**KALPANA**

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Strand Life Sciences Pvt Ltd

Research & Development Division

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* **EDUCATION:**
* Ph.D. in Life Sciences

Jadavpur University, Kolkata, India

* M.Sc. Biotechnology

Periyar University, Salem, India

* M.Sc. in Forensic Sciences (specialized in Biology)

University of Madras, Tamil Nadu, India

* B.Sc. Micro Biology

University of Madras, Tamil Nadu, India

* **ACADEMIC AWARDS / FELLOWSHIPS**:
* Senior Research Fellowship awarded by the Directorate of Forensic Sciences, India (2008 – 2012)
* Junior Research Fellowship awarded by the Directorate of Forensic Sciences, India (2006 – 2008)
* **PROFESSIONAL AND RESEARCH EXPERIENCE:**
* **Strand Life Sciences Pvt Ltd, Bangalore, India**
* Position: Senior Scientist – I (Life Sciences)
* Department: Research and Development
* Duration: 2014 to Present.
* Project: Validation of Cell Free DNA(cfDNA) Assay for Liquid Biopsy samples
* To validate the assay for cfDNA extraction, cfDNA recovery and mutation detection by ddPCR single gene and multiplex gene assays.
* To ensure the robustness and mutation confirmation with NGS data.
* Project: Validation of 152 Somatic Cancer Gene Assay
* To characterize the goodness of the 152 Somatic Gene panel in detecting the Cancer which includes the detection of somatic mutations at the level of 5% to below 2% in NGS and copy number and translocation (fusion) changes.
* To ensure the robustness of the test irrespective of operator, kit and other methods etc.
* Responsibilities:
* DNA library preparation for various cancer panels for NGS sequencing on Miseq. Validation studies of the custom designed cancer panel on various cell line and Coriell DNA samples for their mutation detection level in the selected gene target sequences, different DNA and library quantization methods and also end to end processing of primary samples etc. Secondary validation methods for finding the Copy number variation and translocation changes. cfDNA extraction and library preparation and ddPCR assays for single and multiple gene detection. Assay confirmation for the mutation with the NGS data. RNA extraction and cDNA conversion for qPCR assays and NGS. Maintenance and Incharge of the production sample for the somatic caner assay.
* Accomplishments:
* Standardization of an alternative method for FFPE Infinium QC Assay and qPCR based assay for GC rich regions for confirming mutations.
* Detected various mutations and gene changes like amplification, deletion and translocation using qPCR and Sanger sequencing methods.
* **Central Forensic Science Laboratory, Kolkata, India**
* Position: Senior / Junior Research Fellow
* Department: Research and Development (DNA Unit - Biological Division)
* Duration: 2006 - 2013
* Project: Analysis of Degraded Human DNA by Autosomal Markers with Short Amplicons.
* The study focused on analysis of autosomal markers with short amplicons in few Indian populations and evaluated their utility in Human Identification. Polymorphic 16 mini/midi STR and 52 SNP loci were selected from the literature and analyzed in the eleven endogamous populations of India belonging to four linguistic (Indo-European, Dravidian, Tibeto-Burman & Austro-Asiatic), six geographic (north, east, central, west, south & north-east) and two socio-cultural (caste & tribe) groups of the country. The data on autosomal markers, with reduced amplicons, was statistically evaluated for their utility in Human Identification and population genetic studies.
* Polymorphic autosomal miniSTR & SNP panels generated
* Evaluated on the population samples for their effectiveness in population studies
* DNA database have been created for the selected Indian populations
* Responsibilities:
* DNA Extraction, Quantization, Genotyping and Sequencing of STR and SNP markers of the population samples and real samples for population genetic research studies and case reporting.
* Accomplishments:
* Developed and standardized the custom miniSTR and autoSNPs panels for the Indian population for human identification and Ph.D degree awarded.
* Supervised and trained scientific officers for DNA profiling techniques for human identification.
* **Amity University, New Delhi, India.**
* Position: Lecturer in Forensic Sciences
* Division: Department of Behavioural Health and Allied Sciences.
* Duration: 2004 – 2005
* Responsibilities:
* Teaching M.Sc., B.Sc. and PG diploma students for basic biological science subjects and DNA technologies. Special Lectures and practical training classes for the Judges and police professionals for DNA profiling.

* **Central Forensic Science Laboratory, Chandigarh Company Name: Lab Systems, Mumbai**
* Position: Project Assistant
* Duration: 2004
  + Experience:

Data collection, Analysis and Drafting reports.

* **Amirtha Institute of Medical Sciences (AIMS), Cochin**
* Position: Lab Technician
* Division: Department of Analytical Toxicology
* Duration: 2003 – 2004
  + Research Experience:
* Pilot project: “Blood mercury concentration in the fisherman populations”

Detected blood mercury level in the fisherman population as they consume fish in all meals.

