



## UNIVERSITY OF CALCUTTA

### ACADEMIC DEPARTMENT: BOTANY



1. **Full name of the faculty member:** **Dr.BINAY CHAUBEY**
2. **Designation:** **PROFESSOR**
3. **Specialization :** **MICROBIOLOGY AND VIROLOGY**
4. **Contact information :** **Department of Botany; University of Calcutta**  
**35,BallygungeCircular Road;Kolkata 700019**  
E mail:[bchaubey@hotmail.com](mailto:bchaubey@hotmail.com) Tel: +91 9432095551
6. **Academic qualifications:**

Degree	College/ University
B.Sc.(Botany Honours) 1989	Scottish Church College, University of Calcutta
M.Sc.Botany (Microbiology Specialization) 1991	Department of Botany, University of Calcutta
JRF July 1992- August 1994	School of Biochemical Engineering, Department of Chemical Engineering, Institute of Technology, BHU, Varanasi
PhD 2002	Department of Molecular Biology and Biochemistry, Guru Nanak Dev University, Amritsar

7. **Positions held/ holding:**

<b>National Assignments</b>	
<b>Sept 2013-Present</b>	<b>Professor, Centre of Advanced studies, Department of Botany, University of Calcutta, Kolkata, India.</b>
<b>Dec 2008 – Feb 2013</b>	Associate Professor, Centre of Advanced studies, Department of Botany, University of Calcutta, Kolkata, India.
<b>April 2008- Dec 2008</b>	Reader, Department of Botany, Banaras Hindu University, Varanasi.
<b>March 2007– April 2008</b>	Reader, Centre of Advanced studies in Cell and Chromosome Research, Department of Botany, Calcutta University, Kolkata, India.
<b>Sept 2000– March 2007</b>	Sr. Lecturer, Department of Microbiology, Guru Nanak Dev University, Amritsar, India.
<b>Sept 1994–Sept. 2000</b>	Lecturer, Department of Microbiology, Guru Nanak Dev University, Amritsar India.
<b>July 1992- August 1994</b>	Junior Research Fellow, School of Biochemical Engineering, Department of Chemical Engineering, Institute of Technology, BHU, Varanasi, India.

<b>International Assignments</b>	
<b>Feb 2014- Sept 2016</b>	<b>Assistant Professor</b> European Union Program for Health. Department of Recombinant Vaccines and Virus Molecular Biology, Intercollegiate Faculty of Biotechnology Univ of Gdansk and Medical Univ of Gdansk, Poland.
<b>Jan 2006 – Aug 2006</b>	<b>Research Teaching Supervisor</b> , Department of Biochemistry and Molecular Biology at the University of Medicine and Dentistry, Newark, NJ, USA.
<b>March 2003 – Jan 2006</b>	<b>Post Doctoral Fellow</b> , Department of Biochemistry and Molecular Biology at the University of Medicine and Dentistry, Newark, NJ, USA.

## Assignments in the University

- PhD RET Course Coordinator: Department of Botany 2012,2013,2017-18
- PhD RET Course Coordinator: Department of Genetics 2012-2013
- Member, Ph.D. Committee in Genetics, University of Calcutta (2011- 2014)
- Member Board of Studies, Department of Botany

8. **Research interests:** The present focus of research is on following areas.

- **CRISPR CAS mediated inhibition of HIV.**
- **Genome editing to study cell to cell transmission of HCV.**
- **RNAi mediated inhibition of Hepatitis C virus.**
- **Lentiviral vector mediated delivery of multiplex shRNAs.**
- **Mitochondrial dysfunction studies due to antiretroviral drug and HIV infection.**
- **Identification of phytochemicals having anti HIV and anti HCV activity.**
- **Study of bacterial endophytes from selected medicinal plants.**

9. **Research guidance:**

Number of researchers awarded ~~M.Phil/~~ Ph.D degrees : 4

Number of researchers pursuing ~~M.Phil/~~ Ph.D : 05.

