

Curriculum Vitae

Prof. VibhaTandon

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[content/vtandon](https://www.jnu.ac.in/content/vtandon)

Publications profile: <https://www.ncbi.nlm.nih.gov/pubmed/?term=vibha+tdandon>



NATIONALITY	Indian
MARITAL STATUS	Married
DATE OF BIRTH	July 1 st ,1968

RESEARCH ACCOMPLISHMENTS

Total Number of Research Publications: 74

Total Number of Book Chapters: 2

Books Edited: 02

Total Citations : 3156 (Vibha Tandon) and H index: 31

SUMMARY

1. **Development of Radioprotectors for Protection of Normal Cells During Cancer Radiotherapy**

Radiotherapy, second only to surgery, is utilized by 80% in the patient as part of their treatment to most prevalent cancer. Ionizing radiation (IR) causes radiolysis of water, generation of reactive oxygen species (ROS). It has a deleterious effect on the living tissues or cells, resulting in the transfer of radiation energy to biological materials. Prof. Tandon and her co-workers synthesized a library of benzimidazoles and then screened them as Free radical quenchers and radiomodulator. Her laboratory proved that DMA a benzimidazole a DNA minor groove binder and non- toxic free radical scavenging radioprotector offered better radioprotection to normal human lung fibroblast) over A549 cells (human lung carcinoma). DMA induces NIK mediated NFκB activation and modulates a number of key regulatory pathways, including effector proteins, to overcome radiation-induced damage. There were no inflammation, necrosis, hemorrhage or cellular abnormalities were observed in any of examined organs with acute DMA dose upto 2000mg/kg bw.

There was no significant reduction in tumor growth observed in DMA treated animals. Mechanistic studies revealed that DMA exerts its radioprotective activity through activation of Akt/PKB, which activates NFkB signaling. Interestingly, tumor tissue investigation suggested that DMA + Radiation condition did not increase either NFkB or pAkt level. All these data indicate that DMA specifically protect normal cells over tumor cells. **Indian Patent, US Patent and EU patent granted.** (please see patent section)

Explore Antibacterials Targeting Topoisomerase IA to Combat Antibiotic Resistance: Development of New Antibiotics Targeting against clinical MDR Strains in *invivo* Animal Models. Prof. Tandon's laboratory is first to identify, evaluate, and establish benzimidazoles as the selective inhibitors bacterial topoisomerase I relative to mammalian topoisomerase in vitro, suggesting that topoisomerase poisoning underlies the antibacterial effects. The substituted benzimidazoles selectively poison bacterial cellular processes while allowing mammalian cells to perform typically. This is in principle, of considerable interest as very few specific inhibitors of topoisomerase I are known to date. Interestingly, these molecules do not act on DNA gyrase and also do not inhibit Human Topoisomerase II also. The idea is to identify a novel antibacterial agent that can fight with bacterial resistance and not host.

In continuing her interest in drug development, she identified a new antimicrobials class to combat bacterial resistance to the existing antibiotics. Her group showed 5-(4-Propylpiperazin-1-yl)-2-[2'-(4-ethoxyphenyl)-5'-benzimidazolyl] benz-imidazole (PPEF) as selective bacterial topoisomerase I inhibitor, but do not effect human topoisomerase and gyrases. The compound showed a bactericidal effect in several gram-positive and negative pathogenic MDR clinical strains. Computational studies delineated PPEF interacts in the vicinity of the acidic triad of topoisomerase IA and do not allow relegation of DNA strands. The upregulation of efflux genes and down regulation of porins were observed in PPEF treated bacterial cells. Ligand-induced chromosome condensation, generation of focal points, cell filamentation in bacterial cells confirmed bactericidal nature of PPEF in pathogenic MDR strains. Further, she studied the compound's efficacy in Balb/C mice and observed significant bacterial load reduction for both gram-negative E. coli and positive S. aureus MDR strains.

FUTURE RESEARCH OBJECTIVES

- **DMA, A Bisbenzimidazole to take it to Early-Phase Human Phase Trials as a Radiomodulator/Radioprotector to Normal Cells for Cancer Radiotherapy in Patients-**

We are working together with Anthem Biosciences Filing of IND in the next few years, along with our Industry Partner Anthem Biosciences Pvt. Ltd., Canara Bank Road, Bommasandra Industrial Area, Phase Hosur Road, Bangalore. The MoU between Anthem Biosciences and JNU has been signed.

Co –Investigators/ Collaborators

Vikram Gota, ACTREC Mumbai, will be a Collaborator for Clinical trial work. IDRA will do formulation work. INTOX Pune will be doing all GLP toxicity to take it to Human Phase I clinical Trial. The TAG group of ICMR has recommended it for Product Development as Radioprotector. Anthem BioSciences will do GMP synthesis of small molecules. A team of experienced chemists, biologists, engineers and business people own transparent and ethical dealing with customers.

The Oncology Department of Medanta Medicity, Gurgaon has agreed to support the research and give clinical support to this project. They will keep the clinical trial of DMA.

Societal Relevance: Cancer Cases in India by 2020 around 17.3 Lakhs & 8.8 Lakhs death. World Market of Radiotherapy for Cancer patients: 6.81 Billion in 2017 to 9.47 billion in 2022.

2. A Multi-Scale Approach to Combat the Mechanisms of Antimicrobial Resistance through PPEF (A novel small Molecule) targeting Bacterial topoisomerase IA selectively over Gyrase and human topoisomerase.

Future Objectives ;

Objective 1: To investigate the effect of PPEF on WHO reported priority pathogens (*A. baumannii*, *Enterobacteriaceae* spp. *E. faecium*, *S. aureus*, *Salmonellae*, *S. pneumonia*, *Shigella* spp)&*E.coli*(ESBL producing Strain). The absolute MIC and MBC of PPEF will be determined against these strains as per CLSI guidelines. (JNU & Anthem Biosciences will work as per availability of strains, most of the strains are available with them)

Objective2: To study the effect of PPEF on efflux genes and topoisomerase IA (target protein) on WHO reported priority pathogens (standard and clinical; one each of eight pathogens, total comes to 16 bacterial strains). (JNU)

Objective 3: Development of bioenhanced and targeted DDS for oral and intravenous delivery of PPEF based on technologies already developed by the Collaborator group Prof. Padma Devarajan, ICT, Mumbai. (Prof. Padma V. Devarajan, ICT, Mumbai)

Objective 4: Structure guided approach to understand the selectivity of PPEF towards Bacterial Topoisomerase IA over Gyrase and Human Topoisomerase IB. (Prof. Ruchi Anand, IIT Bombay)

Objective5: ADME and Preliminary Toxicity studies on PPEF (Anthem BioSciences)

Objective6: In-vivo efficacy study with new formulations (obtained from Prof. Padma

V.Devarajan,ICT,Mumbai of PPEF,in-infection model(01 strain according to in vitro sensitivity of PPEF) towards pathogens. (Anthem BioSciences)

Objective 7: GMP synthesis and GLP Toxicity studies will be done with PPEF (Anthem BioSciences).

Societal Relevance: Development of Therapeutic Agent/ Novel Antibiotics against MDR clinical pathogens.

Co-Investigators/Collaborators:

- **Dr. Padma Devarajan (PI)**, Department of Pharmaceutical Sciences & Technology, Institute of Chemical Technology, Mumbai.
- **Dr. Ruchi Anand (PI)**, Indian Institute of Technology, Bombay, Mumbai.
- **Dr. Gavara Rajulu (PI)**, Anthem Biosciences Private Limited, Bangalore.
- **Dr. Rajini Gaiind (Co-PI)**, Department of Microbiology, Vardhman Mahavir Medical College and Safdarjung Hospital, New Delhi
- **Mr. Shri Natrajan (Co-PI)**, Anthem Biosciences Private Limited, Bangalore

As a CRISP – Anthem Biosciences offers a whole gamut of services dedicated to enabling and sustaining global research efforts in the discovery of new compounds by pharmaceutical, biotechnology, specialty chemicals, agriculture chemicals and material science companies. This is done by leveraging the company's core competencies in organic synthesis, process development, analytical chemistry, discovery biology and regulatory compliance.

