

Dr Anuj Kumar, Scientist D, ICMR-NICPR

Biodata

Name: Dr. Anuj Kumar
Designation: Scientist D and Nodal Officer NTTL
Division/Department: Molecular Biology Group
Educational Qualification: M.Sc., PhD (Life Sciences)



Details of Educational Qualification

Degree	Institution	Field(s)	Year
B. Sc.	University of Delhi	Biochemistry	2004
M. Sc.	Indian Institute of Technology (IIT) Bombay, Mumbai	Biotechnology	2006
PhD	International Centre for Genetic Engineering and Biotechnology (ICGEB), New Delhi Affiliation to: Jawaharlal Nehru University (JNU), Delhi	Life Sciences	2012

Work Experience:

Duration	Institution	Particulars of work done
2018-present	ICMR-National Institute of Cancer Prevention and Research (ICMR-NICPR), Noida	Cancer research mainly related to oral cancer due to smokeless tobacco (SLT) and evaluation of biomarkers of viral Hepatitis and Hepatocellular carcinoma (HCC) Nodal Officer National Tobacco Testing Laboratory (NTTL), apex center Establishment and management of High-Throughput Lab (HTL) for COVID-19 diagnosis
2016-2018	National Institute of Virology (ICMR-NIV), Pune	Bacteriology, Molecular diagnosis

2015-2016	Lupin Pharma Ltd, Pune	Research and Development in monoclonal antibodies (mAbs)
2014-2015	Shriram Institute for Industrial Research, Delhi	Research work for the project " Molecular modelling of cancer/testis antigens: potential cancer therapeutic targets "Start-Up Research Grant (Young Scientists)"; Molecular testing of food and farm products
2011-2013	International Centre for Genetic Engineering and Biotechnology (ICGEB, New Delhi)	Research work in the field of malaria biology and structure biology

Research Interests:

Protein Biochemistry, Cancer Biology, Infectious Diseases, Structure Biology, Molecular Biology, Virology

Membership of Professional Societies:

Life member of the Indian Science Congress

Life member of the Indian Association of Cancer Research

Scientific Advisory Committee (Biobanking International Symposium), ILBS, Delhi

Fellowships/Awards/Patents (academic/national/internationally)

DBT fellowship for M.Sc in IIT Bombay

Junior and Senior Research Fellowship (JRF & SRF)

Corona Warriors Award

Letter of appreciation for work performed during the COVID pandemic

Rising Star Presenter by the International Society for Biological and Environmental Repositories (ISBER) in 2022 Annual Meeting

First prize in Hindi poem recitation, Hindi Divas Saptah celebration 2023

Publications:

1. Dobhal S, Chauhan K, Kumar S, Shikha S, Jogi M, Kumar D, et al. In silico Identification of MHC Displayed Tumor Associated Peptides in Ovarian Cancer for Multi-Epitope Vaccine Construct. *Endocr Metab Immune Disord Drug Targets* [Internet]. 2024 Jan 24;24. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/38275062>
2. Kaur R, Kumar P, Kumar A. Insights on the nuclear shuttling of H2A-H2B histone chaperones. *Nucleosides Nucleotides Nucleic Acids* [Internet]. 2023 Dec 22;1–13. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/38133493>
3. Shahid M, Srivastava S, Shukla P, Yadav R, Sajid M, Kumar A, et al. Characterization of physiochemical parameters & their effect on microbial content of smokeless tobacco products marketed in north India. *Indian J Med Res* [Internet]. 2023 Nov 1;158(5 & 6):542–51. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/38088421>
4. Shikha S, Jogi MK, Jha R, Kumar RA, Sah T, Singh P, et al. Genome sequencing of SARS-CoV-2 omicron variants in Delhi reveals alterations in immunogenic regions in spike glycoprotein. *Front Immunol* [Internet]. 2023 Oct 2;14:1209513. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/37849762>
5. Garg K, Kumar A, Kizhakkethil V, Kumar P, Singh S. Overlap in oncogenic and pro-inflammatory pathways associated with areca nut and nicotine exposure. *Cancer Pathogenesis and Therapy* [Internet]. 2023 Sep; Available from: <https://linkinghub.elsevier.com/retrieve/pii/S2949713223000538>
6. Roy Pradhan S, Yashavardhan MH, Gupta A, Kumar P, Kumar A, Arif N, et al. Insights from establishing a high throughput viral diagnostic laboratory for SARS-CoV-2 RT-PCR testing facility: challenges and experiences. *Front Public Health* [Internet]. 2023 Apr 17;11. Available from: <https://www.frontiersin.org/articles/10.3389/fpubh.2023.1122715/full>
7. Gill J, Kumar A, Sharma A. Structural comparisons reveal diverse binding modes between nucleosome assembly proteins and histones. *Epigenetics Chromatin* [Internet]. 2022 May 24;15(1):20. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/35606827>
8. Mandhan P, Sharma M, Pandey S, Chandel N, Chourasia N, Moun A, et al. A Regional Pooling Intervention in a High-Throughput COVID-19 Diagnostic Laboratory to Enhance Throughput, Save Resources and Time Over a Period of 6 Months. *Front Microbiol* [Internet]. 2022 Jun 9;13:858555. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/35756046>
9. Kumar P, Rani A, Singh S, Kumar A. Recent advances on DNA and omics-based technology in Food testing and authentication: A review. *J Food Saf* [Internet]. 2022 Aug 13;42(4). Available from: <https://onlinelibrary.wiley.com/doi/10.1111/jfs.12986>
10. Kumar P, Dhingra A, Sharma D, Kumar A, Singh S. Microbiome and Development of Ovarian Cancer. *Endocr Metab Immune Disord Drug Targets* [Internet]. 2022 May 8; Available from: <http://www.ncbi.nlm.nih.gov/pubmed/35532247>
11. Kumar A, Singh S, Singh P. An essay on Smokeless Tobacco. (manuscript accepted). 2022.

12. Singh PK, Jain P, Pandey V, Saxena S, Tripathi S, Kumar A, et al. Smokeless tobacco quitting during COVID-19: A mixed-methods pilot study among participants screened for a cessation trial in India. *Clin Epidemiol Glob Health* [Internet]. 2021 Oct 25;12:100902. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/34786519>
13. Sajid M, Srivastava S, Kumar A, Kumar A, Singh H, Bharadwaj M. Bacteriome of Moist Smokeless Tobacco Products Consumed in India With Emphasis on the Predictive Functional Potential. *Front Microbiol* [Internet]. 2021 Dec 24;12:784841. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/35003015>
14. Deoshatwar A, Salve D, Gopalkrishna V, Kumar A, Barve U, Joshi M, et al. Evidence-Based Health Behavior Interventions for Cholera: Lessons from an Outbreak Investigation in India. *Am J Trop Med Hyg* [Internet]. 2021 Oct 25;106(1):229–32. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/34695790>
15. Gill J, Kumar A, Yogavel M, Belrhali H, Jain SK, Rug M, et al. Structure, localization and histone binding properties of nuclear-associated nucleosome assembly protein from *Plasmodium falciparum*. *Malar J* [Internet]. 2010 Apr 8;9(1):90. Available from: <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2873526&tool=pmcentrez&rendertype=abstract>
16. Kumar A, Kashyap M, Bhavesh NS, Yogavel M, Sharma A. Structural delineation of histone post-translation modifications in histone-nucleosome assembly protein complex. *J Struct Biol* [Internet]. 2012 Oct;180(1):1–9. Available from: <http://linkinghub.elsevier.com/retrieve/pii/S104784771200192X>
17. Gill J, Yogavel M, Kumar A, Belrhali H, Jain SK, Rug M, et al. Crystal structure of malaria parasite nucleosome assembly protein: Distinct modes of protein localization and histone recognition. *Journal of Biological Chemistry* [Internet]. 2009 Apr 10 [cited 2012 Jun 14];284(15):10076–87. Available from: <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2665062&tool=pmcentrez&rendertype=abstract>
18. Roesch C, Popovici J, Bin S, Run V, Kim S, Ramboarina S, et al. Genetic diversity in two *Plasmodium vivax* protein ligands for reticulocyte invasion. Dinglasan RR, editor. *PLoS Negl Trop Dis* [Internet]. 2018 Oct 22;12(10):e0006555. Available from: <https://www.biorxiv.org/content/early/2018/05/22/328757>
19. Gopalkrishna V, Joshi M, Viswanathan R, Malu G, Ganorkar N, Chavan N, et al. Cholera outbreak in Aurangabad, Maharashtra, western India. *Indian Journal of Medical Research* [Internet]. 2019 Dec;150(6):640. Available from: <http://www.ijmr.org.in/text.asp?2019/150/6/640/277417>
20. Mishra PC, Kumar A, Sharma A. Analysis of small nucleolar RNAs reveals unique genetic features in malaria parasites. *BMC Genomics* [Internet]. 2009 Jan [cited 2012 Sep 24];10(1):68. Available from: <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2656528&tool=pmcentrez&rendertype=abstract>