10. **Research Projects:**

- I. **Isolation and identification of lead anti-HIV natural compounds from selected medicinal plants** Approved by West Bengal Department of Biotechnology (WB-DBT), 2018 for 3 years (Rs. 27.72 Lakh) (**On Going**).
- II. **Isolation and Identification of anti-HCV natural compounds from selected Indian Medicinal Plants.** Approved by Department of Biotechnology (DBT), Ministry of Science and Technology, Govt. of India, (2013-2016) (Rs. 35.5 Lakh).
- III. **Co PI-Plant Chromosome Information Centre.** Approved by Department of Biotechnology (DBT), Ministry of Science and Technology, Govt. of India, (2011 to 2014) (31.84 Lakh).
- IV. **Inhibition of Hepatitis C virus through lentiviral mediated delivery of multiple siRNAs.** Approved by Department of Biotechnology (DBT), Ministry of Science and Technology, Govt. of India, (2009-2013) (Rs. 71.24 Lakh).
- V. **Mitochondrial dysfunction in response to HIV infection and antiretroviral drug**

**treatment.**Approved by Department of Biotechnology (DBT), Ministry of Science and Technology, Govt. of India, (2009-2013) Under RGYI Scheme (Rs 29.27 Lakh).

- VI. **Construction of a thermostable hyper alkaline protease producing *Bacillus thuringiensis* by chemical mutagenesis and process optimization for lab scale production.** Approved by **University Grants Commission** (1997-1999).

## 11. Selected publications:

1. Krishna Kumar Ganta and **Binay Chaubey** (2018) Endoplasmic reticulum stress leads to mitochondria-mediated apoptosis in cells treated with anti-HIV protease inhibitor ritonavir. *Cell Biol Toxicol.* 2018 Nov. doi: 10.1007/s10565-018-09451-7. [Epub ahead of print]
2. **Binay Chaubey** (2018) Isolation of Endophytes: The Gold Standard? In **Reference Series in Phytochemistry, Endophytes and Secondary Metabolites** Ed S.Jha, Springer, doi. 10.1007/978-3-319-76900-4\_25-1.
3. Anirban Mandal and **Binay Chaubey**(2018) Expression of Duplex shRNAs through a Lentiviral Vector against Cellular and Viral Genes Inflicts Sustained Inhibition of Hepatitis C Virus Replication. *Intervirology*, 61 (2): 79-91.
4. Ewelina Krol , Gabriela Pastuch-Gawolek , **Binay Chaubey** , Gabriela Brzuska, Karol Erfurt and Boguslaw Szewczyk (2018) Novel Uridine Glycoconjugates, Derivatives of 4-Aminophenyl 1-Thioglycosides, as Potential Antiviral Compounds. *Molecules*, 23 (6):1435; doi:10.3390/molecules23061435
5. Paul P, Nandagopal K, Agarwala N, Das S, Jha S and **Chaubey B** (2017) A Proteomic Approach to Evaluate the Effects of Endogenous Expression of *Cryptogein* Gene in Crypt-Transgenic Plants of *Bacopa monnieri*. *J Appl Biotechnol Bioeng*, 4(3): 00104. DOI: 10.15406/jabb.2017.04.00103.
6. Gabriela Pastuch-Gawolek, **Binay Chaubey**, Boguslaw Szewczyk and Ewelina Krol (2017) Novel thioglycosyl analogs of glycosyltransferase substrates as antiviral compounds against classical swine fever virus and hepatitis C virus. *European Journal of Medicinal Chemistry*, 137 : 247-262.
7. Ganta KK, Mandal A, Debnath S, Hazra B and **Binay Chaubey** (2017) Anti-HCV Activity from Semi-purified Methanolic Root Extracts of *Valerianawallichii*. *Phytother Res*, 2017 Mar; 31(3): 433-440.