With its best in class infrastructure Anthem Biosciences can do GMP synthesis ranging from milligram to kilogram, multikilogram to multiple tonne scale. Apart from modern well equipped labs, the company has a cGMP kilo lab and a versatile GMP pilot plant.

In Discovery Research, Anthem provides pharmaceutical clients services from the generation of hits, transforming hits to leads and optimizing leads to developable drug candidates against known or client's targets. The company has recently commissioned new laboratory space, more than doubling its lab capacity. A new GLP compliant in-vivo facility, new ADMET labs, and a pilot fermentation lab have been added.

Anthem has agreed and signed an MoU to develop the molecule and DBT and BIRAC as an IND. The DBT has decided to pursue this project in Mission mode and take it up to IND filing, followed by Clinical trial.

TEACHING PHILOSOPHY

Teaching is not a profession but a passion, and I strongly believe in this statement. In my journey from Delhi University to Jawaharlal Nehru University, while teaching the Masters and Ph.D. students, I got the most excellent satisfaction of my life. When they understand what we are trying to communicate, young students' happy smiling faces fulfill me with new energy and make me feel more youthful, receptive, and lively. Teaching at the university level is more fun and has more challenges than at any other group; the students are mature, more open-minded, and curious. I'm teaching the topics that I have

learned from the books and my own hands-on experience in the lab or listening to some experts in the area who have performed those experiments. For me, teaching is more of a situation where you are sharing your own experiences with impressionable minds. I feel teaching life sciences, or biotechnology describes what is happening in nature, on various levels, and how it can be used to do something good for humanity. I learn every minute with students. In my opinion, the entire idea of a classroom is to bring together students from various backgrounds and schools under one roof and to make them feel like a team. It is only then that we get to witness students uplifting other students. During discussions, I encourage students to ask questions and try to get their answers, followed by my interpretation of their solution and further addition of facts from my side. I would like to make all efforts to make my class interactive and exciting, citing examples from everyday life. I support taking students for a field-level exposure to nature; I believe it to be the best lab a student can learn from. Nature is the best teacher, after all. Finally, getting feedback from the students would be the guiding force for me to improve upon myself. I have never done anything that felt more rewarding than teaching; it feels like I win every time I see students absorb what they have read and produced their strings of thoughts. Education is truly liberating for both the parties involved.

EDUCATIONAL QUALIFICATIONS

- B.Sc., year 1984, from T. D. College, Gorakhpur University in Chemistry, Zoology, Botany. First class first in College in both previous and final examinations.
- M.Sc., year 1986, from T. D. College, Gorakhpur University in Organic Chemistry from Department of Chemistry, First class first in College.
- Doctor of Philosophy, 1991. Topic of Thesis: "Synthesis of Sequential Oligonucleotides using Special Protecting Groups" from Department of Chemistry, University of Allahabad, India under Supervision of Prof. Krishna Misra

WORK EXPERIENCE

- 21st January 2014 to till date : Joined as Full Professor in Special Centre for Molecular Medicine, JNU, New Delhi.
- 28th March 2013 – 20th January 2014; Professor at University of Delhi
- January 2010–28th March 2013: Associate Professor, Department of Chemistry, University of Delhi.
- January 2009 – 2010: Reader in Department of Chemistry, University of Delhi.
- January 1998 – 2009: Research Scientist (Lecturer), University of Delhi, Delhi.
- January – December 1997: Production Incharge of a 100% EOU producing Surgical Gloves i.e. M/S KCK Latex Limited, Delhi.
- April 1996–December 1996: Senior Chemist of an 100% EOU producing Surgical Gloves i.e.; M/S KCK Latex Limited, Kanpur & Delhi.
- January 1993–March 1996 : Post-Doctoral Fellow in the laboratory of Prof. Javed Iqbal, Department of Chemistry, Indian Institute of Technology, Kanpur.

ACADEMIC AND ADMINISTRATIVE ASSIGNMENTS

- Chairperson of WoS–A Chemical Science Kiran Program, DST, GOI since 2016 till date.
- Member of CURIE Program of DST, since 2016 till date.
- Presiding Officer of Internal complaint committee at JNU from year 2017 till date.
- Chief Proctor at JNU year 2016-2017.
- Chairperson, Special Centre for Molecular Medicine, 2015-2017.
- Coordinator/Convener of Apex Committee of 2nd and 3rd Convocation at JNU in the year 2018 and 2019.
- Chairman, DST–PURSE Implementation Group, JNU, Taking care of distribution of 32 Crore grant sanction to JNU under above program.
- Academic Council member of JNU since 2015 till date.
- Court member of JNU from 2015-17, later invited as special member till date.
- Member of Management committee of University of Potential Excellence Phase II of JNU, A program of UGC from 2016 till date.
- Chairperson of Research Council of JNU since year 2016.
- Convener of JNU EE for entrance examination of Masters and Ph.D. Program in the year 2016, 2017 and 2018.

- Member of Academic Committees of Centre for Cellular and Molecular Biology (CCMB) Hyderabad.
- Member of Academic Committee of Translational Health Science and Technology Institute (THSTI), Faridabad
- Member of Academic Committee of Military College of Electronics & Mechanical Engineering, Secunderabad, Hyderabad.
- Member of Academic Committee of National Institute of Immunology (NII), New Delhi.
- Member of Academic Committee of Military College of Telecommunication Engineering (MCTE), Mhow (Indore) Indore Madhya Pradesh
- Member of Academic Committee of The Indian Naval Academy, Kannur, Kerala.
- Member of Standing Committee of JNU for External Institution Affiliated with JNU from 2019 to 2021.

AWARDS AND HONOURS

- Prof. D. Nasipuri Memorial Award, 2018 was conferred by the Indian Chemical Society, Calcutta.
- Mid Career Award of UGC for excellent Research Work from 2018- 2021.
- Fulbright Senior Research fellowship awarded for 2012–13 to visit Department of Cell Biology, Georgia State University, Atlanta USA.
- Awarded INSA visiting fellowship for the year 2011 – 12, to visit with Prof. George Iliakis, Institute of Radiation Biology and Oncology at Essen Germany under the bilateral exchange program of Indian National Science Academy (INSA).
- DAAD fellow under Indo – German exchange program of DST – DAAD to visit and collaborate with Prof. George Iliakis, Institute of Radiation Biology and Oncology at Essen Germany (2010–2011).
- Member of National Academy of Sciences India, Allahabad. Awarded Royal Society fellowship for a visit to Prof. Michael J. Gait's laboratory at Cambridge University, Cambridge, U.K. under the Bilateral Exchange Programme of INSA with Royal Society, U.K. (2007 – 08).
- Invited as a participant to XI NOST Symposium October 2005 at Goa.
- Awarded fellowship for the three months visit to Prof. Stephen Neidle's laboratory at University of London, U.K. under the Bilateral Exchange Programme of INSA with Royal Society, U.K. (2004 –2005).

- A reviewer for JACS, JMC, Chemical Research in Toxicology, IJEB, JBSD, Molecular Biosystems.
- A member of the committee of University of Delhi, which was coordinating the visit of UGC Xth Plan Committee in Delhi University.

