




Faculty Details



Title	Professor	First Name	Gagan	Last Name	Dhawan	Photograph
Designation	Professor					
Address	Acharya Narendra Dev College University of Delhi Govind Puri, Kalkaji New Delhi-110 019					
Phone No Office	+91-11-26412547; Ext: 237					
Residence	+91-11-25087633					
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Email	gagandhawan@andc.du.ac.in					
Web-Page	http://andcollege.du.ac.in					
Educational Qualifications						
Degree	Subject	Institution				
B.Sc. (Hons)	Chemistry	University of Delhi, India				
M.Sc.	Biomedical Science	University of Delhi, India				
Ph.D.	Biomedical Science Specialization: Bioorganic Chemistry	CSIR-Institute of Genomics and Integrative Biology and University of Delhi, India				
M.S.	Bioinformatics	University of Edinburgh, UK				
Post Doctorate	Medicinal Chemistry	University of Massachusetts, Boston, USA				
Career Profile						
<ul style="list-style-type: none"> ● UGC-Raman Fellow and Adjunct Faculty (2016-17) for one year at Department of Chemistry, University of Massachusetts, Boston, USA. ● Visiting Scientist (June, 2013) at School of Chemistry, University of Edinburgh, UK. ● Visiting Scientist (June, 2012) at Institute of Structural and Molecular Biology, University of Edinburgh, UK. ● Visiting Faculty (August, 2011) at Laboratoire de Chimie des Polymères Organiques (LCPO), University of Bordeaux, France. ● Visiting Fellow (September, 2010- September, 2011), School of Biological Sciences, College of Science and Engineering, University of Edinburgh, UK. ● Assistant Professor, Department of Biomedical Science, Acharya Narendra Dev College, University of Delhi, since August 07, 2000. ● Research Chemist, Pre-clinical Pharmacokinetics and Drug Metabolism Division, Ranbaxy Research Laboratories, Gurgaon from June 26- August 06, 2000. 						
Administrative Assignments						
<p>University</p> <ul style="list-style-type: none"> ● Member, Department Research Committee (Biomedical Science), ACBR, University of Delhi (April 2021-Till date) ● Nodal Officer, Open Book Examinations, University of Delhi (April, 2020-Till date) ● Member, Committee of Courses (Biomedical Sciences), University of Delhi (July, 2015-2017) ● Member, Board of Research Studies (Sciences), University of Delhi (February, 2014-2016) <p>College</p> <ul style="list-style-type: none"> ● Member, Governing Body of the college (September, 2021-Till Date) ● Member, Internal Quality Assurance Cell (IQAC) and NAAC (July, 2021-Till Date) ● Convener/SPOC, NPTEL Local Chapter @ ANDC, University of Delhi (August 2018-Till date) ● Convener, Environment Society (January 2019-Till date, Member, April 2017-December, 2018) 						

- Deputy Superintendent (Examinations) (April, 2018- Till date and April, 2012-March, 2014)
- Member, Sports Committee (June, 2020-Till date)
- Member, NSS Team of the college (April, 2018-June, 2020)
- Member, Finance committee of the college (April, 2014-July, 2018)
- Member, Academic Events Management committee of the college (April, 2014-March, 2016)
- Member, Committee to screen the project proposals submitted to UDGAM-ANDC Business Incubator funded by ministry of Micro, Small and Medium Enterprises, Government of India (2014-15)
- Member, Academic Events Management committee of the college for University of Delhi Cultural Festival "Antardhwani" (February, 2013; 2014 and 2015)
- Member, Committee for distribution of laptops (2013-15)
- Teacher-in-Charge, Department of Biomedical Science (January, 2012-March, 2014 and January, 2002-June, 2004)
- Faculty Coordinator, Journal Club of the Department of Biomedical Science.
- Member, Departmental Purchase, Admissions, Time-Table Committee (January, 2001-Till Date)
- Member, Departmental moderation committee for internal assessment (January, 2002-Till Date)
- Member, Professional Development and Faculty Enrichment Committee (April, 2012-March, 2014 and April, 2002-March, 2010)
- Member, Proctorial/ Discipline Committee (September, 2011- March, 2012 and April, 2002-August, 2010)
- ANDC Governing Body Member (Teacher Representative under the category of less than 10 years of service) (2010-11)

Areas of Interest / Specialization

Chemical Biology

- Design and development of natural polymer based smart self-assembled nanostructures and hydrogel system for biomedical applications
- Design and development of synthetic nano-vectors for delivery of biomolecules
- Green synthesis and antimicrobial activity of silver nanoparticles
- Understanding the molecular mechanism of potential antiviral strategy: UPR and autophagy crosstalk
- Design, synthesis and biological evaluation of oxindole-based isoxazolines towards the analog synthesis of marine natural product Flustraminol B

Computational Biology

- Use of open source tools integrating bioinformatics and cheminformatics for addressing complex problems in biology
- Predicting the habitat of the bacteria and high-throughput data analysis for drug discovery using machine learning approach
- Virtual screening of potential inhibitors against efflux pumps of *Mycobacterium tuberculosis* and predicting the accumulation of molecules on the basis of their structural features.
- *In silico* docking and identification of a library of chemicals for specific screening against bromodomains.