8. Krishna Kumar Ganta & Anirban Mandal & **Binay Chaubey** (2016) Depolarization of mitochondrial membrane potential is the initial event in non-nucleoside reverse transcriptase inhibitor efavirenz induced cytotoxicity. *Cell Biol Toxicol*, DOI 10.1007/s10565-016-9362-9.
9. AnirbanMandal, Krishna Kumar Ganta and **Binay Chaubey** (2016) Combinations of siRNAs against La Autoantigen with NS5B or hVAP-A Have Additive Effect on Inhibition of HCV Replication. *Hepatitis Research and Treatment*, Volume 2016, Article ID 9671031, 11 pages, doi: 10.1155/2016/9671031
10. Anirban Mandal, Krishna Kumar Ganta and **Binay Chaubey** (2016) Multiple siRNAs against HCV and host genes are more effective in inhibition of HCV replication. *International Journal of Infectious Diseases*, 45: (Supplement 1): 445–446.
11. Dipasree Roychowdhury, **Binay Chaubey**, and Sumita Jha (2015) The Fate of Integrated Ri T-DNA *rol* Genes during Regeneration via Somatic Embryogenesis in *Tylophora indica*. *Journal of Botany*, vol. 2015, Article ID 707831, 16 pages, 2015. doi:10.1155/2015/707831.
12. Tapojita Samaddar, **Binay Chaubey**, Sumita Jha, Timirbaran Jha (2013) Determination of swertiamarin and amarogentin content and evaluation of antibacterial activity in Eastern Himalayan species of *Swertia* L. *Pharmacognosy Communications*, 3(4):64-70.
13. Dipasree Roychowdhury, Biswajit Ghosh, **Binay Chaubey**, SumitaJha (2013). Genetic and morphological stability of six-year-old transgenic *Tylophora indica* plants. *Nucleus*, 56(2):81-89.
14. Virendra N. Pandey, Alok Upadhyay and **Binay Chaubey** (2009) Prospects For Antisense Peptide Nucleic Acid (PNA) Therapies For HIV. *Expert Opinion On Biological Therapy*, 9 (8): 975- 989.
15. Sabyasachi Ganguly, **Binay Chaubey**, Snehlata Tripathi, Alok Upadhyay, Prasad VSV Neti, Roger W Howell, Virendra Nath Pandey (2008) Pharmacokinetic analysis of Polyamide nucleic acid-cell penetrating peptide conjugates targeted against HIV-1 transactivation response element. *Oligonucleotide*, 18: 277-286.
16. **BinayChaubey**, SnehlataTripathi, and Virendra N. Pandey (2008) Single Acute-dose and Repeat-doses Toxicity of anti HIV-1 PNA (TAR) - Penetratin Conjugate after Intraperitoneal Administration to Mice. *Oligonucleotide*, 18(1) :9-20.
17. **BinayChaubey**, SnehlataTripathi, JérômeDésiré, Isabelle Baussanne, Dylan Harris, Jean-Luc Découtand Virendra N. Pandey (2007) Mechanism of RNA Cleavage Catalyzed by Sequence Specific Polyamide Nucleic Acid -Neamine Conjugate. *Oligonucleotide*, 17(3): 302-13.
18. SnehlataTripathi, **BinayChaubey**, Beverly E. Barton, and Virendra N. Pandey (2007) Anti HIV-1 virucidal activity of polyamide nucleic acid-membrane transducing peptide conjugates targeted to primer binding site of HIV-1 genome. *Virology*, 363: 91-103.

19. Harris, D. Zhang, Z. **Chaubey, B.** Pandey, V. N. (2006) Identification of cellular factors associated with the 3' nontranslated region of the hepatitis C virus genome. *Mol Cell Proteomics*, 5 (6): 1006-1018.
20. SnehlataTripathi, **BinayChaubey**, SabyasachiGanguly, Dylan Harris, Ralph A Casaleand Virendra N. Pandey (2005) Anti-HIV-1 Activity of Anti-TAR Polyamide Nucleic Acid Conjugated with Various Membrane Transducing Peptides. *Nucleic Acids Research*, 33 (13): 4345–4356.
21. **BinayChaubey**, SnehlataTripathi, SabyasachiGanguly, Dylan Harris,Ralph A. Casale, Virendra N. Pandey (2005) PNA-transportan conjugate targeted to the TAR region of the HIV-1genome exhibits both antiviral and virucidal properties. *Virology*. 331,418–428.
22. Emmanuel Riguet, SnehlataTripathi, **BinayChaubey**, Je'ro'meDe'sire', Virendra N. Pandey and Jean-Luc De'cout (2004) A Peptide Nucleic Acid-Neamine Conjugate That Targets and Cleaves HIV-1 TAR RNA Inhibits Viral Replication. *J. Med. Chem*, 47, 4806-4809.

