect in N-alkylation. Roy S. K; Basak, A, *Chem. Commun.* 2006, 1646-1648.
88. Photoisomerization as a modulator of the DNA-cleaving efficiency of novel azo bispropargyl sulfones Kar, M.and Basak, A, *Chem. Commun.*, 2006, 3818-8320.
89. A novel synthesis of β -lactam fused cyclic enediynes by intramolecular Kinugasa reaction. Pal, R and Basak, A, *Chem. Commun.* 2006, 2992-2994.
90. Intramolecular Nitrene Cycloaddition Route to Bicyclic Enediynes, Basak, A,. Ghosh, S. C *Tetrahedron Lett.* 2005, 46, 7385-7388.
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PATENTS

1. Novel 1, 4-triazole based polyphenol hybrids: First in vitro inhibition of Mycobacterium tuberculosis β -ketoacyl CoA reductase FabG4 (Rv0242c) and growth inhibition of Mycobacterium smegmatis (submitted, *Ref.* 633/KOL/2013)
2. Cardiogreen based antibacterial agent (submitted, *Ref.* 3/KOL/2014 dt.01.01.2014)

INVITED LECTURES IN 2014-16

1. "Reactive Intermediates in Synthesis and Capture Research: Recent Developments" *at* IICT Hyderabad.
2. "Diradical Generating Reactions: How Different From the Monoradical Counterpart" *at* Women's College, Burdwan Department of Chemistry.
3. "Chemistry of Diradicals: Recent Developments" *at* NIT Durgapur.
4. "Garratt-Braverman Cyclization Chemistry and Fluorescence/MALDI Based Study of Molecular Interactions" *at* NIT Rourkela.
5. "Garratt-Braverman Cyclization: a Reaction worth Revisiting" *at* Viswa Bharati.
6. "Revisiting Reactive Intermediates: Newer Applications in Synthesis and Capture Research" *at* NCL Pune (CRSI Silver Medal Lecture).
7. "Reactive Intermediates in Synthesis and Capture Research: My Experience" *at* IACS Kolkata.
8. "Feeling the Excitation in Chemistry Through Molecules" *at* IACS Kolkata (Science Day Lecture).
9. "Reactive Intermediates: Newer Applications in Chemical Biology Research" *at* St Xaviers College Kolkata.
10. "Newer Applications of Reactive Intermediates in the Context of Challenges in Drug Discovery" *at* Scottish Church College Kolkata (Aparesh Bhattacharya Memorial Lecture).
11. "The Never-ending Chemistry of Reactive Intermediates: Applications in Synthesis and Biomolecule Capture" *at* IISc Bangalore (Pfizer Lecture).

12. "Reactive Compounds and Reactive Intermediates: A Glimpse From Past to Present" *at* IEST Shibpur.
13. "Newer Aspects of Chemistry of Diradicals and Other Reactive Entities" at IISER Bhopal.
14. "Role of Reactive Intermediates in Drug Discovery Process" Vijyoshi Lecture KVPY, Kolkata.

