

Akhilesh Mishra (Ph.D.)

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A highly skilled computational biologist with an extensive background in postdoctoral research spanning over four years. My expertise centers on the sophisticated domain of genomic data analysis, with a specific focus on Computational DNA Biophysics, Antimicrobial Resistance, and Kidney Cancer Biology. I am deeply committed to the application of physicochemical principles and advanced Next-Generation Sequencing (NGS) data analysis techniques. These capabilities are harnessed for tasks such as sequence profiling, energy calculation, and structural scrutiny of pathogenic or diseased genomes. My professional endeavors are dedicated to advancing pioneering research within these critical areas.

SKILLS

1. Multi-Omics Data Analysis

Proficient in Single Cell RNA-Seq, Bulk RNA-Seq, somatic and germline mutation calling for investigating tumor progression mechanisms using genetically engineered mouse models, patient-derived xenograft models, and large patient cohorts.

2. Bioinformatics Algorithm Dev-implementation

Developed 4 bioinformatics tools/algorithms for position-specific unique sequence predictor in the human genome (OncoRegulon), comparing genomes of pathogenic and non-pathogenic strains of bacteria (PSDDF), transcription start site prediction in prokaryotes (SEProm) and physicochemical parameter-based genome annotation software (ChemGenome2.1). The webpage links for my tools are –

- a) **Onco-Regulon** - <http://www.scfbio-iitd.res.in/onco2/>
- b) **PSDDF** - <http://www.scfbio-iitd.res.in/psddf/index.php>
- c) **SEProm** - www.scfbio-iitd.res.in/software/TSS_Predict.jsp
- d) **ChemGenome2.1** - <http://www.scfbio-iitd.res.in/chemgenome/chemgenomenew.jsp>

3. Programming languages

Proficient in PERL, R, and Shell scripting for tool development, NGS Data Analysis, and High-Performance Computing (HPC) tasks.

4. Microarray Data Analysis

Experienced in Microarray-based meta-analysis in plant model organisms.

5. Genome Evolution

Conducting comparative microevolutionary analysis at the oligonucleotide level to explore organism-specific evolutionary patterns.

6. Structural and energetic profiling of DNA

Algorithm development for structural and energetic profiling of genomic elements in prokaryotes and eukaryotes.

7. Identifying DNA motifs as potential drug targets

Pipeline development for identification and targeting of DNA motifs with small molecules and intercalators.

8. Product development

Expertise in diagnostic kit development (COVID-19), technology transfer facilitation, and manufacturing & marketing support.

EXPERIENCE

NOVEMBER 2024 – PRESENT

ASSISTANT PROFESSOR, NATIONAL INSTITUTE OF TECHNOLOGY ROURKELA, ODISHA
Passionately leading the Computational Oncology Lab, where multi-omics research meets innovation to tackle challenges in cancer biology.

NOVEMBER 2023 – NOVEMBER 2024

POSTDOCTORAL RESEARCH ASSOCIATE, ST. JUDE CHILDREN'S RESEARCH HOSPITAL

Applying Single Cell Sequencing and Spatial Transcriptomics for dissecting molecular (re)wiring and underpinning hidden drivers in Pediatric Brain Tumors toward clinical translation.

Advisor: Dr. Jiyang Yu, Computational Biology Department, St. Jude Children's Research Hospital

FEBRUARY 2021 – OCTOBER 2023

POSTDOCTORAL RESEARCHER, UT SOUTHWESTERN MEDICAL CENTER

I spearheaded the Bap1 Pbrm1 double knockout project and made significant contributions to various other projects, including: 1) Estimating the Time of Active Surveillance in metastatic renal cell carcinoma (RCC). 2) Investigating the mechanism of progression in pediatric translocation RCC. 3) Studying HIF2 inactivation and tumor suppression using a tumor-directed RNA-targeting drug and 4) Investigating the mechanism of resistance to rapalogs in renal cancer. At present, I am studying the mechanism of transition from low-grade to high-grade tumor in clear cell RCC. These experiences have equipped me with valuable research skills and knowledge.

Advisor: Prof. James Brugarolas, Kidney Cancer Program, Dept. of Internal Medicine.

JULY 2019 – AUGUST 2020

RESEARCH ASSOCIATE-II, INDIAN INSTITUTE OF TECHNOLOGY DELHI

HRD Grand Challenge Project titled "Rapid diagnostic solution to combat antimicrobial resistance". I contributed to the development of India's most cost-effective COVID-19 Diagnostic Kit, which received approval from the Indian Council of Medical Research (ICMR). I facilitated the technology transfer of this kit to 10 prominent companies for its manufacturing and marketing.