Subjects Taught

Teaching Experience: ~22 Years
Bioorganic Chemistry, Medicinal Chemistry, Biophysics, Immunology, Computational Biology and *in silico* Drug Design.

Research Guidance

Recognized as Research Guide by Board of Research Studies, Faculty of Science, University of Delhi

PhD Scholars

- Ms. Indu Singh, BPharm, MPharm (DST Inspire Fellow)
- Ms. Nishtha Agarwal, BSc, MS
- Mr. Harekrushna Jena, BSc, MSc, MPhil
- Ms. Heerak Chugh, BSc, MSc (CSIR-JRF)

Member, Research Advisory Committee

- Ph.D scholar (Ms. Sneha Rai) registered at Division of Biotechnology, NSIT, Delhi
- Ph.D scholar (Ms. Mitali) registered at ACBR, University of Delhi

- Mentored one year **M.Tech (Bioinformatics)** Dissertation of Ms. Pallawi Kumari, Banasthali Vidyapeeth, Jaipur (01 July, 2014-30 May 15).
Title of the thesis: Functional characterization of hypothetical proteins of *Plasmodium falciparum*.
- To inculcate the culture of innovation and entrepreneurship among students in the college and to encourage them to pursue science as a career, every year, I supervise 6-8 students as part of their Dissertation/ ELITE summer projects.

Publications Profile

Journal Publications

Reviews and other Invited Articles

1. Fluorine-containing pharmaceuticals approved by the FDA in 2020: Synthesis and biological activity; *Chinese Chemical Letters*, **2021**, 32(11), 3342-3354. [IF: 6.779]
2. Mannosylated and mannan-modified nanovectors targeting resident tissue macrophages (RTM) for efficient pharmacotherapy; *Trends in Carbohydrate Research*, **2021**, 13(1), 71-81. [IF: 1.07]
3. Targeting UPR: A new horizon for disease control; *Expert Reviews in Molecular Medicine*, **2021**, 23, e1, 1-12. [IF: 5.6]
4. Recent advances in polydopamine-mediated antimicrobial adhesion system; *Frontiers in Microbiology*, **2021**, 11, 607099. [IF: 5.64]
5. A comprehensive review on potential therapeutics interventions for COVID-19; *European Journal of Pharmacology*, **2020**, 890, 173741. [IF: 4.432]
6. Role of gold and silver nanoparticles in cancer nano-medicine, *Artificial Cells, Nanomedicine, and Biotechnology*, **2018**, 46(1), 1210-20. [IF: 5.678]
7. A brief overview of chemical and biosynthesis of vanillin flavor; *J. Shanghai Inst. Tech. (Nat. Sci.)*, **2017**, 17, 102–111.

Original Research Papers

8. Exploring the role of framework mutations in increasing the breadth of cross-reactive antibody (CR3022) against the SARS-CoV-2 RBD and its variants of concern; *Journal of Biomolecular Structure and Dynamics*, **2022** (Accepted) [IF: 3.392]
9. Development of dimethylisoxazole-attached imidazo[1,2-a]pyridines as potent and selective CBP/P300 inhibitors; *Journal of Medicinal Chemistry*, **2021**, 64(9), 5787-5801. [IF: 7.446]
10. Self-assembled biodegradable core-shell nanocomposites of amphiphilic retinoic acid-LMW bPEI conjugates exhibit enhanced transgene expression in hepatocellular carcinoma cells with inherent anticancer properties; *Journal of Pharmaceutical Sciences*, **2021** 110(8), 3047-3060. [IF: 3.534]
11. Synthesis and characterization of nano-selenium: A step-by-step guide for undergraduate students; *Journal of Chemical Education*, **2021**, 98(9), 2982-2989. [IF: 2.979]
12. Ex-vivo binding studies of anti-cancer drug nescapine with human hemoglobin: spectroscopic and molecular docking study; *New Journal of Chemistry*, **2021**, 45, 1525-1534. [IF: 3.288]
13. Antimicrobial, radical scavenging, dye degradation and non-toxic potential of biogenic silver nanoparticles using *Cassia fistula* pods; *Chemical Papers*, **2020**, 75(3), 979-991. [IF: 2.097]
14. Polydopamine-aminoglycoside nanoconjugates: synthesis, characterization, antimicrobial evaluation and cytocompatibility; *Materials Science & Engineering C*, **2020**, 107, 110284. [IF: 7.328]
15. Recyclable organocatalysts for one-pot asymmetric synthesis of dihydrofuranone and tetrahydropyranone spirooxindoles; *European Journal Organic Chemistry*, **2019**, 1, 150-155. [IF: 3.021]
16. Structure-guided design and development of potent and selective dual Bromodomain 4 (BRD4)/Polo-like kinase 1 (PLK1) inhibitors; *Journal of Medicinal Chemistry*, **2018**, 61, 7785-7795. [IF: 7.446]
17. Sequential [3+2] cycloaddition and [5+n] annulation reactions for modular synthesis of dihydrobenzoxazines, tetrahydrobenzoxazepines and tetrahydrobenzoxazocines; *Green Chemistry*, **2018**, 20, 3134-3139. [IF: 10.18]
18. One-pot and catalyst-free synthesis of pyrroloquinolinediones and quinolinedicarboxylates; *Green Chemistry*, **2017**, 19, 3851–3855. [IF: 10.18]
19. Influenza pandemics and the associated bacterial infections; *Austin Journal of Microbiology*, **2017**, 3(1), 1017. [IF: 1.2]
20. Virtual screening of potential inhibitors against efflux pumps of *Mycobacterium tuberculosis*; World Academy of Science, Engineering and Technology, International Science Index, *Biotechnology and Bioengineering*, **2016**, 10(4), 378.