COURSES TAUGHT/BEING TAUGHT/RESEARCH GUIDENCE

- Coordinator and Paper Setter for M.Sc.–Ph.D. Combined Degree Program in Molecular Medicine at SCMM, JNU.
- Teaching: Courses Taught in M.Sc.–Ph.D. Biomedical Sciences at Dr.B. R. Ambedkar Center for Biomedical Sciences(ACBR), University of Delhi, since 1998 – 2009. Courses Taught; *Advance Organic Chemistry (II Semester)*, *Biochemistry I (II Semester)*, *Spectroscopy (IR, NMR, UV, Raman Spectroscopy)*. *Special Topics in Medicinal Chemistry (IV Semester)* Convenor, *Principles of Medicinal chemistry (III Semester)*, Convenor, *Clinical Chemistry & Instrumentation Techniques (III Semester)*, *Advance Organic Chemistry (II Semester)*, *Biochemistry I (II Semester)*, *Principles of Medicinal chemistry (III Semester)* Conducted *Practical Classes for Organic Chemistry, Instrumentation and Clinical Technique from year 1998 – 2008*.
- Full Time Teaching in Masters Program and Ph. D. course Work at Department of Chemistry from year 2009 –2013.
- Courses Taught; *Advances Organic Chemistry, Reaction Mechanism, Asymmetric Synthesis, Chemistry of Life Sciences, Nucleic Acids & Carbohydrates, Study of Reactive Intermediate, Medicinal Chemistry*. *Conducted Practical Classes of Organic Group from 2009–January2014*.
- Member of Course Committee Responsible for formulation of Courses at Masters Level, Undergraduate Level and as well as Four Year Undergraduate program from year 2011 –2012.
- Incharge of LC – MS Facility at ACBR and Department of Chemistry from year2006onwards. Formulated Courses for the new special papers (New Drug Discovery) introduced for M.Sc. –Ph.D.
- Combined degree programme. Admission in charge for M.Sc.–Ph.D. Biomedical Sciences courses entrance examination for year 2001 & 2002. Convenor in 2003.

- Coordinator of Summer Undergraduate Programme at ACBR in 2001, 2002 and 2005.
- Syllabus formulation: Following courses were design for IV semester of M.Sc.–Ph.D. combined degree program in Biomedical Sciences Advanced Drug Synthesis (MC-1408) Medicinal Chemistry and Molecular Pharmacology
- Coordinator of Fund for Improvement of S&T Infrastructure in Universities and Higher Educational Institutions (FIST) project Submitted for LC- MS Facility.
- Coordinator of project submitted to Department of Science & Technology for Creation of National Facility for Biomedical Research using Nuclear Magnetic Resonance Spectroscopy (NMR Facility).
- Deputy Coordinator of Project Granted under Special Assistance Programme to University Grant Commission New Delhi.
- Coordinator of Project entitled “New Drug Discovery in Biomedical Research” submitted under Innovative Programme to University Grants Commission, New Delhi.
- Syllabus formulation of B.Sc. Biomedical Science Courses.
- Paper Setter for B. Tech. Examinations of Delhi College of Engineering, Delhi, M.Sc. &B.Sc. Examinations of Guru Jambheshwar University Hisar, Bundelkhand University, Jhansi.

PATENTS/TECHNOLOGIES

Patents Accepted

1. Patents Accepted 1) USA Patent Granted on Filing No: 15/220631 Title: “DMA, a bis- benzimidazole, confers radioprotection to the intestine via AKT/NFKB dual pathway activation”
Date of Filing- 2016/06/27 Date of Grant: 2018/05/01 2)
2. Indian Patent No: 217681 Patent application No 21/DEL/2003 Title: "A process of preparing an extract of *Annona squamosa* for treatment of diabetes.
Date of Filing- 07/01/2003. Date of Grant-28/03/2008
3. Indian Patent No: 241650 Patent application No. 32/DEL/2003. Title: “The process for the synthesis of bisbenzimidazoles and its derivations.”

Date of Filing-09/01/2003 Date of Grant-17/07/2010 4)

4. European Patent No: 1590332 (European patent application no. 03815133.8) (Priority Indian patent application No 32/DEL/2003 and PCT International patent application no.PCT/IN03/00301) Title: "The process for the synthesis of bisbenzimidazoles and its derivations"

Date of Filing: 08.09.2003. Date of Grant: April 27, 2011 5)

5. European Patent No: 1589983 (European patent application no. 03814526.4) (Priority Indian patent application No 21/DEL/2003 and PCT International Patent Application no PCT/IN03/00228) Title: "A process of preparing an extract of *Annona squamosa* for treatment of diabetes". Date of Filing: 20.06.2003 Date of grant: (EPO intention to grant issued, further pursuance would subject to quick possibility of commercialization).

Patents Filed in last three Years (2016 -18)

1. Canada Patent No: 2,937,241 Title: "DMA, a bis-benzimidazole, confers radioprotection to the intestine via AKT/NFKB dual pathway activation"
Date of Filing:2016/07/27
2. PCT Application Filing No: PCT/IN2017/000013 Title: "Broad spectrum antibacterial activity of novel Bisbenzimidazole targeting topoisomerase IA and synergistic composition of Bisbenzimidazole with efflux pump inhibitors against pathogenic bacteria"
Date of Filing: 20/01/2017, RO/IN (Delhi).
3. Indian Filing no. 201611002627 "Broad spectrum antibacterial activity of novel Bisbenzimidazole targeting topoisomerase IA and synergistic composition of Bisbenzimidazole with efflux pump inhibitors against pathogenic bacteria"
Date of Filing: 23/01/2016, Delhi.
4. Indian Patent Filing No:201611008163 Title: "Novel Malonyl and dioxolan derivatives of indole as HIV-I integrase strand transfer inhibitors" Date of Filing:2016/03/09

TECHNOLOGY TRANSFER:

Discussion is going on with PACT & Health LLC, Branford, CT 06045, USA which is an upcoming radiation research company which provides support for

Development of radiation related instruments, development of radiosensitizers and radioprotectors.

DETAILS OF CONTRACTUAL RESEARCH/ INDUSTRIAL LINKAGE:

Synthesis of Oxandrolone by a new cost effective route (HIKMA Pharmaceutical, Jordan funded project)-since July 2001(US\$ 30,000)

Oxandrolone is an anabolic steroid. Anabolic steroids are natural or synthetic versions of testosterone, a hormone produced naturally in males and to a lesser extent, in females. Anabolic steroids are used in combination with appropriate diet and moderate exercise to promote build-up or gain of protein in the body to form lean body mass (including muscle tissue). Technology has been developed and transferred to Hikma Pharmaceuticals, Jordan, for a pilot-scale production of Oxandrolone.

Identification and Characterization of anti-diabetic compounds from some Indian Medicinal plants (DIAKRON, USA) since 2001-03.(US \$ 15,000)

Isolated Antidiabetic Active constituents from the Seeds of Fenu Greek, identified Structure of active components and determined ED50 as well as LD50 and performed long term as well.

- **DMA, A Bisbenzimidazole to take it to Early-Phase Human Phase Trials as a Radiomodulator/Radioprotector to Normal Cells for Cancer Radiotherapy in Patients-**

We are working together with Anthem Biosciences for Filing of IND in next few years along with our Industry Partner Anthem Biosciences Pvt. Ltd., Canara Bank Road, Bommasandra Industrial Area, Phase Hosur Road, Bangalore. The MoU between the Anthem Biosciences and JNU has been signed.