* **Skills and Expertise:**
* Cancer Genomics
* Next Generation Sequencing (NGS)
* NGS data analysis
* Cell free DNA studies/ddPCR assays
* Quantitative Real time PCR
* Population Genetics and data analysis
* Microsatellite Genotyping and Sequencing
* SNP Genotyping and Sequencing
* Gene Panel Development and validation
* Secondary validation methods for CNV and Translocations
* DNA profiling & RNA analysis
* Serological and Immunological Assays & HLA typing
* **Software and Computer Knowledge:**
* C and PERL programming language.
* Data Banking and Sequence
* Visual Basic and RDBMS
* Computer based drug designing
* Bowtie and Galaxy etc
* GeneMapper ID, GeneScan and Genotyper, Sequenom Typer.
* Powermarker, Genepop, Powerstat, Arlequin, Dispan, Phylip, Structure etc.
* MS windows, MS Dos, MS Office, power point, excel, Internet etc
* **RESEARCH INTERESTS:**

•Genomic studies on hereditary and infectious diseases

• Cancer biology studies

• RNA Biology studies

• Genome Informatics analysis studies

* **PROFESSIONAL ACTIVITIES**:
* Participant :

ACT 2015:  the 14th Asian Conference on Transcription held at the National university of Singapore, Singapore (December 2015)

* Participant and Trainee:

Next Generation Sequencing (NGS) - Bioinformatics and Data Analysis training

from the Anna University, Chennai, India (2013)

* Participant and Trainee:

ISO / IEC 17025:05 Laboratory Quality, Accreditation Management and Internal

Audit training Program from CII Institute of Quality (CII – IQ), Bangalore, India (2010)

* Participant and Trainee:

Training program on Sequenom (iplex) MassArray SNP Genotyping Technology in

The Centre for Genomic Application (TCGA), New Delhi, India (2009)

* Participant and Trainee:

Forensic Human Identification (HID) workshop in the Lab India (Applied Biosysytems), Gurgoan, India (2007)

2007 Participant

Forensic Human Identification (HID) workshop at the Lab India (Applied

Biosystems), Gurgaon, India

2007 Participant

Forensic Human Identification (HID) workshop at the Lab India (Applied

Biosystems), Gurgaon, India

2007 Participant

Forensic Human Identification (HID) workshop at the Lab India (Applied

Biosystems), Gurgaon, India

* Trainer

National level training program on DNA Profiling in Human Identification for

Scientific Officers, CFSL, Kolkata, India (2009)

* **PUBLICATIONS:**
* D Kalpana, Tania Ghosh, Sanjukta Mukerjee, Meeta Mukherjee, Anil Kumar rma, Subhankar Nath, Varsha Rajesh Rathod, Mukesh Kumar Thakar and Ganga Nath Jha Pentaplex Typing of New European Standard Set (ESS) STR Loci in India Population. Forensic Sci Int. Genet. 2011
* Tania Ghosh, D Kalpana, Sanjukta Mukerjee, Meeta Mukherjee, Anil Kumar Sharma, Subhankar Nath, Varsha Rajesh Rathod, Mukesh Kumar Thakar and Gang Nath Jha . Genetic Diversity of Autosomal STRs in Eleven Populations of India Forensic Sci Int. Genet. (2011) 5: 259–261.
* Sanjukta Mukerjee, Tania Ghosh, D Kalpana, Meeta Mukherjee, Anil Kumar Sharma. Genetic Variation of 10 X Chromosomal STR Loci In Indian Population. Int J Legal Med (2010) 124: 327– 330.
* Sanjukta Mukerjee, Meeta Mukherjee, Tania Ghosh, D. Kalpana, Anil Kumar Sharma. Differential pattern of genetic variability at the DXYS156 locus on homologous regions of X and Y chromosomes in Indian population and its forensic implications. Int J Legal Med (2011) (DOI 10.1007/s00414-011-0646-6).
* Sangeeta Aditya, D Kalpana, Sumita Bhattacherjee, & AK Sharma. Low copy number DNA profiling from Touched fingerprints using miniSTRs- A case study. Indian J Biot. (2011) 10:147-149.
* Tania Ghosh, D Kalpana, Sanjukta Mukerjee, Meeta Mukherjee, Anil Kumar Sharma, Subhankar Nath, Varsha Rajesh Rathod, Mukesh Kumar Thakar and Ganga Nath Jha. Genetic diversity of 17 Y-Short Tandem Repeats in Indian population. Forensic Sci Int. Genet. 2011
* Meeta Mukherjee, Sanjukta Mukerjee, Tania Ghosh, D Kalpana, Neeta Sarkar Roy, Anil kumar Sharma Polymorphisms of four pigmentation genes (SLC45A2, MC1R and TYRP1) among eleven Endogamous Populations of India – Journal of Genetics 04/2013 92(1):135-9
* Sanjukta Mukerjee, Meeta Mukherjee, Tania Ghosh, D Kalpana, Anil Kumar Sharma – Population genetic data for 11 X STR loci in Eleven Populations of India – Legal Medicine, 02 /2012 14(3): 163 – 5
* Sanjukta Mukerjee, Meeta Mukherjee, Tania Ghosh, D Kalpana, Anil Kumar Sharma – Differential Pattern of genetic variability at the DXYS 156 locus on homologous regions of X and Y Chromosomes in Indian Population and its Forensic Implications – Deutsche Zeitschrift fur die Gesamte Gerichtliche Medizin 11 / 2011.