21. An explorative study on knowledge and awareness of health problems related to usage of fabric dyes by road side dyers in Delhi, India; *DU Journal of Undergraduate Research and Innovation*, **2015**, 1(3), 20-25.
22. Facile and rapid deprotection conditions for the cleavage of synthetic oligonucleotides from 1,4-anhydroerythritol-based universal polymer support; *Nucleoside, Nucleotides and Nucleic Acids*, **2015**, 34:3, 149-162. [IF: 1.556]
23. Polyamine assisted rapid and clean cleavage of oligonucleotides from cis-diol bearing universal support; *Nucleic Acids Research*, **2012**, 30 (23): e130. [IF: 16.97]

Journal Papers in Review

24. Bioreducible self-assembled dual-functional branched polyethyleneimine core-shell nanocomposites for efficient gene and drug delivery; *Journal of Pharmaceutical Sciences*
25. Prophylactic and therapeutic candidates against SARS-CoV-2: Status and new prospects for its control; *Indian Journal of Pharmacology*.
26. Polydopamine-aminoglycoside nanoconjugate functionalized surfaces for combating bacterial biofilm formation and augmenting cell migratory effect. (MSS under preparation)
27. Pharmacological manipulation of UPR: Potential antiviral strategy against chikungunya virus. (MSS under preparation)

Book Chapter(s)

1. Integrated Omics Approaches to Infectious Diseases (ISBN: 978-981-16-0690-8) Springer-Nature Publication, Singapore (**2021**). "Nanoparticles as therapeutic nanocargos affecting epigenome of microbial biofilms".
2. Integrated Omics Approaches to Infectious Diseases (ISBN: 978-981-16-0690-8) Springer-Nature Publication, Singapore (**2021**). "Microarrays: A road map to uncover host pathogen interactions".
3. Pathogenicity and Drug resistance of Human Pathogens: Mechanisms and Novel Approaches (ISBN 978-981-329-449-3) *Springer-Nature*, Singapore (**2019**). "Nanobiotechnology: Current and future perspectives in combating microbial pathogenesis".

Book Chapter(s) in Review

4. Understanding the pharmacology and pharmacotherapeutics for infectious diseases. *Nanotechnology for Infectious Diseases* (Springer-Nature Publication, Singapore).
5. The bacterial communication system and its interference as an antivirulence strategy. *Bacterial Survival in the Hostile Environment* (Elsevier)

Editorial Assignments

- Associate Editor, Current Research in Drug Discovery

Member Editorial Board

- Biology Insights
- Technology in Cancer Research & Treatment (SAGE Publishers)

Peer-Reviewed Articles for:

- Organic and Biomolecular Chemistry (RSC, London)
- Chemical Communications (RSC, London)
- Scientific Reports (Nature Publishing House)
- Polymer International (Wiley)
- Therapeutic Advances in Medical Oncology (SAGE Publishers)
- Agriculture and Food Security- BMC (Part of Springer Nature)
- Chemical Papers (Springer)
- IET Nanobiotechnology (Wiley)
- Chemistry and Biodiversity (Wiley)
- BioTechnologia

Member, Research Advisory Committee:

- Ph.D scholar (Ms. Sneha Rai) registered at Division of Biotechnology, NSIT, Delhi
- Ph.D scholar (Ms. Mitali) registered at ACBR, University of Delhi

Conference/ Workshops/ Summer School Organization/ Presentations**Workshops/ Summer School Organized:****International:**

- Summer School on Green Chemistry (July 1-20, 2017) organized for students of Kyung Hee University, Republic of Korea.
- Summer School on Green Chemistry, Medicinal Chemistry, Computational Drug Discovery (July 14-21, 2017) organized for students of Changzhou University, China.