- **A Multi-Scale Approach to Combat the Mechanisms of Antimicrobial Resistance through PPEF (A novel small Molecule) targeting Bacterial topoisomerase IA selectively over Gyrase and human topoisomerase.**

The development of antibacterial agents are being supported by Anthem. Anthem is a unique company employing medicinal chemists with state of art synthesis facility and have 2000 MDR clinical bacterial strains and a complete BSL2 and BSL 3 microbiology facility to screen the molecules against pathogens

GUIDENCE FOR RESEARCH MEMBERS IN THE LAB

- A. M.Sc.6 months dissertation students: 70 (Completed), Every year get on
- B. **Ph. D Scholars** (Completed)

No.	Name of Students	Topic of Thesis	Award Year
1.	SudhaKohli	DNA Finger Printing of Indian Rice Varieties.	1999
2.	Urmila Tawar	Molecular Recognition Studies between Minor Groove Binding Ligands and Nucleic Acids.	2005
3.	Akash K. Jain	Non-intercalating DNA Binding Ligands: Synthesis and Their Interaction with Double and Triple Helical DNA.	2006
4.	Braham Parkash	Modulation of Dimerization and Translational Frameshifting Processes of Human Immunodeficiency Virus Type-1 by Using Polyamide Nucleic Acids (PNA).	2006
5.	B.S. Chhikara	Synthesis of Bifunctional Chelating Agents to Label Monoclonal Antibody and Peptides for Radioimmunodiagnosis of Cancer.	2006
6.	P. Shokeen	Antidiabetic and Antibacterial Properties of Some Medicinal Plants.	2006
7.	M. Gupta	Deciphering the Role of Serine and Threonine Kinases in Regulation of Cell Growth and Development of Mycobacterium Tuberculosis.	2009
8.	S. K. Gupta	Synthesis of modified Peptide nucleic acids (PNA) and its cellular uptake.	2010
9.	M. Singh	Synthesis of Biological Evaluation of the Bisbenzimidazole.	2011
10.	Nirpendra Singh	Identification and Functional Characterization of Integrase Interacting Human T-Cell Protein. (Co- Supervisor)	2010
11.	Sandhya Bansal	A systematic study of Benzimidazole in search of selective Antimicrobial targeting Topoisomerase.	2012
12.	Navrinder Kaur	Gene Expression studies in response to a Benzimidazole analogue: Implications for the development of a Minor Groove Binding Ligand as a Radioprotector.	2012
13.	Atul Ranjan	To elucidate the molecular mechanism of DNA binding molecule as Radiation modulator. (Co –Supervisor).	2013
14.	Piyush Dikshit	Biochemical Studies on Antidiabetic Effect Of Central Part of Stem of "Musasapientum" (Co –Supervisor).	2013
15.	Hemlata Nimesh	Design, Synthesis & Biological Evaluation of benzimidazole; Pharmacokinetic & Distribution of these compounds in Animals.	2015
16.	Souvik Sur	Synthesis, Biophysical Characterizations, Molecular Dynamics Simulations and Biological Evaluation of Novel benzimidazole substituted Naphthalene-diimides as G-Quadruplex Stabilizing Ligands	2015

17.	Vinod Tiwari	To Study Radioprotecting Effect of DNA Binding Ligand and Elucidate their Mechanism of Action.	2017
18.	Devapriya Sinha	To Study the Mechanism of Action of Bisbenzimidazole with DNA Topoisomerase I, both in Human and E. coli.	2017
19.	Pooja Yadav	Identification of polypyrimidine tract binding protein and associated splicing factor as HIV-1 integrase interacting host protein and biochemical screening of novel synthesized integrase inhibitors	2018
20.	Stuti Pandey	Synthesis and Evaluation of Novel heterocyclic molecule as potential Radiomodulators and Antibacterial Agents	2019
21	Urvashi	Transition-Metal-Catalyzed C-C/C-S Coupling and C-N Bond Formation: Synthesis of N-Heterocyclic Compounds and Their Biological Evaluation.	2019

C. Graduate Students Working under Supervision (09)

1. **Sad K. 2015**; Investigation into the Mechanisms of Action of Prochlorperazine and Benzimidazole as Radiosensitizers in different Tumor Models for Cancer Radio-therapy.
2. **Tripathi P. 2015**; Study on the Radio Modulating Effect of A Progestin Steroid in Radiotherapy for Cancer.
3. **Cardoza S. 2016**; A novel route towards site-selective synthesis of highly functionalized *n*- heterocyclic compounds via suzuki-miyaura cross coupling/c-h activation.
4. **Singh R. 2017**; Development of small *N*-Heterocyclic molecules as antibacterial agents targeting Bacterial Topoisomerases
5. **Chaudhari T. Y. 2017**; Novel approaches for the Synthesis of Medicinally Active *N*- Heterocycles/Polycycles from Alkynes/Alkenes
6. **Parasar P. 2018**; Repurposing of drug in radio sensitization of head and neck cancer targeting KRAS protein.
7. **Kumari A.**; Repurposing of drug in radio sensitization of head and neck cancer targeting KRAS protein
8. **Maurya V. :** Targeting Bacterial Topoisomerase IA , A treatment Strategy Against ESKAPE Pathogens.
9. **Hungyo H. :** Topic To be decided

D. Post-Doctoral Associates

1. Zahid Kamran (DSKothari)
2. Priyanka Bajaj (NPDF)
3. J B Senthil (DSKothari)
4. Manoj Srivash (ICMR RA)
5. Pooja Yadav (RA)

Books/Monographs(Authored/Edited)

1. Tandon, Vibha. 2005. *Molecular Modelling*. Shree Publishers & Distributors, Delhi.
2. Tandon, Vibha, Tiwari, Manisha. 2004. *Natural Products Volume 1*. Isha Books, Delhi.
3. Tandon, Vibha, Tiwari, Manisha. 2004. *Natural Products Volume 2*. Isha Books. Delhi

INVITED INTERNATIONAL/NATIONAL TALKS AT VARIOUS UNIVERSITIES/ INSTITUTES

- 1) Invited talk on “Benzimidazoles Differentially Inhibit E.coli. Topoisomerase as Compared to Human to Elicit Bactericidal Effect on MDR Bactericidal Strains” at 106th Indian Science Congress, Agricultural University Bangalore, Bangalore on 6th January 2020.
- 2) Chaired the Poster Session at India International Science Festival of Young Scientists’ Conference-20 held from 5th-7th November, Biswa Bangla Convention Centre, Kolkata.
- 3) Invited talk on “Repurposing of drugs suggested by informatics for targeting KRAS: A potential Drug Target for Cancer Radiotherapy” at 22nd National Symposium on Radiation Physics, 8- 10 November 2019, JNU, New Delhi.
- 4) Invited talk on “Benzimidazoles Differentially Inhibit E.coli. Topoisomerase IA as Compared to Human to Elicit Bactericidal Effect on MDR Bactericidal Strains” at Organic Chemistry Symposium (OCS 2019) held at Hyatt Regency, Lucknow during 13-14th September 2019.
- 5) Invited talk in Innovators cum Entrepreneurs Meet at CSIR-North East Institute of Science and Technology, Jorhat on May 8-11, 2019.
- 6) Invited talk on “Repurposing of drugs suggested by informatics for targeting KRAS: A potential Drug Target for Cancer Radiotherapy” at Convention Centre, Organized by Department of Chemistry, University of Delhi,
- 7) Invited talk on “Repurposing of drugs suggested by informatics for targeting KRAS: A potential Drug Target for Cancer Radiotherapy” at 11th Symposium Cum Workshop on Recent Trends in Structural Bioinformatics and Computer Aided Drug Design at Alagappa University, Karaikudi, during 12th-15th February, 2019.
- 8) Invited talk on “Benzimidazoles Differentially Inhibit E. coli. Topoisomerase as Compared to Human to Elicit Bactericidal Effect on MDR Bactericidal Strains” 6th World Congress on Nanomedical Sciences’ (ISNSCON 2018), along with Chemistry-Biology Interface: Synergistic New Frontiers (**CBISNF-2019**) at Vigyan Bhawan, New Delhi,

India, during 7- 10 January 2019.

