

Dr. S. V. SINGH, PhD
Assistant Professor
Coordinator (Since 3rd February 2022)
Department of Biotechnology
Bundelkhand University, Jhansi, UP, INDIA

Qualification-Ph.D. (JNU-Council of Scientific and Industrial Research -Central Drug Research Institute, Lucknow)

Research Interest

- Genomic variations in complex diseases

Achievements

- Qualified **CSIR National Eligibility Test (CSIR NET-JRF) and Graduate Aptitude Test in Engineering (GATE)**
- Recipient of **Department of Biotechnology Fellowship**, awarded by the Dept. Of Biotechnology, Govt. of India, New Delhi, India for qualifying the National Entrance Test for Masters in Biotechnology.

Research Publications

- Protective association exhibited by the single nucleotide polymorphism (SNP) rs1052133 in the gene human 8-oxoguanine DNA glycosylase (hOGG1) with the risk of Squamous cell carcinomas of the head & neck (SCCHN) among north Indians. Mitra AK, **Singh SV**, Garg VK, Sharma M, Chaturvedi R, Rath SK. Indian J Med Res. 2011 Jun;133(6):605-12.
- Cyclooxygenase-2 gene polymorphisms and chronic periodontitis in north Indian population: a pilot study. Daing A*, **Singh SV***, Saimbi CS, Khan MA, Rath SK. J Periodontal Implant Sci. 2012 Oct;42(5):151-7
- Rosiglitazone Induces Cardiotoxicity by Accelerated Apoptosis. Mishra P, **Singh SV**, Verma AK, Srivastava P, Sultana S, Rath SK. Cardiovasc Toxicol. 2014 Jun;14(2):99-119. doi: 10.1007/s12012-013-9234-y
- Single nucleotide polymorphisms at interleukin (IL)-1 β + 3954 and vitamin D receptor (VDR) TaqI in chronic periodontitis patients: A pilot study in North Indian population. Daing A, **Singh SV**, Saimbi CS, Khan MA, Rath SK, J Int Clin Dent Res Organ 2015;7:18-23
- Isoniazid prevents Nrf2 translocation by inhibiting ERK1 phosphorylation and induces oxidative stress and apoptosis. Verma AK, Yadav A, Dewangan J, **Singh SV**, Mishra M, Singh PK, Rath SK. Redox Biol. 2015 Jul 8;6:80-92. doi: 10.1016/j.redox.2015.06.020.
- Isoniazid induces apoptosis: Role of oxidative stress and inhibition of nuclear translocation of nuclear factor (erythroid-derived 2)-like 2 (Nrf2). Verma AK, Yadav A, **Singh SV**, Mishra P, Rath SK. Life Sci. 2018 Apr 15;199:23-33. doi: 10.1016/j.lfs.2018.02.037. Epub 2018 Feb 27.
- BAX, CASPASE8, GADD45A, MDM2, MGMT, PCNA and THBS1 gene polymorphisms and carcinoma of Upper Aero Digestive Tract and Breast in North Indians. P1767 Rath SK, **Singh SV**, Garg VK, Sharma M and Chaturvedi R. Abstract published in Indian J Cancer (Volume 50 Supplement 1 Nov. 2013)

Conference Abstracts/ Workshops/ Trainings

- Participated and successfully completed Refresher course on IPR and patent development (Online) conducted by UGC-MHRD Jai Narayan Vyas University, Jodhpur, Rajasthan from 9th July to 22nd July 2022.