National:

- Convener, Workshop on Learning R programming Skills and Applications to Proteomics (March 15-16, 2019) at ANDC, University of Delhi in association with CSIR-IGIB, New Delhi.
- Course Coordinator, Workshop on Computational Methods in Drug Discovery (August 9-11, 2016) organized by Special Centre for Molecular Medicine, JNU, New Delhi and National Network on Mathematical Modeling and Computational Biology (NNMCB), supported by Science and Engineering Research Board, Government of India.
- Course Coordinator, Pre-Entrance Summer School (M.Sc-Ph.D Combined Degree Program in Biomedical Science), (May 28-June 13, 2016), organized by Institute of Life Long Learning, University of Delhi.
- Convener, Instructional Workshop on Proteomics and Proteogenomics: Hands-on Protein Identification and Gene Discovery from Mass Spectrometry Data, (October 2-4, 2015) jointly organized by Acharya Narendra Dev College and National Network on Mathematical Modeling and Computational Biology (NNMCB), supported by Science and Engineering Research Board, Government of India.
- Convener, Instructional Workshop on Gene Expression Analysis: Hands-on using Microarray and Next Generation Sequencing Data, (March 7-9, 2015), jointly organized by Acharya Narendra Dev College and National Network on Mathematical Modeling and Computational Biology (NNMCB), supported by Science and Engineering Research Board, Government of India.
- Course Coordinator, add-on Certificate course (approx. 120 hours) in Bioinformatics and *in silico* Drug Discovery jointly organized by Acharya Narendra Dev College and Bhaskaracharya College of Applied Sciences started since August 2012.

Symposium/ Conferences Organized:

- Convener, National Webinar on Our Environment and COVID-19 (June 5, 2020)
- Convener, National Conference on Redefining Science: Future of Education at University of Delhi, South Campus, New Delhi (March 7-9, 2013).
- Convener, National Symposium on Chemistry in Biology: The Future of Life Science at India International Center, New Delhi (February 12-13, 2010).
- Convener, National Symposium on Biotechnology: Expanding Horizons at Indian National Science Academy, New Delhi (October 17-18, 2003).
- Coordinator, National Symposium on Contemporary Environmental Concerns-2018 at Acharya Narendra Dev College, University of Delhi (March 15-17, 2018)

Seminar/ Panel Discussions Organized:

- Coordinator, National Seminar on Vigilance, Corruption and Transparency in Governance - A Re-assessment on the occasion of Vigilance Awareness Week 2021 being organized in association with Vivekananda College and Daulat Ram College, University of Delhi on November 1, 2021.
- Coordinator, Youth Panel Discussion on Sustainable Development Goals during Ecosystem Restoration Month organized in association with Vivekananda College and Daulat Ram College, University of Delhi from June 5 to July 3, 2021.

Conference Chair

International:

- Chairperson of a Scientific Session at 4th International Conference on Innovative Approaches in Applied Science and Technologies (iCiAsT-2019) June 25-29, 2019 at University of Kuala Lumpur, Malaysia

National:

- Chairperson of a Scientific Session at National Conference on Emerging Trends in Ayurvedic and Biomedical Sciences, February 19-20, 2020 at Bundelkhand University, Jhansi.

Invited Lecture/ Presentation

International: 09 **National:** 28

International:

- Invited to deliver a lecture at 13th annual conference on Advances in Cell and Tissue Culture 2021 (ACTC 2021) on November 3, 2021
Title of my talk: Exploring the effect of polydopamine-aminoglycoside nanoconjugates for combating bacterial biofilms and augmenting cell migratory effect.
- Invited to deliver a lecture and hands-on session on "Computational Biology and Drug Design" in ASEAN-INDIA Training Workshop-2019 on Emerging Technologies for Young Biotech Professionals from ASEAN Countries, September 20-28, 2019 at CSIR-IGIB, New Delhi.
Title of my talk: Computational Design, Synthesis, screening and docking studies of bromodomain inhibitors.
- Invited to deliver a Plenary lecture at iCiAsT 2019 @ Kuala Lumpur, Malaysia (June 25-29, 2019).
Title of my talk: Structure-guided design, synthesis, screening and docking studies of selective and potent bromodomain inhibitors.
- Adjunct faculty for teaching Organic Chemistry course for full semester (2016-17) at Department of Chemistry, University of Massachusetts, Boston, USA.
- Invited at Institute of Biomedical Science, Georgia State University, Atlanta, USA to give a lecture on August 4, 2017.
Title of my talk: Design, synthesis, screening and docking studies of selective and potent bromodomain inhibitors.
- Invited at Department of Radiation Oncology and Environmental Health Sciences, University of Michigan, USA to discuss his research on August 21, 2017.
Title: Computational design of novel PAD4 inhibitors.
- International Symposia on Fluorous Technologies (iSOFT Boston 2017), August 9-11, 2017, Tufts University, Boston, Massachusetts, USA
Title: Novel synthetic strategy for metal-free di-/tri-fluoromethylthiolation and per-fluoroalkylthiolation reactions.
- Resource Person at Summer School on Green Chemistry (July 1-20, 2017) organized for students of Kyung Hee University, Republic of Korea.
- Resource Person at Summer School on Green Chemistry, Medicinal Chemistry, Computational Drug Discovery (July 14-21, 2017) organized for students of Changzhou University, China.