- 9) Invited talk on “PPEF a Minor Groove Binding Ligand Differentially inhibits DNA. E. Coli Topoisomerase complex as compared to Humans to elicit Bactericidal effect on MDR bacterial strains” at National Bio-Organic Chemistry Conference (NBCC-2018), 22-24 December 2018, NISER, Bhubaneswar, India.
- 10) Invited talk on “Repurposing of drugs suggested by informatics for targeting KRAS: A potential Drug Target for Cancer Radiotherapy” at 6th BIENNIAL international Conference on Drug Discovery from Natural Products and Traditional Medicines (DDNPTM-2018), 15- 17 November 2018, NIPER, Mohali, India.
- 11) Invited talk on “International Conference on Radiation Biology advances in Radiation Biology Radiotherapy and radiation Counter measures” October 4 to 6, 2018, Deralakatte, Mangaluru.
- 12) Invited talk on “Repurposing of drugs suggested by informatics for targeting KRAS; a potential drug target of cancer radiotherapy” at 7th National Symposium on Advances in Chemical Sciences, 26th March 2018, Department of Chemistry, Gurunank Dev University, Amritsar, Punjab.
- 13) Invited talk on “Repurposing of drugs suggested by informatics for targeting KRAS; a potential drug target of cancer radiotherapy” at 16th annual meeting of society for free Radical Research in India (SFRRRI), 20th February 2018, AIIMS, New Delhi.
- 14) Invited talk on “Repurposing of drugs suggested by informatics for targeting KRAS; a potential drug target of cancer radiotherapy” at Emerging Trends in Drugs Development and natural Products(ETDDNP), 12th January 2018, Department of Chemistry, University of Delhi
- 15) Invited talk on “Structure activity relationship of bisbenzimidazole as *E. Coli* Topoisomerase IA inhibitor targeting MDR bacterial strains” at CMTPI, Goa, 29th October 2017, Goa.
- 16) Invited talk on “Study on radiomodulating effects of a progestin steroid, Anthracenediones and prochlorperazine in cancer radiotherapy at School of Medical Sciences, Hyderabad, 3rd February 2018, University of Hyderabad, Andhra Pradesh.
- 17) Invited talk on “Ser/Thr Akt1 kinase activation by bisbenzimidazole confers selective radioprotection to intestinal epithelium in cancer radiotherapy at 86th Annual Conference of Society of biological chemist (SBC), 17 November 2017, School of life Sciences, JNU, New Delhi.
- 18) Present poster on “EMBO | EMBL Symposium: New Approaches and Concepts in Microbiology” June 27-30- 2018, EMBL Heidelberg, Germany.
- 19) Invited talk on “Akt 1/ NF- κ B signaling pathways activations by a small

molecular DNA, confers radioprotection to intestinal epithelium in Xenograft model” at “Prof. Mohd. Amin Memorial Lecture”. 31st March 2017, Department of Biosciences, Jamia Millia Islamia, New Delhi.

- 20) Invited talk on “Bisbenzimidazole a selective Topoisomerase I A inhibitor, act against MDR bacterial strains” at Seminar on “Recent Advances in Chemistry 2017 (RAC-17)” under UGC DRS Phase-II Special Assistance Program (SAP). 28th March 2017, Department of Chemistry, Jamia Millia Islamia, New Delhi.
- 21) Invited talk on “An odyssey of bisbenzimidazoles as therapeutic agent for human well- being” at Conference on “Chemistry Interfacing with Biology and Physics (CIBP)”. 27th -28th January 2017, Indian Institute of Science Education and Research, Kolkata.
- 22) Invited talk on “Ser/thr Akt1 activation by a small molecule DMA confers selective radioprotection to intestinal epithelium in xenograft model” at Conference on “Basic and Applied Aspects of Health Management using Radiation, Antioxidants and Nutraceuticals” 11th January 2017, Bhabha Atomic Research Centre, Mumbai.
- 23) Invited talk on “Ser/thr Akt1 activation by a small molecule DMA confers selective radioprotection to intestinal epithelium in xenograft model” at International Conference on Radiation Biology, 9th - 11th November 2016, SRM University, Chennai.
- 24) Invited talk on “Synergistic effect of bisbenzimidazole and carbonylcyanide 3- chlorophenylhydrazone in combination against MDR ESKAPE bacterial strains” at International Conference on Trend Setting Innovations in Chemical Sciences & Technology- Nature Inspired Chemistry & Engineering.TSCST-NICE2016.4th-6thOctober2016, Jawaharlal Nehru Technological University, Hyderabad.
- 25) Invited talk on “Women in Science” at the 4th J&K Women Science Congress. 1st - 3rd September 2016, Government College for Women, Jammu.
- 26) Invited talk at 3rd International Conference on Herbal and Synthetic Drug studies. 7th – 9th January 2016, Interdisciplinary Science and Technology Research Academy, Pune.
- 27) Chaired a session during 52nd Annual Convention of Chemists. 29th-30th December 2015, JECRC University, Jaipur.
- 28) Poster-cum-oral presentation on “Novel smart C2-symmetrical NDI derivatives as G-quadruplex stabilizing ligand with a potential to differentiate between topological structure at Albany 2015, The 19th Conversation. 9th -13th June 2015, State University of New York, Albany, New York, USA.
- 29) Invited talk on “DMA, a bisbenzimidazole confers radioprotection to intestinal cells through Akt/I κ B mediated NF κ B Activation in Mice”. 16th June 2015, Cancer Centre in University of Kansas Medical Center,

Kansas City,USA.

- 30) Invited talk on “An Odyssey of Bisbenzimidazoles as Therapeutic Agent for Human Well Being”. 17th June 2015, Kansas City Veterans Affairs Medical Center, Kansas City.
- 31) Invited talk on “DMA (3,4 –dimethoxybisbenzimidazole) a cytoprotective small molecule provides radioprotection through I κ B mediated NF κ B activation” at International Conference on Translation Medicine in 21st Century “Stem Cell Transplantation: Current Status”. 11th - 14th April 2015, Barkatullah University, Bhopal.
- 32) Invited talk at 20th Refresher course in Environmental sciences organized by SES, JNU. 23rd April 2015, JNU Staff College, New Delhi.
- 33) Invited talk on “Odyssey of bisbenzimidazole as therapeutic agent for human well-being” at Faculty Development Program (FDP) entitled “Next Generation Drugs and Drug Delivery System: Future Prospective”. 11th March 2015, Chandigarh College of Pharmacy, Landran, Mohali, Chandigarh.
- 34) Invited talk on “Activation of PTEN/Akt/ TNF α /NF κ B pathway triggered by DMA, a bisbenzimidazole provides protection against ionizing” at International Symposium on Current Advances in Radiobiology, Stem Cells and Cancer Research, 19th - 21st February 2015, School of Life Sciences, Jawaharlal Nehru University, New Delhi.
- 35) Invited talk on “Novel smart C2-Symmetrical NDI derivatives as G-Quadruplex stabilizing ligand with a potential to differentiate between topological structures” at National Symposium on Biophysics and Golden Jubilee Meeting of the Indian Biophysical Society. 14th - 17th February 2015, Jamia Milia Islamia , New Delhi.
- 36) Invited talk on “Bisbenzimidazole as therapeutic agent for human well-being at Annual Convention of Chemist, Indian Chemical Society Meeting, 9th - 12th December 2014, Kurukshetra University, Haryana.
- 37) Invited talk on “Co-activation of AKT/NF- κ B triggered by DMA, a bisbenzimidazole confers protection against ionizing radiation induced apoptosis at International Conference on.
- 38) Molecular Signalling: Recent Trends in Biomedical and Translational Research. 17th - 19th December 2014, Indian Institute of Technology, Roorkee.
- 39) Invited talk on “Bisbenzimidazole as therapeutic agent for human well-being

at DDNPTM an International Conference. 21st - 24th November 2015, NIPER Chandigarh.