Advisor: Prof. Vivekananda Perumal, Kusuma School of Biological Sciences.

APRIL 2019 – JULY 2019

PROJECT SCIENTIST, INDIAN INSTITUTE OF TECHNOLOGY DELHI

DST India project titled "Revisiting the Sigma 70 Promoter in Escherichia coli." Within this project, my contributions focused on identifying and analyzing key structural and energetic parameters of DNA, that have the potential to predict the strength of promoters in prokaryotes.

Advisor: Prof. B. Jayaram, Supercomputing Facility for Bioinformatics and Computational Biology, Department of Chemistry and Kusuma School of Biological Sciences

JANUARY 2014 – JULY 2014

JUNIOR RESEARCH FELLOW, NATIONAL INST. OF PLANT GENOME RESEARCH

DBT, India project - "Identification of a common gene involved in biotic and abiotic stress response in Arabidopsis thaliana," I conducted meticulous microarray data analysis. Through an extensive metanalysis of over 100 studies from Array Express, identified genes that play a significant role in both biotic and abiotic stress responses in Arabidopsis thaliana.

Advisor: Dr. Gitanjali Yadav, Staff Scientist V, Bioinformatics Division

EDUCATION

JULY 2014 – APRIL 2019

DOCTOR OF PHILOSOPHY, INDIAN INSTITUTE OF TECHNOLOGY DELHI

Thesis: "A Physico-chemical and structural characterization of prokaryotic genome" (Thesis defended on 25th September 2019).

PhD Advisor: Prof. B. Jayaram | Lab: SCFBio | Grade: Distinction

JULY 2012 – JUNE 2014

MASTER OF SCIENCE IN BOTANY, SWAMI VIVEKANAND UNIVERSITY

Project Work: "Identification of Common Gene Which Provide Resistant in Both Biotic and Abiotic Stress like Condition"

Dissertation Advisor: Dr. Gitanjali Yadav | Institute: National Institute of Plant Genome Research

JULY 2010 – JUNE 2012

MASTER OF SCIENCE IN BIOINFORMATICS, JAMIA MILLIA ISLAMIA UNIVERSITY

Project Work: " Anticlustering Algorithm for the prediction of genes as a drug target."

Dissertation Advisor: Dr. Khalid Raza | Dept.: Computer Science | University Rank – 3rd

JULY 2007 – JUNE 2010

BACHELOR OF SCIENCE IN BOTANY AND CHEMISTRY, DDU. UNIVERSITY

Project Work: "Autoimmune Disorders" | Dissertation Advisor: Dr. Pankaj Shukla, NIELIT

College: DAV PG College, Gorakhpur | College Rank – 1st

GRANTS AND FUNDING

1. ANRF-PMECRG – Prime Minister Early Career Research Grant

I am pleased to share that I have recently received approval for INR 7 million in funding from ANRF-PMECRG for my project titled: "Dissecting Tumor Grade Progression Mechanisms in Clear Cell Renal Cell Carcinoma and Discovering Novel Drug Targets Using Single-Cell Multi-Omics."

2. Institutional Funding for Antimicrobial Resistance Research

Delighted to receive institutional seed funding to establish my lab and focus on my project:

"Development of an Ab-Initio Based Automated Pipeline to Predict Novel Drug Targets in Bacterial Genomes for Combating Antibiotic Resistance." This funding proposal is currently in the final stage of approval.

3. Translational Research Using GenomeIndia Data

Recently, I have submitted GenomeIndia Grant Proposal on 10,000 Indian genomes. My project, titled: "Interactive Database of Indian Population-Specific Copy Number and Structural Variations and Their Implications in Genetic Diseases," aims to identify population-specific genetic risk factors. This proposal is being developed in collaboration with the Perumal Lab, Kusuma School of Biological Sciences at Indian Institute of Technology Delhi.