National:

- Invited lecture at AICTE-ATAL Face to Face Faculty Development Programme (FDP) on Drug Discovery & Design in 21st Century, July 5-9, 2021 at Netaji Subhas University of Technology (NSUT), Dwarka, New Delhi.
Title: Hunting for new drugs: Molecular insights into drug discovery
- Invited for Inaugural lecture at National Workshop on Basics of Molecular Biology and Nanobiotechnology Techniques, February 26-29, 2020 at IIS University, Jaipur.
Title: Scope of biotechnology: An insight into drug discovery
- Invited lecture at National Conference on Emerging Trends in Ayurvedic and Biomedical Sciences, February 19-20, 2020 at Bundelkhand University, Jhansi.
Title: Polydopamine-aminoglycoside nanoconjugates as novel biomaterials for medical applications
- Invited lecture for research scholars for PhD coursework on January 16, 2020 at ACBR, University of Delhi.
Title: Mass spectrometry based Proteogenomics data analysis
- Invited lecture at National Conference NanoBioTech-2019 organized by Special Center for Nanoscience, JNU in collaboration with National Institute of Immunology, December 19-21, 2019 at Convention Center, JNU, New Delhi.

Title of my talk: Exploring the potential of polydopamine-aminoglycoside nanoconjugates as novel biomaterials for medical applications.

- Invited lecture and Resource Person at CSIR Integrated Skill Initiative DIY (Do It Yourself) workshop on Biomedical data mining from biomedical literature from at CSIR-IGIB, Delhi, July 4-5, 2019.

Title of my talk: Data mining and drug discovery.

- Resource Person in the workshop on "Learning R programming Skills and Applications to Proteomics" held on March 15-16, 2019 organized by ANDC, University of Delhi in association with CSIR-IGIB, New Delhi.

Title: Introduction to proteomics and mass spectrometry data analysis and Hands-on session.

- Invited lecture on February 26, 2019 at Amity Institute of Biotechnology, Amity University, Gurgaon.

Title of my talk: Structure-guided Design, synthesis, screening and docking studies of selective and potent bromodomain inhibitors.

- Invited lecture in a two-day symposium: Safety Measures & Laboratory Ethics organized by ANDC, University of Delhi, February 21-22, 2018.

Title of my talk: A hitchhiker's guide to safety in the science lab.

- Invited Lecture in Computational Methods in Drug Discovery organized by Special Centre for Molecular Medicine, JNU, New Delhi and National Network on Mathematical Modeling and Computational Biology (NNMCB), supported by Science and Engineering Research Board, Government of India from August 9-11, 2016.

Title of my talk: Virtual screening and molecular docking followed by Hands-on Session.

- Invited Lecture at Interdisciplinary Refresher course in Contemporary Studies (Natural Sciences, Education, Biological Science, Environmental Demography and Sociology) (June 7- 27, 2016) organized by CPDHE, University of Delhi on June 09, 2016.

Title of my talk: Machine learning in biology.

- Resource Person, Pre-Entrance Summer School for M.Sc-Ph.D combined degree program (Biomedical Science) from May 28 -June 13, 2016, organized by ILL, University of Delhi.

- Resource Person for third batch (2015-16) of Certificate Course in Bioinformatics and *in silico* Drug Discovery (BIDD) jointly organized by ANDC and BCAS, University of Delhi.

- Invited Lecture in International Conference on Biotechnology and Nanotechnology organized by the IIS, University, Jaipur from January 30 to February 01, 2016.

Title of my talk: High-throughput data analysis for drug discovery using machine learning.

- Invited lecture in a training program for the teachers of Higher Secondary Stage in Biology (Biology PGTs) from February 1-5, 2016.

Title of my talk: Chemistry of molecular cloning.

- Invited lecture at Annual Symposium on Frontiers in Biomedical Research-2015 (FBR-2015) Comprehending Genes @ work: From Structural Biology to Drug Discovery, October 29-31, 2015 organized at Conference Centre, University of Delhi.

Title of my talk: Drug Discovery from high-throughput data to a drug *in silico* model using machine learning.

- Resource Person in Instructional Workshop on Proteomics and Proteogenomics: Hands-on Protein Identification and Gene Discovery from Mass Spectrometry Data, October 2-4, 2015 jointly organized by Acharya Narendra Dev College and National Network on Mathematical Modeling and Computational Biology (NNMCB), supported by Science and Engineering Research Board, Government of India.

Title of my talk: Introduction to proteomics and mass spectrometry data analysis and Hands-on session.

- Resource Person in Interdisciplinary Refresher Course in Computer science Bioinformatics and Information Technology organized by ASC-HRDC-JNU, Delhi from August 24-September 18, 2015.

Title: Teaching and research in computational biology and *in silico* drug discovery.

- Resource Person in an Instructional Workshop on Gene Expression Analysis: Hands-on using Microarray and Next Generation Sequencing Data, March 7-9, 2015, sponsored by National Network on Mathematical Modeling and Computational Biology (NNMCB), Science and Engineering Research Board, Government of India.

Title of my talk: The past, present and future of DNA sequencing and Hands-on session.

- Resource person in the workshop on "Proteomics and Proteogenomics" (January 10-11, 2015) organized by Department of Biomedical Science, BCAS, University of Delhi under Star College Scheme of Department of Biotechnology, Government of India.