- 40) Invited talk on “Bisbenzimidazole as therapeutic agent for human well-being at National Conference, UMCCD – 2014, 30th December 2014, Rajguru College, Delhi University.
- 41) Invited Talk on “DMA; a novel bisbenzimidazole confers protection against ionizing radiation through PTEN/AKT/NFκB” in an International Conference of Radiation Biology 2014; Frontiers in Radiobiology: Immunomodulation, Countermeasures & Therapeutics; 12th Biennial Meeting of Indian Society for Radiation Biology (ISRB) during SILVER JUBILEE YEAR of ISRB New Delhi. 12th - 15th November 2014, INMAS, New Delhi.
- 42) Invited talk on “DMA; a novel bisbenzimidazole confers protection against ionizing radiation through PTEN/AKT/NFκB” at Indo-French conference-2015. 10th-12th November 2014, IFFCOS Puducherry University, Puducherry.
- 43) Invited Special Lecture at Sensitization Meeting of Women Scientist Scheme of DST. 13th September 2014, Sophitorium Institute of Technology, Bhubaneswar.
- 44) Invited talk on “An odyssey of bisbenzimidazole as therapeutic agent for human well- being” at Perspective of Natural Products. 16th - 17th June 2014, CMMRI, Bhavnagar, Gujarat.
- 45) Invited talk on “An odyssey of cytoprotective bisbenzimidazole as therapeutic agent for human well-being” at International Conference of XIV National Organic Symposium Trust– 2014. 6th April 2014, Jaypee Hotel, New Delhi.
- 46) Invited talk at “An odyssey of bisbenzimidazole as therapeutic agent for human well- being” in BIOSPARKS – 2014. 20th - 22nd March 2014, SLS, JNU, New Delhi.
- 47) Invited talk on “DMA a bisbenzimidazole: An odyssey of a small molecule as Radioprotectant” at 20th ISCB International Conference on “Chemistry and Medicinal Plants in Translational Medicine for Healthcare”. 1st - 4th March 2014, Department of Chemistry, University of Delhi.
- 48) Invited talk on “Novel bisbenzimidazole a potential radioprotector mitigates DNA damage in radiotherapy” at SFRR–India–2014. 25th-28th February 2014, Free radical Society of India & BARC, Lonavala.
- 49) Special Lecture on “Development of novel bisbenzimidazoles as antibacterial agents, preferentially inhibiting bacterial topoisomerase I”. 9th April 2013, Division of Medicinal and Natural Product Chemistry, University of Iowa, Iowa, USA.
- 50) Special Lecture on “Co-activation of AKT/NFκB triggered by DMA: A bisbenzimidazole provides protection against ionizing radiation-induced apoptosis” 12th April 2013, Department of Chemistry and Biochemistry, Florida International University, Miami, USA.

- 51) Invited talk on “Bisbenzimidazole mitigates radiation induced damage through activation of AKT/NFκB signalling pathways in cells during radiotherapy” in a two days Symposium on “Trends in Chemoprevention & Cancer”. 30th-31st May 2013, University of Louisville, Kentucky, USA.
- 52) Special Lecture on “Novel bisbenzimidazole – DMA; a potential radioprotector mitigates DNA damage in radiotherapy”. 3rd July 2013, Centre for Diagnostics and therapeutics, Georgia State University, Atlanta, USA.
- 53) Invited Talk on “3,4 -dimethoxy bisbenzimidazole (DMA); a radiomodulator prevents radiation induced apoptosis via activation of PI3K/Akt/IKK/ NFκB prosurvival pathway in mammalian cells” at 3rd Biennial International Conference on Drug Discovery and Natural Products and Traditional Medicines (DDNPTM -2012). 22nd - 24th November 2012, NIPER, Chandigarh.
- 54) Invited talk on “Cytoprotector bisbenzimidazole and its derivatives offer radioprotection in cells during radiotherapy in cancer treatment promoting NFκB transactivation through NIK/IKK in mammalian cells” at Annual Convention of Chemist convened by Indian Chemical Society. 5th November 2011, Allahabad University, U.P.
- 55) Invited talk on “Effect of metal toxicity on human health” in a Workshop on Defining the role of Women Scientists and Teachers in Promotion and Application of Science and Technology - 2011. National Academy of Sciences, India (NASI), Allahabad.
- 56) Invited talk “Cytoprotector bisbenzimidazole and its derivatives offer radioprotection in cells during radiotherapy in cancer treatment promoting NFκB transactivation through NIK/IKK in mammalian cells : An underlying mechanism is activation of MAP kinase and Wnt signalling pathway in irradiated cells after treatment with bisbenzimidazole” in a conference of Chemical Research Society of India, North Zone Meeting - 2011, University of Jammu, Jammu.
- 57) Invited talk “Modulation of hybridizing properties of PNA with modified nucleic acid bases and their biological evaluation against HIV-1” at International conference on Nucleic Acids in Disease & Disorder, 7th - 9th December 2011, Kusuma School of Biological Sciences, IIT Delhi.
- 58) Invited talk on “A systematic study of benzimidazoles in search of selective antimicrobials targeting topoisomerase I: Development of E.coli inhibitors” at International Conference of Society of Chemists and Bio-chemists. 5th February 2011, Rajkot.
- 59) Invited talk on “Molecular investigations of the antidiabetic effects of Cinnamomum zeylenicum, Brassica nigra and Ricinus communis in experimental diabetes” in an International Conference on Drug Discovery and Natural Products and Traditional Medicine. 22nd - 25th November 2010, NIPER, Chandigarh.
- 60) Member of Indian Scientific Delegation sent to Thailand and Indonesia by

DST under scientific cooperation between these countries and India. 17th - 24th October 2010.

- 61) An invited talk in Training Program in Bioinformatics and Computational Biology at SCFBIO Facility of IIT Delhi. 21stSeptember2009.
- 62) A talk delivered on “Different Approaches of HIV-1inhibition”as member of Indian Delegation sent to Pretoria, South Africa under Indo-South Africa. 28th February - 2nd March2009.
- 63) Invited talk on “Inhibition of HIV–1 using antisense approach” in 2nd Indo–South Africa workshop. 2009, INMAS, Delhi.
- 64) Invited talk “Differential regulation of protein expression in benzimidazole treated mammalian cells under ionizing radiation” at Conference on Translational Research in Molecular Oncology. December 2008, Punjab University.
- 65) Invited talk on “Systematic investigation of twenty one medicinal plants or their antigonorrhoeal activity (Sexually Transmitted Disease) in search of lead compound” at Drug Discoveries in Natural Products and Traditional Medicine. November 2008, NIPER, Mohali.
- 66) Invited talk on “Elucidation and evaluation of mechanisms of action of novel benzimidazoles as radioprotectors” at International Conference on Radiation Biology and Molecular Oncology. 13th November 2008, Rajasthan University, Jaipur.
- 67) Invited talk on “Synthesis and characterization of modified peptide nucleic acid (PNA) having pyrazolo (3,4-d) pyrimidine as base analogue and its antisense effect” at SERC Summer School in Modelling and Informatics in Drug Design. 14th July 2008, NIPER, Mohali.
- 68) Poster-cum-oral Presentation on “Identification and functional characterizationofcellularproteinsinter-actingwithHIV-1integraseandits inhibition by specific DNazyme” at Albany 2007, Conversation 15 (Nucleic Acids Symposium). 19th - 23rd June 2007, University of Albany, NY,USA.]
- 69) Invited talk on “Evaluation of twenty one medicinal plants for antigonorrhoeal activity leading to structural identification of a single active compound against Neisseria gonorrhoea” at Indo- US conference on New Bioactive Molecule in Pharmaceutical Research: Contribution of Natural Products.13th-14thNovember2006, ICT, Hyderabad.
- 70) An invited member of “National Organic Symposium Trust”. 2005, Goa.
- 71) Oral presentation on “Interactions between Mycobacterium tuberculosis nucleoside- diphosphate kinase and DNA involves formation of a covalent protein-DNA complex” at Fifth International Congress of the Genetics, Biochemistry and Physiology of NDPKinase /NM23/AWD.13th-15th 2003, Lexington, Kentucky, USA.
- 72) Oral presentation on “Minor groove binding ligands interactions with repetitive sequences and their role in nucleosome remodeling and gene