## 12. Membership of Learned Societies:

1. Member of American Society of Microbiologist (ASM)
2. Life Member Association of Microbiologists of India (AMI)
3. Life Member Association for the Promotion of DNA Fingerprinting and other DNA Technologies (ADNAT)
4. Life Member of Indian Science Congress.
5. Life Member of Punjab Science Congress
6. Life Member ProbirChatterjee Research Foundation, Kolkata.
7. Member Archana Sharma Foundation of Calcutta.

## 13. Professional Courses/Trainings :

1. **EMBO Practical Course: Analysis of small non-coding RNAs: per aspera ad astra** at Central European Institute of Technology (CITEC), Brno, Czech Republic (25<sup>th</sup> -31<sup>st</sup> July 2015).
2. **Open Door Workshop: Working with Pathogen Genomes** at Wellcome Trust Advanced Courses, WellcomeMahidol University-Oxford Tropical Medicine Programme, Bangkok, Thailand (19<sup>th</sup>-24<sup>th</sup> February 2012).
3. **Integrative Biology: A New Paradigm** at Department of Botany, University of Calcutta, Kolkata, India (1-4<sup>th</sup> March 2011).

4. **EBI-Wellcome Trust Proteomics Bioinformatics Workshop** at Wellcome Trust Advanced Courses, Wellcome Trust Genome Campus, Hinxton, Cambridgeshire, UK (13<sup>th</sup>-17<sup>th</sup> December 2010).
5. **ICGEB-IUBMB Workshop on Human RNA Viruses** at International Centre for Genetic Engineering, New Delhi, India (10<sup>th</sup>-12<sup>th</sup> February 2010).
6. **10th INDO-US Cytometry Workshop: The Application Of Flow Cytometry In Infectious Disease Biology** at Institute of Life Sciences, Bhubaneswar, Orissa, India (16<sup>th</sup> -20<sup>th</sup> February 2009).
7. **Proteomic Approaches in Molecular Biology: Theory and Practice**
8. by International Centre for Genetic Engineering and Biotechnology at University of Buenos Aires, Argentina (3<sup>rd</sup> -14<sup>th</sup> March 2008).
9. **Si RNA and Functional Genomics** by The Foundation for Advanced Education in the Sciences at National Institute of Health (NIH), USA (24<sup>th</sup> to 28<sup>th</sup> October, 2005).
10. **Research Animal Facility Orientation** at University of Medicine and Dentistry – New Jersey Medical School, USA (3<sup>rd</sup> March ,2005).
11. **Radiation Safety Orientation Training** at University of Medicine and Dentistry – New Jersey Medical School, USA (30<sup>th</sup> April 2003).
12. **National Workshop on Genomics and Proteomics** at Institute of Microbial Technology, Chandigarh, India (23<sup>rd</sup> to 26<sup>th</sup> November, 2001).
13. **Workshop on Industrial Fermentation and Down Stream Processing** at Institute of Microbial Technology, Chandigarh, India (2<sup>nd</sup> to 12<sup>th</sup>, March 1998)
14. **Membrane and Its Applications** at Indian Institute of Technology, New Delhi, India (13<sup>th</sup> to 15<sup>th</sup> February, 1996)
15. **Orientation Refresher Course in Industrial Microbiology** at Jiwaji University, Gwalior, India (15<sup>th</sup> to 30<sup>th</sup> March, 1995)
16. **Integrative Biology: A New Paradigm** at Department of Botany, University of Calcutta (1-4<sup>th</sup> March 2011).
17. **Mass Spectrometry Workshop on Proteomics** at Intercollegiate Faculty of Biotechnology of Gdansk and Medical University of Gdansk, Poland. (8<sup>th</sup> to 9<sup>th</sup> July 2015).
18. **Mass Spectrometry Workshop on Genomics** at Intercollegiate Faculty of Biotechnology of Gdansk and Medical University of Gdansk, Poland. (7<sup>th</sup> to 8<sup>th</sup> July 2015).
19. **IATA Shipping Training for Class 6.2 and Class 9 Materials** at University of Medicine and Dentistry of New Jersey, USA (6<sup>th</sup> April 2006).