Title of my talk: Mass spectrometry-based approach coupled to computational tools for proteomics and Hands-on session.

- Resource person in the workshop on "Statistical Analysis of Biological Data" (October 9-11, 2014) organized by Department of Biomedical Science, BCAS, University of Delhi under Star College Scheme of Department of Biotechnology, Government of India.

Title of my talk: Hypothesis testing in statistical data analysis and Hands-on session.

- Resource person in an add-on certificate course in Bioinformatics and *in silico* Drug Discovery (First and Second batch) jointly organized by Acharya Narendra Dev College and Bhaskaracharya College of Applied Sciences, University of Delhi (2012-13 and 2013-15).
- Resource person in the workshop on “Field trial of training package in Biology at Higher Secondary stage” for reviewing and editing the training material developed for teachers teaching biology organized Department of Education in Science and Mathematics DESM, NCERT from February 2-10, 2015.
- Resource person in workshop on “development of training package in Biology for Higher Secondary stage” (January 13-17, 2014 and March 10-13, 2014) and a part of committee constituted by NCERT for the reviewing and development of reference material for teachers (Class XI and XII).
- Invited lecture in the conference on Emerging Trends in Development of Drugs and Devices organized by Department of Chemistry, University of Delhi and three National Science Academies of India, January 21-23, 2013. Title of my talk: Drug discovery from high throughput data to a drug *in silico* model for AcrB.
- Invited lecture and Resource person in workshop on theory and practical course “Biochemistry and Environmental Chemistry” for B.Sc (Hons) Chemistry (CHHT-514 and CHHP-514) organized by Department of Chemistry, University of Delhi, July 2-7, 2012. Title of my talk: Determination of DO, BOD and COD followed by Hands-on session.
- Resource person in the workshop entitled “Development of online quizzes in Life Sciences” organized by Institute of Lifelong Learning University of Delhi and developed online quizzes (Biological Sciences) for the undergraduate students, April 13, 2009.
- Resource person in the workshop for Biology Laboratory Course of B.Sc program III year organized by Institute of Lifelong Learning and Centre for Promotion of Undergraduate Research and Training, ANDC, University of Delhi, October 21-24, 2008.

Work Presentations @ Conferences: 39

International: Oral: 04 and Poster: 08

National: Oral: 08 and Poster: 19

Symposium/ Conferences attended: 27

International: 09 **National:** 18

Refresher/ Faculty Development Programs/ Orientation Courses

- Two weeks workshop on “Basic and Advanced Proteomics Approaches” organized by IIT-Bombay, sponsored by DST, Government of India (February 15-26, 2021)
- ARPIT 2020: Online Refresher Course in Chemistry for Higher Education with Grade ‘A’ (December 1, 2020- March 31, 2021)
- International Webinar Series on “Research Integrity and Ethics” organized by Research and Project Assessment Committee of BCAS, University of Delhi (October 24, 2020 to February 17, 2021)
- One week NPTEL On-line “Lab Workshop on Computational Systems Biology” organized by IIT-Madras and NPTEL, Government of India (August 24-27, 2020)
- Ten Days Online Faculty Development Program (FDP) on “Teaching Learning and Assessment” Ministry of Education-sponsored Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching (PMMMMNMTT), to be organized by Teaching Learning Centre (TLC), Central University of Rajasthan (November 23-December 03, 2020)
- Ten Days Online MOOC Short Term Certificate Course “Know Thyself: Balancing Mind, Body and Soul” organized by Maitreyi College, University of Delhi (September 30-October 9, 2020)
- One Week Online Faculty Development Program (FDP) on “Development of Teacher’s e-Kit and MOOCs in Four Quadrant Format of e-Content” GAD-TLC, SGBT Khalsa College, University of Delhi under Ministry of Education sponsored Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching (PMMMMNMTT) (September 12-20, 2020)
- Smarter Experimentation for Chemists: Five-day online training program on “Design of Experiments” organized by Royal Society of Chemistry, London (June 22-26, 2020)
- One-week webinar cum Faculty Development Program (FDP) on “Current Progress and Future Prospects of Biotechnology” organized by CBIT, Hyderabad (June 08-13, 2020)
- American Chemical Society (ACS) Reviewer Labs-Paper Review Training Course June, 2020

- Faculty Training Program of University of Delhi to pursue master's degree in Bioinformatics from the College of Science and Engineering, University of Edinburgh, Scotland, UK (September 01, 2010- August 31, 2011)
- Refresher course in Chemistry, organized by ASC, Jamia Milia Islamia, Delhi (August 28-September 17, 2009)
- Refresher course in Computer Applications, organized by CPDHE, University of Delhi, (September 10-30, 2008)
- Refresher course in Biotechnology, organized by ASC, JNU, Delhi (April 07-May 02, 2003)
- Orientation course organized by CPDHE, University of Delhi (April 15-May 13, 2005)

Research Projects (Major Grants/Research Collaboration)