PUBLICATIONS

1. Shiwani Chahal; Abhijit Debnath; Akhilesh Mishra, Priyanka Siwach*, “Novel drug molecules for Atherosclerosis from Ginkgo biloba, an endangered Himalayan herb, using pharmacoinformatics approach”. **Current Pharmaceutical Biotechnology**, Under Review.
2. Charles H. Perry, Alfonso Lavado, Venkata Thulabandu, Cody Ramirez, Joshua Paré¹, Rajiv Dixit, Akhilesh Mishra, Jiyuan Yang, Jiyang Yu, Xinwei Cao, “TEAD promotes lineage progression of subpallial neural progenitor cells independent of YAP/TAZ”. **Genes & Development**, Revision Submitted.
3. Shiwani Chahal; Abhijit Debnath; Heena Jain; **Akhilesh Mishra***, Priyanka Siwach*, “Identification of a Novel EGFR Inhibitor from Terminalia arjuna Using Molecular Docking, Molecular Dynamics Simulations and Network Pharmacology”. **Natural Products and Bioprospecting**, Under Review. **(Corresponding Author)**
4. Shiwani Chahal, Abhijit Debnath, Renu Kumari, Pooja Ridhal, **Akhilesh Mishra***, Priyanka Siwach* “Antihypertensive Potential of Diosgenin: A Comparative Pharmacoinformatics Study”, **Computers in Biology and Medicine**, Revision Submitted. **(Corresponding Author)**
5. **Akhilesh Mishra**, Ming Gao, Yi-Feng Gu, Vanina Toffessi Tcheuyap, Bret M. Evers, Deyssy Carrillo, Jeffrey Miyata, Masahiro Sakurai, Leqian Yu, Jun Wu, Hua Zhong, Anwesha Dey, Renée M. McKay, Payal Kapur, James Brugarolas, “Dissecting the Interplay between Bap1 and Pbrm1 in Renal Cell Carcinoma” **Manuscript Under Review**.
6. Jackie L. Norrie, Marybeth Lupo, Danielle Little, Abbas Shirinifard, **Akhilesh Mishra**, Qiong Zhang, Natalie Geiger, Daniel Putnam, Nadhir Djekidel, Cody Ramirez, Beisi Xu, Jacob M. Dundee, Jiyang Yu, Xiang Chen and Michael A. Dyer, “Latent Epigenetic Programs in Müller Glia Contribute to Stress, Injury, and Disease Response in the Retina” **Developmental Cell**, 2025, 60, 1–18, <https://doi.org/10.1016/j.devcel.2024.12.014>. **[IF-10.7]**
7. Juan Yang, Ramesh Butti, Shannon Cohn, Vanina Toffessi Tcheuyap, Arijit Mal, Mylinh Nguyen, Christina Stevens, Alana Christie, **Akhilesh Mishra**, Yuanqing Ma, Jiwoong Kim, Robert Abraham, Payal Kapur, Robert E Hammer, James Brugarolas, “Unconventional mechanism of action and resistance to rapalogs in renal cancer” **Proceedings of the National Academy of Sciences**, 2024 Jun 18;121(25):e2310793121, [10.1073/pnas.2310793121](https://doi.org/10.1073/pnas.2310793121). **[IF-11.1]**
8. Gopinath Prakasam, **Akhilesh Mishra**, Alana Christie, Jeffrey Miyata, Deyssy Carrillo, Vanina T. Tcheuyap, Hui Ye, Quyen N. Do, Yunguan Wang, Oscar Reig Torras, Ramesh Butti, Kevin B Jones, Zora Modrsan, Steffen Durinck, Mai-Carmen Requena-Komuro, Ivan Pedrosa, Tao Wang, Dinesh Rakheja, Payal Kapur, James Brugarolas, “Comparative Genomics of Novel Translocation Renal Cell Carcinoma Model Reveals Molecular Mechanisms of Disease Progression” **Journal of Clinical Investigation**, 2024, 134(7): e170559. <https://doi.org/10.1172/JCI170559>. **[IF-13.3]**
9. Dinesh Sharma, Kopal Sharma, **Akhilesh Mishra**, Priyanka Siwach, Aditya Mittal, B Jayaram, “Molecular Dynamics simulation-based trinucleotide and tetranucleotide level structural and energy characterization of functional units of genomic DNA” **Phys. Chem. Chem. Phys.**, 2023, 25(10), 7323-7337, DOI: 10.1039/d2cp04820e. **[IF- 3.9]**
10. Yuanqing Ma, Allison Joyce, Olivia Brandenburg, Faeze Saatchi, Christina Stevens, Vanina Toffessi Tcheuyap, Alana Christie, Quyen Do, Oluwatomilade Fatunde, Alyssa Macchiaroli, So C Wong, Layton Woolford, Qurratulain Yousuf, Jeffrey Miyata, Deyssy Carrillo, Oreoluwa Onabolu, Tiffani McKenzie, **Akhilesh Mishra**, Tanner Hardy, Wei He, Daniel Li, Alexander Ivanishev, Ivan Pedrosa, Payal Kapur, Thomas Schluep, Steven B. Kanner, James Hamilton, James Brugarolas “HIF2