expression” at Annual Conference of the Indian Society of Developmental Biologists. 17th - 20th 2002, IIT Kanpur.

- 73) A paper presented on “Design and synthesis of a sequence specific novel Hoechst 33258 analogue: Physicochemical and biological studies” at 5th world conference on SCI. 22nd– 25th July 2001.
- 74) Participated in National Symposium of Green Chemistry. January 1999, Department of Chemistry, University of Delhi.
- 75) Invited talk on “Current status of oral and implantable contraceptive agents” at Frontiers in Biomedical Research. November 1998, Dr. B. R. Ambedkar Centre for Biomedical Research, University of Delhi.
- 76) Oral presentation on “Current Status of oral and implantable contraceptive agents” at Frontiers in Biomedical Research. November 1998, Dr. B. R. Ambedkar Centre for Biomedical Research, University of Delhi.

INTERNATIONAL AND NATIONAL RESEARCH PROJECTS

GRANTS COMPLETED

1. Project Title: Antisense oligonucleotides as chemotherapeutic agents: Physico-Chemical and Biological Studies (PI) **Funding Agency: DST.** Amount: 8 Lakhs. Duration: 2001 –03.
2. Project Title: Synthesis of Oxandrolone, **Funding Agency: Hikma Pharmaceuticals,** Jordan. Amount: \$ 15000. Duration: 2002–03.
3. Project Title: Inhibition of HIV-1 replication: Design, synthesis and characterization of small molecule libraries. (Co–PI) **Funding Agency: UGC.** Amount: 9.5 Lakhs. Duration: 2004 –07.
4. Project Title: Structure activity relationship studies of marine natural products – Apratoxins, (PI) **Funding Agency: UGC.** Amount: 4.6 Lakhs. Duration: 2004–07.
5. Project Title: Drug target validation and antiinfective development for HIV/AIDS and associated infections, **Funding Agency: Swedish International Development Cooperation Agency (SIDA)** under the Asian-Swedish Research Partnership Programme. Amount: Total 324 000 SEK. Duration: 2005–2007.
6. Project Title: Nutritional and hypoglycemic effect of fruit pulp and leaves of *Annona squamosa*. **Funding Agency: ICMR.** Amount: 4.76 Lakhs. Duration: 2002 –2005.
7. Project Title: Identification and characterization of antidiabetic compounds from *Annona squamosa* and *Ocimum sanctum*. **Funding Agency: ICMR.** Amount: 11.50 Lakhs. Duration: 2005 –08.
8. Project Title: Synthesis and characterization of DNA minor groove binding ligands for biological applications. **Funding Agency: INMAS, DRDO.** Amount: 11.20 Lakhs. Duration: 2005 –08.
9. Project Title: Investigation of the characteristics of the biologically active

- systems using the probes showing proton transfer & electron transfer behaviours: Synthesis and photophysics **Funding Agency: DST**. Amount: 25 Lakhs. Duration: 2005 –2008.
10. Project Title: Radioprotectors against radiation induced damage in normal cells during radiotherapy in cancer: Development and molecular mechanism study. **Funding Agency: DST** Amount : Rs.23 Lakhs. Duration: 2005–09.
 11. Project Title: Investigating the molecular mechanism of action of non-toxic radioprotectors. **Funding Agency: DBT**. Amount: 41.50 Lakhs + Overhead. Duration: 2005-09.
 12. Project Title: DNA Topoisomerase I - Design, synthesis and characterization of novel benzimidazoles and an insight into mechanism of selective inhibition of bacterial Topoisomerase I by these molecules. **Funding Agency: CSIR**. Amount 25 Lakhs. Duration: 2009–12.
 13. Project Title: Synthesis and characterization of modified peptide nucleic acid having pyrazolo(3, 4-d) pyrimidine as base analogues and its antisense effect (PNA) on dimerization and translational frameshifting of HIV-1. **Funding Agency: UGC**. Amount:11.65 Lakhs. Duration: 2009 –12.
 14. Project Title:Design and synthesis of new class of DNA intercalating agent under PURSE scheme.**Funding Agency:Delhi University**.Amount;28.7 lakhs. Duration: 2009 – 12. (Co –Investigator).
 15. International Collaborative Project: Indo South Africa INT/SAFR/P (2/2011) – 03/10–2011) Design synthesis and evaluation of 1,2–dihydroisoquinolines as HIV integrase inhibitors. **Funding Agency: DST**, India. & South Africa jointly. Amount:8 lakhs, PIs are from: University of Delhi and Johannesburg Medical School. Duration: 2011–13.
 16. Project Title: International collaborative Project: Indo German Project; Validation and testing of DNA binding ligands as radiomodulator in human cells. PIs from University of Delhi & Essen Medical School, University of Duisburg, Essen, Germany. Duration:2011-13.
 17. Project Title: Development of bisbenzimidazole as *E. coli* topoisomerase inhibitor:
Funding Agency: CSIR. Amount; 25 lakhs. Duration: 2012 –15.
 18. Project Title: Design, synthesis and biological evaluation of novel indole and 2,3–dihydro-1H-indenederivativesinthesearchofpotentHIV-1integrase inhibitors. **Funding Agency: DST**. Amount : 55.00 Lakhs , Duration:2013 –16.
 19. Project Title: Design and synthesis of a library of heterocyclic compounds and their biological evaluation as antibacterial agents with special references to topoisomerase inhibitors. **Funding Agency: UGC**. Amount: 12 Lakhs, Duration: 2014–16.

