

PROFILE SNAPSHOT

- PhD (Biotechnology) with 38 months of pre-PhD and more than 06 years of post-PhD experience in Cancer Genomics and Molecular Biology.
- Seeking to contribute in the areas of **Clinical / Biotechnology applications** in a reputed institute/company with opportunities for professional and personal growth.
- Sincere, hardworking and high spirited – My consistent academic record bears the testimony to my constant pursuit of excellence. I am an initiative taker and I show perseverance in accomplishing whatever task I undertake.
- **Capable of managing big teams and building up collaboration**
- **Drafted and heading the Indian Breast Cancer Genome Project from Dr. Chowdhury's lab at IGIB**

RESEARCH EXPERIENCE

- Worked as Project Assistant in project titled "IN SILICO BIOLOGY FOR DRUG TARGET DEVELOPMENT", sponsored by Council of Scientific and Industrial Research, Govt. of India, at IGIB, Delhi, India [From December, 2008- March ,2010]
- Worked as Project Assistant in project titled "Gen 2 Phen-Genotype to Phenotype Database: A holistic solution", sponsored by Council of Scientific & Industrial Research, Govt. of India, at IGIB, Delhi, India [From April, 2010- March, 2011]
- Worked as Project Assistant in project titled "An Integrative biology approach in deciphering genotype-phenotype correlation for human complex disorders", sponsored by Council of Scientific & Industrial Research, Govt. of India, at IGIB, Delhi, India [From April, 2011- March, 2012]
- Worked as a Project Scientist in Project CSIR-TRISUTRA at IGIB, Delhi [January 2016-June 2016]
- Worked as ICMR- Post-Doctoral Fellow at National Institute of Cancer Prevention & Research (ICMR-NICPR)[July 2016-October 2017]
- Worked as SERB-National Post-Doctoral Fellow at National Institute of Cancer Prevention & Research (ICMR-NICPR)[October 2017- April 2019]
- Worked as Research Associate at CSIR-IGIB [May 2019 – Feb 2021]
- **Working as Senior Research Associate [CSIR Scientist Pool Officer] at CSIR-IGIB [Feb 2021 – Till date]**

LIST OF PUBLICATIONS**Published:**

1. Kar A, Saha D, Purohit G, **Singh A**, Kumar P, Yadav VK, Kumar P, Thakur RK, Chowdhury S. Metastases suppressor NME2 associates with telomere ends and telomerase and reduces telomerase activity within cells. Nucleic Acid Research. 2012; 40(6): 2554-65. [Impact Factor: 10.1]
2. Baral A, Kumar P, Halder R, Mani P, Yadav VK, **Singh A**, Das SK, Chowdhury S. Quadruplex-single nucleotide polymorphisms (Quad-SNP) influence gene expression difference among individuals. Nucleic Acid Research. 2012; 40(9): 3800-11. [Impact Factor: 10.1]
3. Thakur RK, Yadav VK, Kumar A, Basundra R, Kar A, Halder R, **Singh A**, Kumar P, Baral A, Kumar MM, Pal K, Banerjee R, Chowdhury S. Functional genomics of lung cancer progression reveals mechanism of metastasis suppressor function. Mol Cytogenet. 2014 Jan 21;7. [Impact factor: 2.36]
4. Yadav V, Thakur RK, Eckloff B, Baral A, **Singh A**, Halder R, Kumar A, Alam P, Kundu T, Pandita R, Pandita T, Wieben E, Chowdhury S. Promoter-proximal transcription factor binding is transcriptionally active when coupled with nucleosome repositioning in immediate vicinity. Nucleic Acid Research. [21 June 2014] [Impact Factor: 10.1]
5. Thakur RK[§], Yadav VK[§], Kumar A[§], **Singh A**, Pal K, Hoepfner L, Basundra R, Kar A, Halder R, Kumar P, Baral A, MJ Mahesh Kumar, Baldi A, Vincenzi B, Lorenzon L, Banerjee R, Praveen Kumar, Shridhar V, Mukhopadhyay D and Chowdhury S. Non-metastatic 2 (NME2)-mediated suppression of lung cancer metastasis involves transcriptional regulation of key cell adhesion factor Vinculin. Nucleic Acid Research. [2014][Impact Factor: 10.1]
6. Saha D[§], **Singh A[§]**, Hussain T, Srivastava V, Sengupta S, Kar A, Dhapola P, Dhople V, Ummanni R, Chowdhury S. Journal of Biological Chemistry. Epigenetic suppression of human telomerase (hTERT) is mediated by the metastasis suppressor NME2 in a G-quadruplex-dependent fashion. [2017] [Impact Factor: 4.125] **PS :\$ - Shared first Author(s)**