- inactivation and tumor suppression with a tumor-directed RNA-targeting drug in mice and humans” **Clinical Cancer Research** 2022, 28 (24), 5405–5418. [10.1158/1078-0432.CCR-22-0963](https://doi.org/10.1158/1078-0432.CCR-22-0963). [IF- 11.5]
11. Oscar Reig Torras, **Akhilesh Mishra**, Alana Christie, Tiffani McKenzie, Oreoluwa Onabolu, Nirmish Singla, Elizabeth R Plimack, Cristina Suárez, Moshe C. Ornstein, R. Katherine Alpaugh, Roy Elias, I. Alex Bowman, Renee M. McKay, Christopher Przybycin, Payal Kapur, James Brugarolas, Brian Rini, “Molecular genetic determinants of shorter time on active surveillance in prospective phase II clinical trial of metastatic renal cell carcinoma patients” **European Urology** 2022, 81(2022), 555–558. <https://doi.org/10.1016/j.eururo.2021.12.003>. [IF- 23.4]
 12. **Akhilesh Mishra**, Priyanka Siwach, Pallavi Misra, Simran Dhiman, Ashutosh Kumar Pandey, Parul Srivastava, B. Jayaram "Intron-Exon boundary junctions in human genome have in-built information for unique structural and energetic signals" **Nucleic Acids Research** 2021,49(5), 2674–2683. [10.1093/nar/gkab098](https://doi.org/10.1093/nar/gkab098). [IF- 16.6]
 13. Prashant Pradhan, Ankit Srivastava, Jasdeep Singh, Banhi Biswas, Akanksha Saini, Ibrar Siddique, Pooja Kumari, Mohd. Asim Khan, **Akhilesh Mishra**, Pramod Kumar Yadav, Shivani Kumar, Neel Sarovar Bhavesh, Prasanna Venkatraman, Perumal Vivekanandan, Bishwajit Kundu, “Prion protein transcription is auto-regulated through dynamic interactions with G-quadruplex motifs in its own promoter” **BBA - Gene Regulatory Mechanisms** 2020, 1863(3), 194479. <https://doi.org/10.1016/j.bbagr.2019.194479>. [IF- 6.3]
 14. **Akhilesh Mishra**, Sahil Dhanda, Priyanka Siwach, Shruti Aggarwal, B. Jayaram, “A novel method SEProm for prokaryotic promoter prediction based on DNA structure and energetics” **Bioinformatics** 2019, btz941, 1–10. <https://doi.org/10.1093/bioinformatics/btz941>. (Thesis Chapter) [IF- 5.8]
 15. **Akhilesh Mishra**, Priyanka Siwach, Pallavi Misra, B. Jayaram, Manju Bansal, Wilma K. Olson, Kelly Thayer, David L. Beveridge, "Towards a universal structural and energetic model for prokaryotic promoters" **Biophysical Journal** 2018, 115 (7): 1180-1189. <https://doi.org/10.1016/j.bpj.2018.08.002> (Thesis Chapter) [IF- 3.4]
 16. **Akhilesh Mishra**, Pradeep Pant, B. Jayaram, "Generating hit molecules against pathogenic DNA motifs in silico" **Atlas of Science** 2018. <https://atlasofscience.org/generating-hit-molecules-against-pathogenic-dna-motifs-in-silico/>. (Thesis Chapter)
 17. **Akhilesh Mishra**, Pradeep Pant, Nirotpal Mrinal and B. Jayaram, "A Computational protocol for the discovery of lead molecules targeting DNA unique to pathogens" **Methods** 2017, 131: 4-9. <https://doi.org/10.1016/j.ymeth.2017.07.017> (Thesis Chapter) [IF- 4.8]
 18. Ankita Singh, **Akhilesh Mishra**, Ali Khosravi, Garima Khandelwal, and B. Jayaram, “Physico-chemical fingerprinting of RNA genes” **Nucleic Acids Research** 2016, 45 (7), e47. <https://doi.org/10.1016/j.bbagr.2019.194479>. (Thesis Chapter) [IF- 16.6]
 19. Navneet Tomar, **Akhilesh Mishra**, Nirotpal Mrinal, and B. Jayaram, “Onco-Regulon: an integrated database and software suite for site-specific targeting of transcription factors of cancer genes” **DATABASE** 2016, baw116. <https://doi.org/10.1093/database/baw116> (Thesis Chapter) [IF- 5.8]
 20. Mr. Khalid Raza, **Akhilesh Mishra**, “A Novel Anticlustering Algorithm For The Prediction Of Genes As A Drug Target” **American Journal Of Biomedical Engineering** 2012, 2(5):206-211. <http://dx.doi.org/10.5923/j.ajbe.20120205.03>. [IF- 0.7]

