



Assistant Professor

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### **CHANCHAL KUMAR, PhD**

**Current position:** Assistant Professor, Department of Forensic Science, Guru Ghasidas Vishwavidyalaya

#### **Education :**

**2014-2018-** Post Doctorate in area of *Mycobacterium tuberculosis* therapeutics using metabolomics approach and diagnostics using DNA aptamer-based platform.

**2013** -Ph.D. in Biochemistry, Department of Biochemistry, The M.S. University of Baroda.

**2007-** Master of Philosophy (M. Phil) in Life Sciences, School of Life Sciences, Jawaharlal Nehru University, New Delhi.

**2004** -M.Sc. in Biotechnology, Department of Microbiology and Biotechnology Centre. The M.S. University of Baroda, Vadodara.

**2002-** B.Sc. (HONS.) Chemistry, Banaras Hindu University.

#### **Research Experience:** (More than 14 Year of Research experience)

- 1. Assistant Professor in** Department of Forensic Science, Guru Ghasidas Vishwavidyalaya from 14-10-2019 to present working on various aspect of forensic science and metabolic engineering.
- 2. Assistant Professor (Contract) in** Department of Biotechnology All India Institute of Medical Sciences, New Delhi from- **18-03-2018** to **03-10-2019**.
- 3. Research Associate** in the laboratory of Prof. Jaya S. Tyagi, Department of Biotechnology, All India Institute of Medical Sciences, New Delhi from- **30-04-2014** to **31-01-2018**.
- 4. 2008-2013** -Doctoral research in the laboratory of Prof. G. Naresh Kumar, Department of Biochemistry, The M. S. University of Baroda, Vadodara.

**Thesis Title:** Genetic manipulation of *Enterobacter asburiae* PSI3 for enhanced Phosphorus nutrition.

5. **2007-2010- Senior Research Scholar** in CSIR project “Metabolic engineering of *Enterobacter asburiae* PSI3 for sucrose dependent mineral phosphate solubilization (MPS) phenotype”.

6. **2004-2007** – M. Phil Research thesis in, School of Life Sciences, Jawaharlal Nehru University, New Delhi.

**Thesis Title:** Selection and characterization of  $\text{Ca}^{2+}$  binding RNA Aptamers.

7. **2002-2004** -Master thesis in, Department of Microbiology and Biotechnology Centre, The M.S. University of Baroda, Vadodara.

**Dissertation Title:** Growth and selection of wild type and mutant hsp82 strains of *Saccharomyces cerevisiae* under stress condition.

**Teaching experience:** More than 9 years of teaching experience

- **Assistant Professor** in Department of Forensic Science, Guru Ghasidas Vishwavidyalaya from 14-10-2019 to present teaching to UG and PG forensic science course ( DNA typing, Instrumentation, Advance DNA forensics, Forensic Chemistry, Research Methodology, Forensic Genomics and Proteomics)
- Assistant Professor (contract) from 18-03-2018 to 3-10-2019 involve in PG teaching at Department of Biotechnology, AIIMS, New Delhi
- 2010-2011 Teaching Assistant involve in Diploma, UG and PG teaching at Department of Biochemistry, M.S. University of Baroda
- 2012-2013 Teaching Assistant involve in Diploma, UG and PG teaching at Department of Biochemistry, M.S. University of Baroda

**National level fellowships, awards and others:**

- **Research Associate** in DBT funded project “Exploiting temporal transcription profile, computational analysis and post transcriptional gene silencing to identify and intercept interaction between host and dormant and actively replication *Mycobacterium tuberculosis*” (**April 2014- January 2018**)
- **Senior Research fellow** in CSIR project “Metabolic engineering of *Enterobacter asburiae* PSI3 for sucrose dependent mineral phosphate solubilization (MPS) phenotype”. (**September 2007-May 2010**).
- Qualified for Junior **Research fellowship for Doctoral Thesis** Council of Scientific and Industrial Research – university grant commission (**CSIRUGC**) **NET** examination (**2005**)
- Received scholarship from Department of Biotechnology during M.Sc. For clearing all India biotechnology exam conducted by “JNU New Delhi” (**July 2002-May 2004**)

**Membership in Professional Bodies**

- **Life member-** Society of Biological Chemist (Membership No.-4726)