RUNNING GRANTS

1. Project Title: DMA, A Bisbenzimidazole to take it to Early Phase trials as a Radiomodulator to Normal Cells for Cancer Radiotherapy in Patients. ICMR approved funding to INTOX Pvt. Ltd., Pune : 1.6 Crores and Eurofin Advinus Pvt. Ltd., Bangalore : 95 lakhs for GMP grade synthesis of DMA followed by IND enabling studies.
2. Project Title: DMA, Benzimidazole as a Radiomodulator/Radioprotector to normal Cell for Cancer Radiotherapy , Funding Agency : BIRAC- PACE . Duration 12 months, 48.21 lakhs. 2019-20.
3. Project Title : A multi scale approach to Combat the Mechanisms of Antimicrobial Resistance through PPEF a known bacterial Topoisomerase Inhibitor DBT-BIRAC: 779.92 Lakhs, Duration : 2019-22.
4. Project Title: A novel approach to study the genomic and functional effect of bisbenzimidazoles: in accordance to develop broad- spectrum antibacterial effect. Funding Agency: **DST-SERB** (EMR/2017/000454). Duration: 2018-2021; Rs.50Lakhs.
5. Project Title:“Development of single-cell derived clonal Spheroids as a tool for drug discovery in cancer research”. Funding Agency: **DST** LetterNo.VI-D&P/546/2016-17/TDT.(G)under Drug Pharma Research Project(DPRP) Duration: 2018-2021; Grant Rs. 5.85 lakhs. (Co–PI).
6. Project Title: Investigation of effect of bisbenzimidazole on bacterial population dynamics: In accordance to develop broad spectrum antibacterial agent. Funding Agency: **DBT** (BT/PR20794/MED/29/1057/2016). Duration: 2017 – 2019; Grant Rs. 80 Lakhs.
7. Project Title: Development of point-of-care kit for rapid detection of bacterial antimicrobial resistance and prescription of appropriate therapy. Funding Agency: **UPE-II grant**(UPE-II/IG/16-17). Duration:2017–2018;GrantRs. 5Lakhs.
8. Project Title: Development of agents for tuberculosis therapy and mechanistic elucidation through genomics and proteomics. Funding Agency: **UPE-II grant**. Duration: 2014 – 2019. Grant Rs.11 Lakhs.

PRESENT/PAST RESEARCH COLLABORATIONS & JOINT SUPERVISION OF STUDENTS

1. Prof. B. Jayaram, IIT-Delhi, India
2. Prof. RituAneja, Department of Biology, GSU, Atlantam USA
3. Prof. RajniGand, Head Microbiology Department VMMC & associated Safdarjung Hospital, New Delhi
4. Prof. Madhubala , IOP ICMR, New Delhi
5. Prof .Yuk Ching TseDinh , Deptt of Chemistry& Biochemistry, Florida University, USA
6. Prof. George Iliakis, Germany
7. Prof. Michael J. Gait, MRC, Cambridge, UK
8. Prof. Akhil C Banerjea , National Institute of Immunology, New Delhi
9. Prof. R P Ojha, DDU, Gorakhpur

10. Dr. G S Kumar, IICB, Kolkata

11. Prof. Liam Good, UK

12. Prof. Yogender Singh, Department of Zoology , Delhi University

13. Prof. Akhilesh K Verma, Department of Zoology, Delhi University
14. Prof. B S Dwarakanath, Department of Zoology, Delhi University
15. Prof. Anil K Mishra, INMAS, DRDO ,New Delhi
16. Dr. Rajendra C. Joshi , CDAC,Pune
17. Dr. ManjuBala, STD Clinic , Safdurjung Hospital, new Delhi
18. Dr. ParthaSarathi Das, IIT,Dhanbad
19. Dr. Wenjin Zhou, UMASS,USA
20. Dr. Sunil Krishnan, Radiation Biology, MD-Anderson,USA
21. Dr. VikramBhadrasain, Director, NCI,USA
22. Prof. J. S. Viridi , Department of Microbiology, DelhiUniversity
23. Prof. R. P. Singh , School of Life Sciences,JNU
24. Prof. DebendraMohapatra, IICT,Hyderabad
25. Prof. P. V. Bharatam , NIPER,Mohali

WORKSHOP/SEMINARS/ PROGRAMS/ CONFERENCES ORGANIZED

- Coordinator of 2nd and 3rd Convocation of Jawaharlal Nehru University held on 8th August 2018. And 11th November 2019.
- Convener of Women Conclave 2019 Organized along with DST at JNU on 8th March 2019 on a theme "Balance for Better". 150 Women participated from all over India.
- Convenor of Women's Day Celebration on 8th March 2018 on the theme "Women for Science and Science for Women".
- Convenor of Poetry, Essay & Poster Making Competition on Women's Day Celebration on 8th March 2018 at JNU on "Press for Progress".
- Convenor of Workshop on Sexual Harassment of Women at Work Place (Prevention, Prohibition and Redressal) (SHWWP Act, 2013) Organized at JNU from 1st-2nd May 2018.
- Started a Distinguished Lecture Series at JNU and invited several Scientists, Philanthropists, Writers, Socialist such as Padma Vibhushan M.S. Valiathan, Padma Shree Balaram Bhargava Padma Vibhushan Dr. Manju Sharma, Prof. Javed Iqbal,
- Prof. V. Nagaraja , CEO of Sun Pharma etc. UG & PG students of DU, JNU, Jamia, Amity, IGIB, DU Colleges, NII, IUAC, ICGEB, NIPGR , IP University, DTU attended and benefitted a lot.
- Coordinator of National Science Day Symposium, 28th February 2019, celebrated at JNU in collaboration with DST, Govt. of India – Participants, Students and faculties from all science schools of JNU, DU, Jamia, ICGEB, NII, IUAC along with DST scientists.
- Organizing Committee member of Indo-US workshop on Drug Repurposing for improving radiotherapy of cancer at Shri Ramachandra University, Chennai, 13th November 2017.

- Coordinator of “National Science Day” Symposium, 28th February 2018, celebrated at JNU in collaboration with DST, Govt. of India – Participants, Students and faculties from all science schools of JNU, DU, JamiaMiliaIslamia, JamiaHamdard. ICGEB, NII, IUAC alongwith DSTscientists.
- Convenor Organizing Committee of "Seventh Symposium on Frontiers on Molecular Medicine" on 23- 24th March 2017 at Special Centre for Molecular Medicine,JNU.
- CoordinatorofNationalScienceDay2017“ScienceandTechnology for Specially Abled Persons” on 28th February 2017 at Jawaharlal NehruUniversity.
- Convenor of "Instructional Workshop on Computational Drug Discovery" on 9- 11th August 2016 at Special Centre for Molecular Medicine, JNU under the umbrella of NNMCB, DelhiChapter.
- Member Organizing committee of " Sixth Symposium on Frontiers on Molecular Medicine" on 13- 14th February 2015 at Special Centre for Molecular Medicine,JNU.
- ConvenorofWorkshopandConferencejointlyorganizedbyDepartmentof Chemistry and Three National Science Academies of India (INSA Delhi, IAS Bangalore, NASI Allahabad) entitled “Emerging Trends of Drug Development & Devices (ETDDD- 2013)” from 21st – 23rd January2013.
- Convenor of International Conference on “Chemistry Biology Interface: Synergistic New Frontiers” 21st – 26th November,2004.
- Coordinator of Summer Undergraduate Research Program (SURP) at ACBR in 2004, 2005,2006 funded by UGC for 10weeks.
- Co-convenor of III “Annual Symposium on Frontiers in Biomedical Research” New Delhi, 14th –16th, April2004.
- Member Organizing Committee 40th Annual Convention of Chemists (Annual Meeting of Indian Chemical Society) held at Bundelkhand University, Jhansi, 23rd – 27th December 2003.
- Member organizing committee for annual Seminar/Symposia organized by ACBR.
- Member of organizing committee of 7thWorld congress on Nanomedicine, January 2019 at VigyanBhawan, New Delhi by Department of Chemistry &JamiaHamdardJointly.
- Member of organizing committee of ETDDNP, 12-14 January 2018 at Department of Chemistry, University ofDelhi.

Membership and Fellowship of Professional/Academic Bodies, Societies etc.

- Member- Indian Science Congress Association, Calcutta.
- Member- Indian Chemical Society, Calcutta.
- Member- Asian Federation of Clinical Pharmacologists.
- Member- Indian Society of Analytical Scientists.
- Member- Society of Biological Chemists, India.
- Member- Chemical Research Society, India.
- Member- Society of Clinical Biochemists, India.
- Member - Indian Society for Radiation Research, India