BOOK CHAPTER

1. **Akhilesh Mishra**, Priyanka Siwach, Poonam Singhal, and B. Jayaram "ChemGenome2.1: An ab initio gene prediction software". **Methods in Molecular Biology** 2019, 2019;1962:121-138. doi: 10.1007/978-1-4939-9173-0_7. (Thesis Chapter)

- Shiwani Chahal, Inderjeet Singh, Heena Jain, Anita Rani, Anita Rani Gill, **Akhilesh Mishra** and Priyanka Siwach “Terminalia arjuna for treatment of cardiovascular diseases: from traditional usage to high throughput drug discovery”. *Biotechnological Advances in Agriculture, Healthcare, Environment and Industry (1st ed.)*, 2024, ISBN 9781032642543, CRC Press. <https://doi.org/10.1201/9781032642567>.

PATENTS

- Developed India’s cheapest COVID-19 Diagnostic kit and patented the technology as

Patent No.	499355 (Approved)
Name of Inventors	Bishwajit Kundu, Akhilesh Mishra , Parul Gupta, Ashutosh Kumar Pandey, Prashant Pradhan, Manoj B Menon, James Gomes, Vivekanandan Perumal
Invention Entitled	BIOMARKERS, KIT AND APPLICATIONS THEREOF
Patentee	Indian Institute of Technology Delhi
Technology Sold	12 million Indian rupees
Future Application	The technology was procured by ten big companies for global marketing.

- US Patent on “Primer sets, biomarkers, kit and applications thereof”

Application No.	US17/422,575
Name of Inventors	Bishwajit Kundu, Akhilesh Mishra , Parul Gupta, Ashutosh Kumar Pandey, Prashant Pradhan, Manoj B Menon, James Gomes, Vivekanandan Perumal, Sonam Dhamija
Invention Entitled	Primer sets, biomarkers, kit and applications thereof
Patentee	Application filed by Indian Institute of Technology Delhi
Publication	US20220002824A1 (United States)
Status	Pending

STARTUP

I have recently applied for the **NIDHI PRAYAS grant** to support my startup idea, which focuses on the simultaneous measurement of cortisol and glucose levels in a single blood test. This innovation aims to screen and assess the role of stress in the initiation and progression of diabetes.

The prototype of the product, "GlySense," is now ready, and we have been receiving highly positive feedback from the Foundation for Technology and Business Incubation, Rourkela. I am optimistic about the next steps in this exciting venture.

TEACHING EXPERIENCE

- As an Assistant Professor at NIT Rourkela, I am currently teaching four courses this semester: **Basic Bioinformatics, Biology for Engineers, Plant Science, and Ethics & Value Education**. The student enrollment for these courses is 18, 96, 16, and 95, respectively.
- Teaching Assistant in the Spring **2024** Computational Biology Course designed for PhD students at St. Jude Children’s Research Hospital, Memphis, Tennessee, USA, led by Dr. Brian Abraham.

Presented an overview of technology, commonly used software with hands-on experience. A key focus will be on the interpretation of data and figures in scientific publications.

3. Teaching assistant for the course "SBL-100 Introductory Biology to Engineers" designed for IIT Delhi undergraduates (2015-2017). The duties included assisting in theory classes, demonstrations, practical classes, invigilation, evaluation, and grading.
4. Instructor and resource person in **24** Workshop conducted between **2014 to 2019** on "Genomics, Proteomics, Drug Discovery, and HPC" organized by Supercomputing Facility for Bioinformatics and Computational Biology, Dept. of Chemistry, IIT Delhi.