**Publication:**

1. D Kashyap, M Yadav, SS Rathore, P Gupta, P Rane, BN Uikey, **C Kumar**, TR Chandrakar, K Jadav, R.Jain, A Amit (2024) A Comparative Microscopic and Micrometric Analysis of Birds of Different Feather Types for Identification of Species. **Journal of International Wildlife Law & Policy** 28 (3): 235-246. doi.org/10.1080/13880292.2024.2440189.
2. Yadav M, Uikey BN, Rathore SS, Gupta P, Kashyap D, **Kumar C**, Shukla D, Vijaya mahantesh, Chandel AS, Ahirwar B, Singh AK, Suman SS, Priyadarshi A and Amit A (2023) Role of cytokine in malignant T-cell metabolism and subsequent alternation in T-cell tumor microenvironment. **Frontier Oncology** 13:1235711. doi: 10.3389/fonc.2023.1235711(**IF- 4.7**)
3. Abhijeet Dhiman, **Chanchal Kumar**, Subodh Kumar Mishra, Kriti Sikri, Ishara Datta, Pradeep Sharma, Tej P. Singh, Sagarika Haldar, Neera Sharma, Anjali Bansal, Yusra Ahmad, Amit Kumar, Tarun Kumar Sharma, and Jaya Sivaswami Tyagi, (**2019**) Theranostic application of a novel g-quadruplex-forming DNA aptamer targeting malate synthase of *Mycobacterium tuberculosis*, **Molecular Therapy Nucleic Acid.**, ISSN: 2162-2531 (2019), 18: 661-672, DOI: 10.1016/j.omtn.2019.09.026. (**I.F.-10.18**)
4. Saurabh Sharma, Priyanka Kumari, Atul Vashist, **Chanchal Kumar**, Malobi Nandi and Jaya Sivaswami Tyagi (**2019**) Cognate sensor kinase-independent activation of *Mycobacterium tuberculosis* response regulator DevR (DosR) by acetyl phosphate: Implications in anti-mycobacterial drug design, **Molecular Microbiology.**, ISSN: 1365-2958 , (2019), 111 (5): 1182-1194, DOI: 10.1111/mmi.14196. (**IF- 3.8**)
5. Kriti Sikri, Priyanka Duggal, **Chanchal Kumar**, Sakshi Dhingra Batra, Atul Vashist, Ashima Bhaskar, Kritika Tripathi, Tavpritesh Sethi, Amit Singh and Jaya Sivaswami Tyagi (**2018**) Multifaceted remodeling by vitamin C boosts sensitivity of *Mycobacterium tuberculosis* subpopulations to combination treatment by anti-tubercular drugs **Redox Biology.**, ISSN:2213-2317,(2018), 15: 452-466, DOI: 10.1016/j.redox.2017.12.020 . (**IF- 11.8**)
6. **Chanchal Kumar**, Jitendra Wagh, G. Archana, G. Naresh Kumar (**2016**) Sucrose dependent mineral phosphate solubilization in *Enterobacter asburiae* PSI3 by heterologous overexpression of periplasmic invertases, **World Journal of Microbiology and Biotechnology.**, ISSN: 0959-3993 , (2016), 32 :194 , DOI: 10.1007/s11274-016-2153-x. (**IF-4.27**)
7. Jitendra Wagh, **Kumar Chanchal**, Shah Sonal, Bhandari Pravena, G. Archana, G. Naresh Kumar (**2016**) Inoculation of genetically modified endophytic *Herbaspirillum seropedicae* Z67 endowed with