Dr Anuj Kumar, Scientist D, ICMR-NICPR

21. Siddiqui F, Croucher R, Ahmad F, Ahmed Z, Babu R, Bauld L, et al. Smokeless Tobacco Initiation, Use, and Cessation in South Asia: A Qualitative Assessment. *Nicotine & Tobacco Research* [Internet]. 2021 Aug 29;23(10):1801–4. Available from: <https://academic.oup.com/ntr/article/23/10/1801/6222133>
22. Kumar A, Sharma D, Aggarwal ML, Chacko KM, Bhatt TK. Cancer/testis antigens as molecular drug targets using network pharmacology. *Tumor Biology* [Internet]. 2016 Dec 5;37(12):15697–705. Available from: <http://dx.doi.org/10.1007/s13277-016-5333-2>
23. Kumar A, Barve U, Gopalkrishna V, Tandale B V, Katendra S, Joshi MS, et al. Outbreak of cholera in a remote village in western India. *Indian J Med Res* [Internet]. 2022 Sep;156(3):442–8. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/36751742>

Popular articles/op-ed/media-coverage: (latest first and provide title and link):

None

Presentations/Talks/Lectures: (latest first, title of the presentation, organized by and date)

1. Lecture in “ICMR-AUS-RTC Workshop” 2nd-6th September, 2019
2. On-line lecture on “Tobacco products cause cancer” 4th of Feb on Cancer Days at Bhaskar Acharya College of Delhi University.
3. Invited **Rising Star Presenter** lecture on “Establishing Automated Biobanking: Technical Considerations” at the conference organized by the International Society for Biological and Environmental Repositories (ISBER), 2022
4. Lecture on “associated with inflammatory factors, renal function, and other hormones and nutritional biomarkers in older adults” ICMR-NICPR 2022
5. Invited talk on “Past and Present activities in molecular biology” ICMR-NICPR 2022
6. Invited talk on “Characterization of protein-protein interaction interfaces: tools to understand cell signalling mechanisms” at Virtual Faculty Development Program (FDP) On Advancements and Innovations in Cellular Communication and Signal Transduction, from 17th - 21st July 2023 organized by Department of Biotechnology, Jaypee Institute of Information Technology, Noida, India
7. Delivered an invited talk on “Characterization of protein-protein interaction interfaces: tools to understand cell signalling mechanisms”, during the virtual Faculty Development Program on “Advancements and Innovations in Cellular Communication and Signal Transduction”.
8. Attended “International Biobanking Symposium” 2024 from 23rd to 24th of February 2024 at NIMHANS Bengaluru. Talked as a speaker on “Assessing the level of cytokines in serum samples of viral hepatitis and hepatocellular carcinoma patients in Delhi”.