FELLOWSHIP AND ACHIEVEMENTS

1. University Grants Commission Research **Fellowship** used for accomplishing Ph.D. thesis research work. (All India Rank 59).
2. **Qualified** Graduate Aptitude Test Engineering 2012 in Life Sciences.
3. **Qualified** Bioinformatics National Certification Exam and Fellowship 2016 (All India Rank 3).
4. **Gold medal** in Graduation – DDU University, Uttar Pradesh, India. (Rank 1)
5. Chaudhary Ram Lakhan Chandra Memorial **Scholarship** in Graduation.
6. University Rank - **3rd** in Postgraduation - Jamia Millia Islamia, New Delhi, India.
7. Ph.D. awarded - 2019.

AWARDS

1. **Best Poster Award** in "10th International Conference on Genomics and Molecular Biology", May 21-23, 2018, Barcelona, **Spain**.
2. Indian Institute of Technology Delhi **Travel award**, Govt. of India, attended the "10th International Conference on Genomics and Molecular Biology", May 2018, Barcelona, Spain.
3. Indian Institute of Technology Delhi **Travel award**, Govt. of India, to attend the "Variant Effect Prediction Training Course and Conference Malaysia" by "The Human Variome Project," August 2018, Newcastle University, Johor, Malaysia.
4. 10,000 INR **Cash Award**, From Department of Biotechnology, for scoring All India Third Rank in **Bioinformatics National Certification Exam**.

WORKSHOP ATTENDED

1. Represented "Department of Biotechnology, India" in the National Workshop on "Tech4Seva Workshop", August **2019**.
2. International Workshop on "NGS Data Analysis and Ensembl Resources (NGS-ENSEMBL)" at "National Institute of Plant Genome Research" organized by the BTIS-NET Sub-DIC, NIPGR, New Delhi and Ensembl team, European Bioinformatics Institute (EMBL-EBI), Cambridge, UK, July 9 - 12, **2019**.
3. National workshop on "Hands-on Training on Next Generation Sequencing, Analysis & Its Applications (Genomics, Transcriptome, and Transposons)" at "TDU University" organized by "TDU University and Bengaluru Genomics Centre", April 01-06, **2019**.
4. International Workshop on "Variant Effect Prediction Training Course and Conference" by "The Human Variome Project" at "Newcastle University, Johor, Malaysia, August 27-30, **2018**.

5. International Workshop on “Hands-on Nextgen Sequencing and Bioinformatics Workshop” at “Centre for Cellular and Molecular Biology (CCMB),” organized by “NGBT, SGRF conferences,” India, Sep 24 to Oct 03, 2015.
6. Workshop on “National Workshop and Hands-on Training on Plant Gene Repository and Plant Gene Database handling,” at “National Institute of Plant Genome Research,” organized by “National Plant Gene Repository” (NAPGER), Feb 20-22, **2014**.
7. Workshop on “Current Trend in Bioinformatics,” organized by Department of Computer Science, Jamia Millia Islamia, New Delhi, March 13-14, **2012**.

CONFERENCE ATTENDED

1. Annual International Computational Biology Conference 2025, held from February 19-21, 2025, and organized by the Indian Biological Data Center (IBDC), Regional Center for Biotechnology (RCB) Faridabad.
2. “10th International Conference on Genomics and Molecular Biology”, May 2018, Barcelona, Spain, hosted by Conferenceseries.
3. National Conference on “Breaking Barriers through Bioinformatics and Computational Biology”, July 2017, hosted by Supercomputing Facility for Bioinformatics and Computational Biology (SCFBio), IIT Delhi, India.
4. Annual Conference of Bioworld series on “Bioworld 2016: Protein Structure and Function”, hosted by Kusuma School of Biological Sciences, IIT Delhi, India.
5. International Conference on “2015 NextGen Genomics, Biology, Bioinformatics and Technologies (NGBT)”, hosted by SciGenom Research Foundation (SGRF), Centre for Cellular and Molecular Biology (CCMB) & Institute of Bioinformatics (IOB) in Hyderabad, India.
6. Annual Conference of Bioworld series on “Bioworld 2014: Protein Structure and Function”, hosted by Kusuma School of Biological Sciences, IIT Delhi, India.