- gluconic and 2-ketogluconic acid secretion, confers beneficial effects on rice (*Oryza sativa*) plants, , **Plant and Soil.**, ISSN: 0032-079X, (2016), 409 (1):51-64, DOI: [www.jstor.org/stable/44245215](http://www.jstor.org/stable/44245215), (IF- 5.44)
8. Kavita Yadav, **Chanchal Kumar**, G. Archana, G. Naresh Kumar (2014) Artificial citrate operon and *Vitreoscilla* hemoglobin gene enhanced mineral phosphate solubilizing ability of *Enterobacter hormaechei* DHRSS, **Applied Microbiology and Biotechnology.**, ISSN: 0175-7598 , (2014), 98: 8327–8336, DOI: 10.1007/s00253-014-5912-3. (IF- 4.8)
9. Kavita Yadav\*, **Chanchal Kumar\***, G. Archana, G. Naresh Kumar (2014) *Pseudomonas fluorescens* ATCC 13525 containing an artificial oxalate operon and *Vitreoscilla* hemoglobin secretes oxalic acid and solubilizes rock phosphate in acidic alfisols, **Plos One.**, ISSN: 1932-6203, (2014), 9 (4) , e92400, DOI: 10.1371/journal.pone.0092400. (IF- 3.24) \*Equal contribution
10. **Chanchal Kumar**, Kavita Yadav, G. Archana and G. Naresh Kumar (2013) 2-Ketogluconic acid secretion by incorporation of heterologous gluconate dehydrogenase (*gad*) operon in *Enterobacter asburiae* PSI3 improves mineral phosphate solubilization, **Current Microbiology.**, ISSN: 0343-8651, (2013), 67 (3) 388-394, DOI: 10.1007/s00284-013-0372-z. (IF- 2.29)

#### **Patent:**

Tarun K Sharma, Jaya S. Tyagi, **Chanchal Kumar**, Abhijeet Dhiman, Ishara Datta. Isolated single stranded polynucleotides and uses thereof in diagnosis and treatment of Tuberculous Meningitis.

**Indian Patent Number 201611021901**

#### **Book Chapter:**

1. Abhijeet Dhiman, Harleen Kaur, **Chanchal Kumar**, Yusra Ahmad, and Tarun Kumar Sharma (2019) Application of aptasensors in health care. *Biosensors: Materials and Applications: Materials Research Foundations* **47** 1-50
2. **Chanchal Kumar**, Rajat Pratap Singh, Mrigendra Kumar Dwiwedi and Ajay Amit (2021) Immuno-modulating Mediators of Colon Cancer as Immuno-therapeutic: Mechanism and Potential. In: Nagaraju, G.P., Shukla, D., Vishvakarma, N.K. (eds) *Colon Cancer Diagnosis and Therapy* Vol. 1. Springer, Cham. 271-308.
3. Ajay Amit, Sudhir Yadav, Rajat Pratap Singh and **Chanchal Kumar** (2022) Development of RNA-Based Medicine for Colorectal Cancer: Current Scenario. In: Shukla, D., Vishvakarma, N.K., Nagaraju, G.P. (eds) *Colon Cancer Diagnosis and Therapy* Vol. 3. Springer, Cham.
4. Vivek Kumar Soni, Arundhati Mehta, Yashwant Kumar Ratre, **Chanchal Kumar**, Rajat Pratap

Singh, Abhishek Kumar Srivastava, Navaneet Chaturvedi, Dhananjay Shukla, Sudhir Kumar Pandey and Naveen Kumar Vishvakarma (2022) Antineoplastic Effects of Curcumin Against Colorectal Cancer: Application and Mechanisms. In: Shukla, D., Vishvakarma, N.K., Nagaraju, G.P. (eds) Colon Cancer Diagnosis and Therapy Vol. 3. Springer, Cham.

5. Megha Yadav, Shantnu Singh Rathore, Lt. Col. Kautuk Shrivastav, **Dr. Chanchal Kumar**, Blessi N. Uikey (2024) Biometrics—An emerging tool for personal Identification in Forensic. In Futuristic Trends in Social Sciences Volume 3 Book 19, Page- 149- 168, **DOI/Link:** <https://www.doi.org/10.58532/V3BJSO19P2CH5>
6. Diksha Kashyap , Megha Yadav , Priyanka Gupta, **Dr. Chanchal Kumar**, Dr. Ajay Amit (2024) Wildlife crime and its socio-ecological impact. In Futuristic Trends in Social Sciences Volume 3 Book 19, Page- 169- 193, **DOI/Link:** <https://www.doi.org/10.58532/V3BJSO19P2CH6>

### **Research Project: Completed**

Synthesis and yield enhancement of pyrroloquinoline quinone through cloning and overexpression of *pqq* gene cluster in *Enterobacter asburiae* PSI3. UGC Strat Up grant (Rs. 10 lac)-**2021-2025**

### **Research Supervision:**

1. Ph. D students Currently working: **04**
2. PG dissertation completed: **34**