- Participated in IP Awareness/Training program under National Intellectual Property Mission on July 14,2022 organized by Intellectual Property Office, India
- Participated and successfully completed four weeks **Faculty Development Programme on topic entitled “Functional Genomics” through MOOCs mode** organized by NPTEL-AICTE, funded by ministry of HRD, Govt. of India from august to September 2021
- Participated in seven days **Faculty Development Programme** on Research methodology organized by Pt. Deen Dayal Upadhyaya Shodh Peeth Bundelkhand University Jhansi from 5-11 June 2021. Certificate No.: FDPMBU0032
- Participated in seven days (40 hours) online **Faculty Development Programme on Advances in Bioinformatics** organized by department of Biotechnology, National Institute of Technology Warangal (NITW) and E&ICT academy, NITW from 10-16 may 2021
- Participated and successfully completed seven days **Refresher Course** on topic entitled “**Implementation of National Education Policy 2020**” in higher education from 17th march to 23rd march 2021 organized by Bundelkhand University Jhansi, India. Registration No. BU/NEP/RC/374
- Participated in International **Bioinformatics workshop** for Cancer Genomics from 1st March to 12th March 2021 conducted online by DecodeLife.org, India (Certificate Id-CG/RTK/157).
- Participated in two week online **International training on Bioinformatics** from 4th to 18th January 2021 conducted by DecodeLife.org, India (Certificate Id-TWT/RTK21/65).
- Attended the Biological diversity Webinar on 22nd May 2020, an online webinar organized by Biotechnika.org, on International Day of Biological Diversity
- **Invited lecture** – Topic entitled “Bioinformatics applications and challenges” National conference on science and technology in environmental management , Feb 22-23rd 2020 at Bipin Bihari college Jhansi, organized by society for green world and sustainable development, Jhansi [IT-13]
- Participated in awareness seminar entitled “**e-learning and MOOCs in higher education**” organized by Guru Angad Dev Teaching Learning centre of MHRD, SGTB Khalsa college, University of Delhi and Bundelkhand University, Jhansi at Jhansi on 24th January 2019.
- Faculty training program on “**Advance scientific research equipments**” organized by Innovation Centre Bundelkhand University Jhansi from 3-6 October 2018.
- Participated in awareness program on “Intellectual Property Rights” Organized by PHD chamber of commerce and Industry, New Delhi and Institute of Biomedical Science, Bundelkhand University Jhansi, 13th September 2018.
- **Presented a talk on topic entitled** “miRNA and gene regulation” in a national conference on “Current Scenario and future trends in Biotechnology” BIOFUTURITY 2018 from 27-28th march 2018, organized by Department of Biotechnology Engineering, Institute of engineering and technology, Bundelkhand University Jhansi.

- Joint secretary in an International conference on Advances in forensic DNA technology ICAFDT-2018 from 22-24th February 2018, organized by Department of Forensic science and Criminology, Bundelkhand University, Jhansi.
- As a **Resource Person in a workshop** entitled “Role of miRNA in eukaryotic gene regulation” organized by Department of Biotechnology and Microbiology, Saaii College of medical science and technology, Kanpur on 2nd December 2017.
- Joint secretary in a National conference on “Future perspective of forensic Science in INDIA” from 09-10th March 2017, organized by Department of Forensic science and Criminology, Bundelkhand University, Jhansi.
- Joint secretary in a national seminar “Role of forensic science in disaster victim identification in Indian perspective” from 18-19th March 2016, organized by Department of Forensic science and Criminology, Bundelkhand University, Jhansi.
- **Presented a talk** on topic entitled “Biotechnology and its Importance” in a national seminar on Technical terminology in science” organized by commission for scientific and technical terminology from 22-23rd November 2016 at Geology department, Bundelkhand University Jhansi.
- Member organizing committee in a national conference on “Research in Social Sciences and Sciences with special reference to methodology and statistical analysis” from 21-22nd March 2015, Organized by Institute of Education, Bundelkhand University Jhansi.
- Member special coordination committee (co-convener) in “Inter university zonal youth (North/South/east/West/Central) festival” Organized from 19th-23rd November 2015 by Bundelkhand University Jhansi.
- Attended seven days faculty development program held at Bundelkhand University Jhansi from 1st to 7th September 2014 organized by DreamUny Education Pvt. Ltd. and Bundelkhand University Jhansi.
- **Singh SV**, Garg VK, Sharma M, Chaturvedi R and Rath SK. BAX, CASPASE8, GADD45A, MDM2, MGMT, PCNA and THBS1 gene polymorphisms and carcinoma of Upper Aero Digestive Tract and Breast in North Indians. Accepted as poster presentation at 1st Indian Cancer Congress 2013 from 21st to 24th Nov. 2013 at Kempinski Ambience hotel, New Delhi. **P1767**
- **Singh SV**, Mitra AK, Verma AK, Singh BN, Garg VK, Sharma M, Chaturvedi R and Rath SK. VDR gene polymorphisms and risks of carcinoma of upper aero digestive tract in north Indians. Accepted as poster presentation at the Second Global Cancer Genomics Consortium Symposium, ACTREC, Kharghar, Navi Mumbai from Nov. 19th-20th 2012. **P041**
- **Singh SV**, Garg VK, Sharma M, Chaturvedi R and Rath SK. Abstract- Genetic polymorphisms in FAS, VDR, TP53 and BIRC5 genes and risks of carcinomas of upper aero digestive tract in north Indians- AACR International Conference on New Horizons in Cancer Research: Biology to Prevention to Therapy, Gurgaon, Delhi (NCR), India from December 13-16, 2011. **C59**
- **Singh SV**, Mitra AK, Garg VK, Sharma M, Chaturvedi R and Rath SK. Abstract- Polymorphisms in certain TP53 target genes associate risks of upper aero digestive tract carcinomas in North Indians. 70th Annual Meeting of the Japanese Cancer Association, October 3-5, 2011, Nagoya, Japan. **P-1186**
- **Singh SV**, Mitra AK, Wadhvani A, Garg VK, Sharma M, Chaturvedi R and Rath SK. Abstract- cdkn1a (p21) and tp53 gene snps and risks of squamous cell carcinomas of upper aero digestive tract (uadt) in north indian sub-populations, international

conference on stem cells and cancer (icscc-2010): proliferation,differentiation and apoptosis 11-14th Dec 2010 Pune,India, **P10**