7. Arun Kumar, Showket Hussain, **Ankita Singh**, Rashmi Kaul, Anil Kaul, Rahul Prabhas, Sunil Kumar Srivastava, Nitin Goel and V. K. Narang. Protein kinase c – zeta inhibitors: a new hope for controlling maternal intrauterine infection induced premature birth. International Journal of Advanced Research.[2017][Impact Factor : 6.118]
8. Niacin Deficiency Modulates Genes Involved in Cancer: Are Smokers at Higher Risk? Mohtashim Lohani, Anupam Dhasmana, Shafiul Haque , Sajad A. Dar, Arshad Jawed , Mohd Wahid, Raju K. Mandal, Naseem Akhter , Abdullah Farasan, Yahya Hassan Hobani, **Ankita Singh**, Showket Hussain [Journal of Cellular biochemistry] [2018][Impact Factor: 3.446]
9. Cancer Drug Resistance: A Fleet to Conquer. Showket Hussain, **Ankita Singh**, Sheeraz Un Nazir, Sonam Tulsyan, Ravi Mehrotra. [Journal of Cellular biochemistry] [2019][Impact Factor: 3.446]
10. Differential expression of Ets-1 in breast cancer among Indian population. Nazir, Sheeraz ; Kumar, Ramesh ; Afroze, Dil; Rasool, Ishrat; Bondhopadhyay, Banashree, **Singh, Ankita**; Tripathi, Richa ; Singh, Neha; Khan, Asiya; Tanwar, Pranay; Agrawal, Usha; Mehrotra, Ravi; Hussain, Showket.(Journal of Cellular Biochemistry)(2019) [Impact Factor: 3.446]
11. Breast cancer invasion and progression by MMP-9 through Ets-1 transcription factor. Sheeraz Un Nazir, Ramesh Singh, **Ankita Singh**, Asiya Khan, Pranay Tanwar. (GENES,2019)
12. Telomere-Dependent Interleukin-1 Receptor Activation Promotes Immune Suppression in Triple-Negative-Breast Cancer. Ananda Kishore Mukherjee, **Ankita Singh**, Shalu Sharma, Shuvra Shekhar Roy, Antara Sengupta, Subhajit Dutta, Soujanya Vinayagamurthy, Sulochana Bagri, Divya Khanna, Megha Chatterjee, Meenakshi Verma, Dristhi Soni, Anshul Budharaja, Sagar Kailasrao Bhisade, Vivekanand, Ahmad Perwez, Mohammed Faruq, Ishaan Gupta, Shantanu Chowdhury [Biorxiv – 08 Dec 2021][doi: <https://doi.org/10.1101/2021.12.07.471419>]
13. MRAS and FOXA1 are epigenetically regulated in Breast Cancer. **Ankita Singh**, Anamika Priyadarshini, Banashree Bandopadhyay, Showket Hussain [In communication]
14. Association of steroid hormones with oncogenic HPV accelerate the carcinogenesis of cervical cancer. Anamika Priyadarshini, **Ankita Singh**, Sandeep Sisodiya, Atul Chikara, Showket Hussain [In communication]