20. **Blood borne Pathogen Training** at University of Medicine and Dentistry of New Jersey, USA (10<sup>th</sup> March 2005).
21. **Orientation Course for Research Animal Facility** at University of Medicine and Dentistry of New Jersey, USA (3<sup>rd</sup> March 2003).
22. **Radiation Safety Orientation Training** at University of Medicine and Dentistry of New Jersey, USA (30<sup>th</sup> April 2003).

#### 14. Seminars and Conferences Attended:

1. **22<sup>nd</sup> International Symposium on HCV and related Virus.** Oct 9-13, 2015, Strasbourg, France.
2. **3<sup>rd</sup> Antiviral Congress,** 12-14<sup>th</sup> October, 2014. Amsterdam, The Netherlands.
3. **95<sup>th</sup> Indian Science Congress** at Vishakhapatnam from 3<sup>rd</sup> to 7<sup>th</sup> January, 2008 (**Invited Speaker**).
4. **National Bio Organic Symposium-7** at Guru Nanak Dev University, Amritsar 9-10 Nov, 2001.
5. **4<sup>th</sup> Punjab Science Congress** held at Ludhiana, February 9-10, 2001.
6. International Conference **Tuberculosis 2000:Past, Present and Future** organized by American Society of Microbiology at New York USA from 20<sup>th</sup> to 24<sup>th</sup> June 2000.
7. **87<sup>th</sup> Indian Science Congress** at Pune from 3<sup>rd</sup> to 8<sup>th</sup> January 2000.
8. UGC sponsored **National Symposium** on Recent Advances in Environmental Sciences at Guru Nanak Dev University, Amritsar from 19<sup>th</sup> to 20<sup>th</sup> March 1998.
9. **International Symposium on Microbial Exploitation,** BHU Varanasi from 13-16 March 1996.
10. **Chemical Engineering Congress** at IIT, Bombay, 15-18 December 1993.

#### 15. Invited lectures delivered at National or International Conference/Seminar

1. Delivered a lecture on “Sustained inhibition of HCV.....expression of short hairpin RNAs” in UGC-Refresher Course on 17.10.2017 at Calcutta University.
2. Delivered Dr Nibha Chakraborty Memorial Lecture on 18.2.2017 at Scottish Church College, Kolkata.
3. Lecture on Anti-HIV drug Efavirenz induces cell death by initiating mitochondrial membrane depolarization at International Conference on Mitochondria in Health and Disease on 11.2.2017 at JNU, New Delhi.
4. **22<sup>nd</sup> International Symposium on HCV and related Virus.** Oct 9-13, 2015, Strasbourg, France.
5. **3<sup>rd</sup> Antiviral Congress,** 12-14<sup>th</sup> October, 2014. Amsterdam, The Netherlands.
6. Lecture on Present Antiviral Approaches for HCV Chronic infection on 9.12.2013 in Refresher Course: Organisms to System at Calcutta University.