- **Singh SV**, Garg VK, Chaturvedi R, Sharma M, Rath SK Abstract- p21 codon31 (rs1801270) and tp53 codon72 (rs1042522) polymorphisms and risks of squamous cell carcinoma of upper aero digestive tract (uadt) - a case control study in north indian sub populations.14th Human Genome Meeting2010 Next generation Genomics and Medicine 18-21 may 2010, Montpellier France. **A00259**
- **Singh SV**, Singh N, Garg VK, Chaturvedi R, Sharma M, Rath SK. abstract Single Nucleotide Polymorphisms (SNPs) in p53, p21 and Cox-2 genes and Breast cancer risk in North Indian women- case control study. 14th annual conference of Breast cancer foundation of India BCFCON-2010 7-8th March at Department of Radiotherapy CSM University Lucknow, U. P. India. **P1(Best Poster award)**
- **Singh SV**, Mitra AK, Singh N, Garg VK, Chaturvedi R, Sharma M and **Rath SK**. Invited Lecture- Gene Polymorphisms in Squamous cell carcinoma of Head & Neck and Breast cancer- Our Experience Symposium on DNA repair Genomic Instability and Cancer March 4-5th 2010, Dept. of Zoology, Banaras Hindu University, Varanasi.**P30**
- **Singh SV**, Mitra AK, Singh N, Garg VK, Chaturvedi R, Sharma M and **Rath SK**. Invited Lecture- Single Nucleotide polymorphisms (SNPs) and Breast Cancer risk- Our experience 14th annual conference of Breast cancer foundation of India BCFCON-2010 7-8th March at Department of Radiotherapy CSM University Lucknow, U. P. India. **P8**
- **Singh SV**, Mitra AK, Misra P, Shukla S, Garg VK, Chaturvedi R, Sharma M, Rath SK. Abstract- Functional polymorphisms in PTGS-2 gene and risks of Squamous Cell Carcinomas of Upper Aero Digestive Tract (UADT) International symposium on Translational Cancer research, Bhuvneshwar, Orissa. Dec. 18th to21st 2009.**P15**
- **Singh SV**, Mitra AK, Singh N, Garg VK, Chaturvedi R, Sharma M, Rath SK. p53 Arg72Pro (rs1042522) gene polymorphism and the risks of Head neck Squamous Cell Carcinoma (HNSCC) and Breast cancer among north Indians. Abstract, Third CIG symposium on “DNA repair and Human Health”, Laussane, Switzerland from june 10th -11th 2009. **P30**
- Mitra AK, **Singh SV**, Agarwal S, Zaidi A, Garg VK, Chaturvedi R, Sharma M, Rath SK. Significant association of the Single Nucleotide Polymorphism (SNP) rs13181 in the gene ERCC2 with the risk of Squamous Cell Carcinomas of the Head and Neck (SCCHN) and Breast cancer among north Indians. Abstract, International Symposium on Prognostic and Predictive Factors in Cancer Management: Clinical Applications, December 15th & 16th, 2008, Chhatrapati Shahuji Maharaj Medical University, Lucknow, India
- Mitra AK, **Singh SV**, Garg VK, Sharma M, Chaturvedi R, Rath SK. Association of the Single Nucleotide Polymorphism (SNP) rs1052133 in Human 8-oxoguanine glycosylase I (hOGG1) gene with the risk of Squamous Cell Carcinomas of the Head and Neck (SCCHN). Abstract,National Conference on Genomics, Proteomics and Systems Biology, October 1-3, 2008, Department of Biotechnology ,Sir M Visvesvaraya Institute of Technology, Bangalore, India,**GPP4**.
- Pratap B, Singh A, **Singh SV**, S Prasad CVS. "Insilico Prediction of Geminivirus Encoded microRNAs And Their Targets Identification in Medicago truncatula UTRs." Abstract- Plant and Animal Genome XV Conference January 13-17, **2007**. Town & Country Convention Center, San Diego, California.