TALKS AND POSTERS

1. **Akhilesh Mishra**, “Integrative Genomics for Advancing Therapies in Renal Cell Carcinoma and Adamantinomatous Craniopharyngioma”, **Annual International Computational Biology Conference 2025**, held from February 19-21, 2025, and organized by the Indian Biological Data Center (IBDC), Regional Center for Biotechnology (RCB) Faridabad.
2. **Akhilesh Mishra**, “Integrative Genomics for Advancing Therapies in Renal Cell Carcinoma and Adamantinomatous Craniopharyngioma”, Sci-Roi Global **2024**, St. Jude Children’s Research Hospital, United States.
3. **Akhilesh Mishra**, Pradeep Pant and B. Jayaram, “Onco-Plus: An integrated database and a computational protocol for discovery of lead molecules targeting unique DNA sequences,” **J Mol Genet Med**, 2018.
4. **Akhilesh Mishra**, Priyanka Siwach and B. Jayaram, “ChemGenome: An ab initio method for prokaryotic genome annotation,” **VEPTC Conference Proceedings**, 2018.
5. **Akhilesh Mishra**, Pradeep Pant, and B. Jayaram, “An in-silico approach to discover lead molecules targeting DNA unique to pathogen,” **Journal of Protein and Proteomics**, 2017.
6. **Akhilesh Mishra**, Shruti Aggarwal, Nitrotpal Mrinal, and B. Jayaram, “Onco-Regulon: An Integrated database and software suite for site-specific targeting of transcription factor,” **Journal of Protein and Proteomics**, 2017.

7. Ankita Singh, **Akhilesh Mishra**, Ali Khosravi, Garima Khandelwal, and B. Jayaram, "Physico-Chemical Fingerprinting of RNA Genes," **Journal of Protein and Proteomics**, 2017.
8. Ankita Singh, **Akhilesh Mishra**, Ali Khosravi, Varsha Singh, Garima Khandelwal, and B. Jayaram, "Physico-Chemical Fingerprinting of RNA Genes," NextGen Genomics, Biology, **NGBT Conference Proceedings**, 2015.
9. Invited Talk on "Identification and Targeting of DNA as Drug target", organized at "**Pathfinder Research and Training Foundation**", Noida, Uttar Pradesh, from 18 – 24 June 2019.
10. Planetary lecture on "Employability: Challenges ahead and Exploring Solutions" as a **Guest of Honor** in Department of Computer Science, **Jamia Millia Islamia**, New Delhi on 18th November 2018.
11. Invited Talk on "Deciphering the language of DNA", under the aegis of "**DBT STAR College Scheme**", organized by "**Acharya Narendra Dev College**", University Of Delhi, India on May 15th, 2020.
12. Invited Talk on "Cancer Genomics in Healthcare System", under the aegis of "**Online AICTE sponsored ATAL Faculty Development Program (FDP)**", organized by "Noida Institute of Engineering and Technology (Pharmacy Institute)", on 20th November 2021.
13. Guest speaker in the "International Conference & Summit-2023 NIET(P)ICS" on "**Technology in Pharma Healthcare – Past, Present, and Future**" organized by Noida Institute of Engineering and Technology, (Pharmacy Institute), Greater Noida, India, held on June 23-24, 2023.
14. Gopinath Prakasam, **Akhilesh Mishra**, Alana Christie, Jeffrey Miyata, Vanina T. Tcheuyap, Hui Ye, Quyen N. Do, Kevin B. Jones, Mai-Carmen Requena-Komuro, Ivan Pedrosa, Dinesh Rakheja, Payal Kapur, James Brugarolas; Abstract PR004: Comparative genomic analysis of novel translocation renal cell carcinoma model reveals molecular mechanisms of disease progression and therapeutic opportunities. **Cancer Res** **15 August 2023; 83** (16_Supplement): PR004. <https://doi.org/10.1158/1538-7445.KIDNEY23-PR004>.

ORGANIZER

Successfully organized a **recruitment drive** for Life Science students at NIT Rourkela to fill **54 project positions** under the ICMR Project: "Subnational Survey for Community Perspective Assessment and Preventive Strategies for Malaria Control in Selected Malaria-Endemic States, India."

The interviews were conducted on **February 10, 2025**, and I also had the privilege of serving as an external expert on the selection committee.