7. Delivered a lecture on How to write effective scientific grant proposal in DBT Sponsored Mentorship workshop for East Zone: How To Write Effective Scientific Grant Proposal on 4.7.2013
8. Lecture on RNAi Technology and Gene Silencing in Training programme in Animal Biotechnology at Faculty of Veterinary Sciences, Assam Agricultural University on 25.3.2013.
9. Lecture on Inhibition of Hepatitis C virus through lentiviral mediated delivery of multiple siRNAs at Computational Biology and Bioinformatics in South Asia Perspective at Chittagong Veterinary and Animal Sciences University (CVASU), Bangladesh on 25. 09. 2012
10. Prospects for Antisense Peptide Nucleic Acid (PNA) Therapies For HIV at University of Chittagong, Bangladesh on 26. 09. 2012
11. Gene Therapy: A Prospective Antiviral Tool in Newer Concepts in Life Science at UGC-Academic Staff College. University of Calcutta on 20<sup>th</sup> Nov 2012
12. HIV/AIDS: Going Strong at 25+ at Orientation Course, UGC-Academic Staff College. University of Calcutta, 18<sup>th</sup> Jan 2012
13. Anti-Hepatitis C Research Strategy in DBT Sponsored Brainstorming meeting on Hepatitis C Research Strategy 20.7.2012 in New Delhi
14. siRNA mediated inhibition of Hepatitis C Virus at National Seminar cum Workshop on Present Scenario and Future Prospect of Cryptogamic Botany” 10<sup>th</sup> Nov 2011, Probir Chatterjee Foundation, Department of Botany, University of Calcutta.
15. How to write effective scientific grant proposal in DBT Sponsored 1<sup>st</sup> Mentorship workshop for East Zone: Biotechnology Career Advancement and Re-Oriented Program for Women Scientists on 16<sup>th</sup> Nov 2011 at Calcutta University.
16. Development of Sequence Specific inhibitors of HIV at workshop on Application of Bioinformatics on Modern Biology organized by Vidyasagar University, Midnapore on 15<sup>th</sup> March 2010.
17. Application of RNAi as anti HCV tool at workshop on Application of Bioinformatics on Modern Biology organized by Vidyasagar University, Midnapore on 15<sup>th</sup> March 2010.
18. Gene Silencing in the course Life Science at the Crossroads organized by UGC-Academic Staff College. University of Calcutta on 10<sup>th</sup> March 2010
19. HIV-1 Research: Present Perspective in Cryptogams-Classroom teaching to field application workshop organized by Probir Chatterjee Foundation, Department of Botany, University of Calcutta, 11<sup>th</sup> Dec 2009
20. HIV at 25 and beyond: Is it Really Curable? At Life Science Refresher Course, BHU, Varanasi, 13<sup>th</sup> Jan 2009
21. Gene Therapy: A prospective Anti viral Tool At Life Science Refresher Course, BHU, Varanasi, 13<sup>th</sup> Jan 2009
22. 95<sup>th</sup> Indian Science Congress at Vishakhapatnam from 3<sup>rd</sup> to 7<sup>th</sup> January, 2008.
23. PNA: A Sequence specific inhibitor at Refresher Course organized by UGC-Academic Staff College. University of Calcutta 28<sup>th</sup> Dec 2010
24. National Bio Organic Symposium-7 at Guru Nanak Dev University, Amritsar from 9-10 Nov, 2001.
25. 4<sup>th</sup> Punjab Science Congress held at Ludhiana, February 9-10, 2001.

26. 87<sup>th</sup> Indian Science Congress at Pune from 3<sup>rd</sup> to 8<sup>th</sup> January 2000.
27. UGC sponsored National Symposium on Recent Advances in Environmental Sciences at Guru Nanak Dev University, Amritsar from 19<sup>th</sup> to 20<sup>th</sup> March 1998.
28. International Symposium on Microbial Exploitation at BHU Varanasi from 13<sup>th</sup> to 16<sup>th</sup> March 1996.
29. Chemical Engineering Congress at IIT, Bombay, from 15<sup>th</sup> -18<sup>th</sup> December 1993.

16. **Awards :**

- 2014 **Senior Researcher**, European Union Program on **Molecular Biology for Health (MOBI4) - FP7 Program, Poland.**
- 2010 **Poster Award at ICGEB-IUBMB workshop on Human RNA Viruses**, New Delhi.
- 1992 **UGC/NET** fellowship by the University Grants Commission, New Delhi
- 1990 Krishna Lal De **Gold Medal** for the **Best B.Sc. Honors student**
- 1990 **National Scholarship** from **Ministry of Human Resource and Development, Government of India** for obtaining **First class in B.Sc. Honours**
- 1990 Mrs. PR Das Memorial **Gold Medal** for obtaining **first position in Botany honours**
- 1990 **Dr. J Sen Memorial Prize** for obtaining **First position in Botany honours**

17. **Other notable activities:**

**Chairman**, Poster sessions, International Conference on “**The Green Planet: past, present and future**” 21<sup>st</sup> to 23<sup>rd</sup> Dec 2016 Department of Botany, University of Calcutta.

*Date: 30.05.2019*

*Binay Chaubey*