- Working in collaboration with Prof. Wei Zhang, Department of Chemistry, University of Massachusetts, Boston USA and Prof. Li Jia, Dana Farber Cancer institute, Harvard Medical School, USA in a project entitled "Development of Selective PARP-2 Inhibitors for Prostate Cancer Treatment".
- Worked in collaboration with Dr. Jan Wildenhain from School of Biological Sciences, University of Edinburgh, Scotland, UK in a project entitled "To develop a computational model using the machine learning approach to predict the accumulation of exogenous drug-like compounds in E. coli on the basis of their structural features".
- Two Months as Guest Researcher on "Green synthesis of silver nanoparticles and evaluation of their antimicrobial activities" (22 May-20 July, 2015), CSIR-Institute of Genomics and Integrative Biology, Delhi, India.
Collaborator: Dr. Pradeep Kumar, Principal Scientist, CSIR-IGIB, Delhi.
- Two Months as Guest Researcher on "Design, synthesis and characterization of metallic nanoparticles for biomedical applications" (25 May-24 July, 2014), CSIR-Institute of Genomics and Integrative Biology, Delhi, India.
Collaborator: Dr. Pradeep Kumar, Principal Scientist, CSIR-IGIB, Delhi.

Completed Research Projects:

1. Innovation Project for Colleges Scheme of University of Delhi (2015-16)
Title of the project: "Design, synthesis and biological evaluation of oxindole-based isoxazolines towards the analog synthesis of marine natural product Flustraminol-B".
Duration: One year (15 August, 2015- 14 August, 2016); Grant received: Rs. 4.5 Lakhs.
2. Innovation and Entrepreneurship Development Cell, Department of Science and Technology, Government of India (IEDC-DST) Project
Title of the project: "Extraction of microbial enzymes from kitchen waste and preparation of Biological Detergent".
Duration: One year (01 September, 2015- 30 September, 2016); Grant received: Rs. 1.0 Lakhs.
3. Innovation Project for Colleges Scheme of University of Delhi
Title of the project: "Survey-based study to identify the health hazards associated with occupational exposure of chemically reactive dyes used by dyers to color the fabrics".
Duration: One year (15 May 2012-14 May 2013); Grant received: Rs. 10 Lakhs.
4. Innovation and Entrepreneurship Development Cell, Department of Science and Technology, Government of India (IEDC-DST) Project
Title of the project: "Design and development of gold nanoparticle based optical biosensor for protease sensing".
Duration: One year (01 July 2015-30 June 2015); Grant received: Rs. 1.0 Lakhs.
5. Innovation and Entrepreneurship Development Cell, Department of Science and Technology, Government of India (IEDC-DST) Project
Title of the project Use of open source tools integrating bioinformatics and cheminformatics for addressing complex problems in biology.
Duration: One year (January-December 2013); Grant received: Rs. 1.0 Lakhs.

Awards and Distinctions

- Chartered Chemist (CChem), Royal Society of Chemistry, London, UK.
- Fellow Indian Chemical Society (FICS)
- Fellow Royal Society of Chemistry (FRSC), London, UK
- INSA Teachers Award-2020 by Indian National Science Academy, Government of India with a certificate and a cash prize of Rs. 50,000/- and a book grant of Rs. 20000/-
- Academy Mentor, Publons Academy, Web of Science.
- SERS Scientist of the Year Award-2019 at iCiAsT 2019 @ Kuala Lumpur, Malaysia, June 25-29, 2019.
- Best Poster Award at 6th World Congress on Nanomedical Sciences (ISNSCON-2018) held at Vigyan Bhavan, New Delhi from January 7-9, 2019.
- Most Promising Innovation Award-2016 for the project "Design, synthesis and biological evaluation of oxindole-based isoxazolines towards the analog synthesis of marine natural product Flustraminol-B" by Research Council, University of Delhi
- UGC-Raman Fellowship Award-2015 for Post-Doctoral Research at Department of Chemistry, University of Massachusetts, Boston, USA for a period of 12 months (2016-17).
- Meritorious Teacher Award-2014 given by Directorate of Higher Education, Government of NCT of Delhi with a certificate and a cash prize of Rs. 1,00,000/-.
- Universitas 21 Fellowship Award-2010 to do Master's Degree in Bioinformatics from University of Edinburgh, UK under University of Delhi Faculty Training Program.
- CSIR-Junior Research Fellowship-2000.
- Graduate Aptitude Test in Engineering (GATE-2000) with a percentile score of 99.6
- CSIR-Catch Them Young Fellowship twice (Merit Scholarship) during post-graduation (1998-2000) under grant-in aid scheme entitled "Human Resource Development for Biomedical Research: CSIR-University Interaction Model".
- Travel Grant by University Grants Commission (UGC), India to present a paper "Drug discovery from high throughput data to a drug *in silico* model for AcrB" at 13th International Conference on Systems Biology, August 19-23, 2012, Toronto, Canada vide Letter No. F.No. 6-593/2012 (T.G) dated November 27, 2012.
- Appointed as Mentor, since February, 2014 by National Network of Mathematical and Computational Biology (NNMCB) funded by Science and Engineering Research Board, Government of India, to provide training in mathematical and computational biology to both undergraduate/ post graduate students and to promote research activities.
- Appointed as a Member, Assessment Committee of CSIR-Indian Institute of Toxicological Research, Lucknow for the promotion interview of their technical staff.