- **Singh SV**, Singh A, S Prasad CVS and Rao NS, “In-silico docking studies of pheromone binding protein– pheromone of peach tree borer.” Abstract at Kyoto pharmaceutical university in Japan in 2nd International Symposium on Biomolecules and Related Compounds.10-12 Nov 2006, **P18**
- Singh A, **Singh SV** and Siva Prasad CVS. Abstract-Computational Prediction of Tomato mosaic Virus encoded miRNAs and their possible targets. RECOMB Dec1-2, 2006 at University of California, San Diego-**P57**
- Kaistha BP, **Singh SV**, Singh A and S Prasad CVS. “Computational prediction of Mungbean Yellow Mosaic India virus encoded miRNA and their targets prediction in leguminous plants. ” Poster presented at International conference on bioinformatics at Jawaharlal Nehru University JNU New Delhi, India from 18-20 Dec 2006.
- **Singh SV. miRNA revolution.** Biocon 2007, III annual conference on “Shaping the nature with artificial hands- An amalgamation of information technology and biosciences”, Kanpur India. January 27-28, 2007
- Hands on **training in “Gene expression studies on Affymetrix Microarray platform”** from Nov.29th 2011- Dec.1st 2011. Jointly organized by CSIR-CDRI and ILS Pvt. Ltd at Genotoxicity Laboratory, CDRI Lucknow.
- Pre-PhD coursework of Jawaharlal Nehru University, New Delhi at CDRI, Lucknow (August 2008 to June 2009): The course included two compulsory papers (Advancement in Drug Research and Drug Development Issues) and three optional papers (Molecular and Cellular Biology, Recombinant DNA technology and Bioinformatics), hands-on-training and familiarization to at least two novel analytical research methodologies (Cloning and 2D PAGE), lab seminar and one term paper.

Membership

- Indian Society of Human Genetics

Technical Experiences

- ❖ **Microarray Technology (Affymetrix platform)** - RNA isolation, Formaldehyde denaturing gel electrophoresis for RNA quality assessment, cDNA preparation, labelling and purification, Hybridization, Scanning, data acquisition and data analysis (GeneSpring software)
- ❖ **2D-PAGE and MALDI-TOF-MS-** Protein isolation, sample preparation for 1D, SDS PAGE and data acquisition and analysis using **ImageMaster 2D Platinum** and MASCOT software.
- ❖ **Real Time PCR-** SYBR Green assay, Data analysis
- ❖ **Genotyping** - RFLP, DNA sequencing
- ❖ **DNA sequencing** – Direct DNA sequencing (**ABI 3500 capillary sequencer**) and analysis using DNASTAR Lasergene 7
- ❖ **Methylation analysis** - Methylation Specific Primer method
- ❖ **Molecular Biology Techniques:** Isolation of genomic DNA, plasmid DNA, RNA, Protein, Polyacrylamide gel electrophoresis, Agarose gel electrophoresis, Competent cell preparation, Transformation, Restriction digestion of DNA, Polymerase chain reaction (PCR), Blotting (western), Gel Documentation, RFLP, Real Time PCR, RT-PCR etc.
- ❖ **Animal Cell Culture:** Primary cell culture and maintenance of cultures.
- ❖ **Applied Bioinformatics tools:** OpenBabel, DNA STAR lasergene7, Modeller 9, Chromas, Molecular modeling, 2D and 3D structure prediction, Web Cutter, ExPasy

proteomics online server, Lig-builder, Q site, Argus Lab, Pocket Finder, ACD Chem Sketch, miRNASCAN, MiRinda. Xscore, Ligplot, MEGA-X

- ❖ **Statistical Analysis tools:** Prism5, SPSS16, SNPstats, CMA for Meta analysis
- ❖ **Molecular Visualization Software:** Rasmol, Chimera, Pymol, DS Visualizer, VMD, Swiss Pdb viewer
- ❖ **Sequence alignment Tools:** BLAST, ClustalW
- ❖ **Docking Software:** Hex, DOCK5, AutoDock vina, Desmond molecular dynamics, GLIDE docking, Maestro Schrödinger
- ❖ **Biochemical Methods:** Estimation of proteins (Bradford, Folin-Ciocalteu, Lowry and Ninhydrin) carbohydrate (Anthrone).
- ❖ **Chromatographic methods:** Paper, Thin Layer Chromatography
- ❖ **Microbiological Technique:** Classical microbiological techniques like dilution streaking, dilution spreading, dilution plating, clonal purification of strains, and maintenance of cultures.
- ❖ **Immunological Methods:** ELISA and ODD test for antigen- antibody reaction.
- ❖ **Plant Tissue Culture:** Meristem culture, Shoot Tip Culture, Embryo culture, Micropropagation, Nucellar embryogenesis.
- ❖ **Oligonucleotide synthesis:** Preparation of protected monomers (Exocyclic NH₂-group protection by Khorana's method & 5' OH group by tritylation) for oligonucleotide synthesis.
- ❖ **Others:** Histology, Microtomy, cell counting (Haemocytometer).