9. Invited to judge an event - 'Bio-Board-Elevating Research through Visual Excellence' at Amity Institute of Biotechnology, on 1st March 2024
10. Organizing committee member for a workshop titled "From Raw Data to Actionable Insights: A Hands-on Workshop on Statistical Data Analysis using SPSS & QGIS" at NICPR from 21st to 23rd Feb 2024
11. Delivered an expert lecture in the DHR-sponsored training program on "Advent of Omics technologies in Precision Diagnostics and Targeted Therapeutics", from April 15 – May 7, 2024

Projects:

- **Ongoing**

Projects: as Principal-Investigator

1. Role of genetic factors associated with smokeless tobacco cessation in northern India
Funding: Model Rural Health Research Scheme
2. Identification of oral microbial genes as potential molecular diagnostic markers of tobacco exposure
Funding: Intramural funding
3. Assessing the level of cytokines in serum samples of viral hepatitis and hepatocellular carcinoma patients in Delhi
Funding: Intramural funding

Projects: as co-investigator

4. Seroepidemiology, maternal immune status and missed diagnosis of pertussis among young infants in India - a multicentric study
Funding Agency: DBT Wellcome India Alliance Intermediate Career Fellowship
5. Strengthening biochemical research, policy, capacity building and cessation support to advance smokeless tobacco control in India
Funding Agency: ICMR
6. Addressing Smokeless Tobacco and Building Research Capacity in South Asia (ASTRA)
co-investigator in one arm of the project i.e. A Feasibility Trial for Smokeless Tobacco Cessation

Dr Anuj Kumar, Scientist D, ICMR-NICPR

Funding Agency: National Institute of Health Research, UK (NIHR)

Others

7. Nodal Officer National Tobacco Testing Laboratories (NTTLs) are Tobacco Research and Testing Laboratories

Funding: Ministry of Health and Family Welfare (MoHFW)

8. Team member of the Biobank team for the Establishment of an automated integrated Biobank long-term storage system as a turnkey project with all necessary scientific laboratory equipment and works

Funding: ICMR

9. Team member of High-Throughput Laboratory for COVID-19 diagnosis

Funding: ICMR

- **Completed**

1. Molecular modelling of cancer/testis antigens: potential cancer therapeutic targets

Funding: SERB

Role: PI

Duration: 3 years

2. Establishment of Molecular Diagnostic Laboratory in Bacteriology Group of National Institute of Virology (ICMR-NIV), Pune

Role: Lab member

Duration: 1 year

Brief Biosketch:

Dr Anuj Kumar did his graduation from the University of Delhi (Shivaji Collage) and post-graduation in Biotechnology from IIT Bombay. He completed his PhD from ICGB affiliated with JNU, Delhi on the topic "Functional studies on histone chaperones – histone complexes in *Plasmodium*

Dr Anuj Kumar, Scientist D, ICMR-NICPR

falciparum” mainly addressing the biochemical and structural aspects of biology. Completed post-doc in malaria biology group with Dr Chetan Chitnis on malaria vaccine. Dr Anuj also worked as a scientist position at Shriram Institute for Industrial Research, Delhi, Lupin Pharma Ltd. and the National Institute of Virology before joining the National Institute of Cancer Prevention and Research, NOIDA. He is a Nodal-Officer of the National Tobacco Testing Lab of the ministry of health and family welfare.

Dr Anuj has gained experience of 15 years of research and published 25 research articles in national and international peer-reviewed journals. He has been awarded the “Corona Warrior Award” for his service in the institute.

His research interest revolves around understanding the role of proteins in the context of developing novel drugs, vaccines and other therapeutic/diagnostic targets. Protein networks and macromolecular complexes are the backbone of cellular processes that need to be analyzed for their therapeutic/diagnostic potential.

At ICMR-NICPR, He is working on understanding the effect of smokeless tobacco products (SLTs) at the molecular level. He was part of the team involved in COVID-19 diagnosis. He also has an interest in factors affecting the chromatin assembly. He uses molecular, computational, structural and systems biology approaches to pursue the biological questions.

Contact me at:

Email: kumar[dot]anuj[at]gov[dot]in; anuj[dot]ahar[at]gmail[dot]com;
k[dot]anuj[at]yahoo[dot]com

Intercom: 01202446902