Association With Professional Bodies

- Fellow, Indian Chemical Society, 2021-Present
- Fellow, Royal Society of Chemistry, London, UK, 2020-Present
- Chartered Chemist, Royal Society of Chemistry, London, UK, 2020-Present
- Member, American Chemical Society, 2020-Present
- Member, Chinese Chemical Society, 2001-Present
- Member, International Society for Infectious Diseases, 2021-Present
- Member, British Society for Antimicrobial Chemotherapy, 2021-Present
- Member, Global Network for Anti-Microbial Resistance & Infection Prevention, 2021-Present
- Member, Board of Research Studies, Netaji Subhas University of Technology, Delhi, 2020-
- Member, Research Advisory Committee, Netaji Subhas University of Technology, Delhi, 2018-
- Member, Department Research Committee, ACBR, University of Delhi, April 2021-March 2023
- Member, Board of Research Studies, University of Delhi, February 2014-2016
- Member, Committee of Courses (Biomedical Sciences), University of Delhi, July 2015-2017
- Member, National Network on Mathematical Modeling and Computational Biology (NNMCB), supported by Science and Engineering Research Board (SERB), Government of India, Feb. 2014-
- Life Member, Indian Science Congress Association, August 2001-Present
- Life Member, Society of Biological Chemists of India, January 2006- Present

Other Activities

- External Jury member for a science interschool activity 'Change the habitat and change the fauna' on December 28, 2021 organized by Birla Vidya Niketan, Pushp Vihar-IV, New Delhi.
- Certified Publons Academy (Web of Science) Supervisor/ Mentor for Practical Peer Review Training Course.
- Academic Expert to guide for the draft curriculum of B.Voc BMS as per NEP-2020 for Central University of Haryana.
- Mentor, Mindspar 3.0 Ideathon held on March 12, 2021 organized by Department of Biochemistry, Sri Venkateswara College, University of Delhi in association with Regional Centre for Biotechnology, Faridabad.
- External Jury member for a science interschool activity 'The Discovery Summit' held on October 28, 2020 organized by Birla Vidya Niketan, Pushp Vihar-IV, New Delhi.
- Member, course design committee for Cheminformatics course (M.Tech students) at Netaji Subhas University of Technology (NSUT), New Delhi.
- External expert for PhD interviews at Netaji Subhas University of Technology (NSUT), New Delhi.
- Invited to attend Department of Biotechnology (DBT) Global Bio Meeting (November 21-23, 2019).
- External Jury member/ judge for CBSE Regional Science Exhibition 2019-20 held on November 29-30, 2019 at Birla Vidya Niketan, Pushp Vihar-IV, New Delhi.
- Jury Member for Scientific Writing Competition organized by School of Computational and Integrative Sciences, JNU, New Delhi concurrently with InCoB2018, September 26-28, 2018, under the aegis of ISCB SC-RSG-India.
- Appointed as member of the Boston Public Schools-School Site Council/ Governing Body of Paul A. Dever School, Boston (2016-17) and was actively involved in the meetings held every month. This body is responsible for decision making in teachers' appointment, finances of the school, special outreach, and ongoing support for parents and staff members.
- Jury Member for Department of Science and Technology-INSPIRE JURY PROCESS: 3rd National Level Exhibition and Project Competition (NLEPC) for school students during October 08-10, 2013 at IIT, Delhi.
- Proposed and started a new add-on course (approx 120 hours) in Bioinformatics and *in silico* Drug Discovery jointly organized by Acharya Narendra Dev College and Bhaskaracharya College of Applied Sciences from August 2012. I am one of the members of the course advisory committee (consisting of members from India and UK) and Coordinator for the same.
- Member of the committee constituted by ACBR, University of Delhi for course restructuring and implementation of LOCF (2018-19); CBCS (choice-based credit system) (2015-16); three year (semester mode) (2008-10) and FYUP (Four Year Undergraduate Program) syllabus (2012-13) for B.Sc (Hons) Biomedical Science course at University of Delhi.
- Development of training package in Biology for Higher Secondary stage and part of committee constituted by DESM, NCERT for the reviewing and development of reference material for school teachers (Class XI and XII).
- Inviting speakers from various universities/ research institutes from India as well as abroad to interact with our young students, deliver talks, enable undergraduate research and designing short duration modules for adding values to the existing courses.
- Initiated the process of establishing an educational cooperation between The University of Delhi and The University of Edinburgh, Scotland, UK with the aim of strengthening relationships, sharing expertise, and improving educational opportunities that may include PhD education, collaborative research and shared Masters and undergraduate programs.
- Appointed as member of the Boston Public Schools-School Site Council/ Governing Body of Paul A. Dever School, Boston, Massachusetts, USA and was actively involved in the meetings held every month. This body is responsible for decision making in teachers' appointment, finances of the school, special outreach, and ongoing support for parents and staff members.