PROJECTS COMPLETED SUCCESSFULLY EMPLOYING SEVERAL TECHNIQUES

1. Understanding the role of Nckx30c gene in regulating *Drosophila melanogaster* locomotor activity: The gene was silenced in *Drosophila melanogaster* using RNAi approach. The **siRNA designed** for the study using bio-informatic approaches was verified by confirming silencing of gene through **Polymerase chain reaction (PCR)** and was later administered in adult flies through **microinjection** in thorax and abdomen.
2. Genome wide binding profile of NME2 (a metastatic protein) was discovered through Chromatin immunoprecipitation followed by next generation sequencing (**ChIP-Seq**) and **RNA-Sequencing** (Illumina platform) to understand the functional relevance of NME2 binding to its targets. The common genes between the two data sets were individually validated using **quantitative real time PCR** (qRT-PCR).
3. Role of quadruplex in regulating gene transcription was dissected using multiple tools like **circular dichroism, UV melting, molecular cloning, site-directed mutagenesis, ELISA, immune-fluorescent microscopy** etc.
4. The model by which a metastasis suppressor protein and quadruplexes interact to regulate gene expression was deciphered using approaches that involved application of **cell culturing (cancerous and normal), cell viability assays, chromatin immunoprecipitation (ChIP), ChIP-Seq, RNA-Seq, transient-ChIP, recombinant protein purification using bacterial/human cell line systems, western blotting, FACS, generation of stable cell lines over-expressing/deficient in a particular protein using lentiviral based systems and plasmid based models, transfection in cultured cells, cell invasion assays using boyden chambers, co-immunoprecipitation, wound healing assays, soft agar assay, oligo pull down assays, Sequential ChIP, CRISPR mediated gene editing** etc.
5. Performed **extensive screening of several small molecules** on cancerous cell line based models to test their effect on invasion and proliferation characteristics thereby understanding their potential to be developed as **potent therapeutic** for cancer.

6. Performed whole genome sequencing and RNA Seq to find out distinguishing genomic characters in people of various prakritis as classified under Ayurveda.
7. Standardized and established the protocol for small RNA sequencing during my tenure as Project Scientist.
8. Standardized the protocol for generation of organoids from tissues.
9. **Currently, extensively utilizing Next Generation Sequencing Platform (Illumina) including single cell genomics and spatial transcriptomics to understand the variations at genome level across Indian Breast cancer Patients. Alongside, developing synthetic screening model in tumor organoids.**

ADDITIONAL TRAININGS

- Five months M.Sc. Dissertation on research work entitled “Cell non-autonomous RNAi against Nckx30C gene in adult Drosophila melanogaster: effect on locomotor behavior” at IGIB, Delhi, India [March, 2008- July, 2008]
- Fifteen days training in “Instrumental Techniques for drug analysis and effluent treatment process”, at Unichem India Ltd., Ghaziabad, Uttar Pradesh, India [2005]
- Fifteen days training in quality control department at Mohun meakin’s Ltd., Ghaziabad, Uttar Pradesh, India [2005]

ACADEMIA

Ph.D. (Biotechnology)	AcSIR	2012 - 2015	Awarded
M. Sc. (Biotechnology)	C. C. S. University, Meerut, India	2006 – 2008	78.5 %
B. Sc. Honors (Biotechnology)	C. C. S. University, Meerut, India	2003 – 2006	71.0 %
XII- Std	Central Board of Secondary Education	2001 – 2003	70.0 %
X – Std	Central Board of Secondary Education	2000 – 2001	82.4 %

ACHIEVEMENTS & AWARDS

- Qualified National Eligibility Test for Lectureship (NET-LS) in Life Sciences [2008].
- Awarded ‘Senior Research Fellowship’ for three years by Indian Council of Medical Research, Govt. of India, India to pursue my Ph.D. thesis research work at CSIR-IGIB, Delhi, India [Since March, 2012]
- Awarded ‘Post-Doctoral Research Fellowship’ by Indian Council of Medical Research, Govt. of India, India to pursue research work on breast cancer at ICMR-NICPR, Noida, India [Since July, 2016]
- Awarded ‘National Post-Doctoral Fellowship’ by DST, India [March 2017]
- Won several awards at school and college level.
- Helped in set up and establishment of laboratory at my ICMR-NICPR.
- Trained and guided several students by designing research projects for them and ensured their successful completion during PhD and Post-doctoral tenure.
- Actively participated in framing, drafting and scientific execution of the **CSIR’s Indian Breast Cancer Genome Atlas project** [Sanctioned in 2021]

CONFERENCES AND SYMPOSIUMS

- Rapporteur in the cancer genomics panel at **Vaibhav Summit [International session]** held in October 2020.
- Volunteer at **TCGA 2020** conference
- Gave a talk as ‘**invited speaker**’ [Genomics in Controlling Infections: Understanding the promises and hurdles of NGS] at the 47th ACBION conference in December 2021
- Gave a **chalk talk** and poster presentation at National Post-doctoral symposium held at CCMB, Hyderabad in November 2018.
- Delivered multiple online webinars for Genomix in 2020-2021

REFERENCES	
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PERSONAL INFORMATION	
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