REFEREES

Dr. Jiyang Yu

(Postdoc Supervisor)

Associate Member, St. Jude Faculty
Interim Chair, Department of Computational Biology
MS 1135, Room IA6053
St. Jude Children's Research Hospital
262 Danny Thomas Place
Memphis, TN 38105-3678
Email: jiyang.yu@stjude.org
Phone: (901) 595-7311, Fax: (901) 595-0822

Prof. James Brugarolas

(Former Postdoc Supervisor)

Director, Kidney Cancer Program
Professor, Internal Medicine/ Hematology-Oncology
Cancer Biology, Genetics, Development and Disease
Simmons Comprehensive Cancer Center
University of Texas Southwestern Medical Center
5323 Harry Hines Blvd.
Dallas, TX 75390-8852
Phone No.: +1-(214) 648-4059,
james.brugarolas@utsouthwestern.edu

Prof. B. Jayaram

(Ph.D. Supervisor)

Emeritus Professor,
Department of Chemistry & Kusuma School of Biological Sciences,
Indian Institute of Technology Delhi,
Hauz Khas, New Delhi- 110016.
Coordinator,
Supercomputing Facility for Bioinformatics & Computational Biology,
Indian Institute of Technology, Delhi
Hauz Khas, New Delhi - 110016
Phone No.: 011-26591505,
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Prof. Priyanka Siwach

(Collaborator)

Professor of Biotechnology
Department of Biotechnology,
Chaudhary Devi Lal University,
Sirsa, Haryana-125055
Phone No.: 08826975608,
Email: psiwach29@gmail.com

Prof. Indrakant K. Singh

(Knows me >10years)

Professor
Molecular Biology Research Laboratory,
Department of Zoology,
Deshbandhu College,
University of Delhi-110019
Phone No.: +91-9868426787,
Email: iksingh@db.du.ac.in

DISSERTATION SUPERVISION

1. Abhishek Verma

Dissertation title: Logic building for the in-silico validation of mRNAs.

Duration: August 1, 2014 – April 15, 2015.

Current Role: Assistant Professor, Chemistry Department, Delhi University, India

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2. Argha Sarkar

Dissertation title: Genome annotation using physicochemical properties of DNA.

Duration: August 1, 2014 – May 15, 2015.

Current Role: Scientist, ONGC, India

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3. Dixit Khosla

Project title: A Statistical Thermodynamic Model for Investigating the Stability of DNA Sequences from Oligonucleotides to Genomes. **Duration:** December 1, 2014 – April 30, 2015.

Current Role: Software Developer at Innova, Ottawa, Ontario, Canada.

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Dissertation title: Physico-chemical parameter-based understanding of splicing phenomenon in human genome. **Duration:** December 1, 2016 – September 15, 2017.

Current Role: Power BI analyst for healthcare client at Ernst and Young India LLP, India

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Project title: Towards a universal structural and energetic model for prokaryotic promoters.

Duration: April 1, 2016 – January 15, 2021.

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Dissertation title: Generating tissue specific gene-miRNA Network Of 1000 Cancer related Genes

Duration: January 1, 2015 – September 30, 2016.

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Project title: Prokaryotic promoter prediction based on DNA structure and energetics.

Duration: May 1, 2018 – July 30, 2019.

Current Role: Trend Micro Inc., (Sr Software Development Engineer), Austin, Texas, USA.

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Dissertation title: Sequence level analysis of human genome for identifying signature pattern of exon intron boundaries. **Duration:** December 1, 2017 – January 15, 2019.

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Dissertation title: Structural and energetic profiling of intron - exon boundaries in human genome.

Duration: December 1, 2017 – August 31, 2018.

Current Role: Preparing for teaching services in India

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Project title: Identification of new lead molecule for Anthrax by utilizing PSDDF tool.

Duration: April 1, 2018 – July 15, 2018.

Current Role: Assistant Professor, NIET Pharmacy Institute, Innovation Ambassador- IIC (A Ministry of Education, Govt. of India Initiative), Innovation Activity Coordinator, IIC of NIET Pharmacy Institute, SPOC, NPTEL Local Chapter

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Project title: Summer Undergraduate Research Award

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Dissertation title- A study of base-pair sequence effects on promoter strength

Duration- October 1, 2019 – July 31, 2020.

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13. Kartikey

Dissertation title- Constructing structural and energy profiles to predict exon-intron boundaries in eukaryotes. **Duration-** May 1, 2019 – January 31, 2020.

Current Role: Last year of B Tech in Biotechnology from Indian Institute of Technology Delhi, Campus Placement as Associate in Brightcom Group Ltd, India

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14. Eleanor Merchant

Dissertation title- Vasculopathy in Adamantinomatous Craniopharyngioma.

Duration- May 1, 2024 – July 31, 2024.

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