



Dr. Sonal Jain
Supervisor: Prof. K N Saraswathy

Topic: DNA Methylation based age and phenotype prediction and its implication in Forensics.

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Fellowship: DST Inspire Faculty

Research Outcomes:

“Justice delayed is justice denied”. Police officers and Forensic Scientists work collaboratively to identify the person leaving behind a biological trace in criminal cases. Scientists in various forensic laboratories work on short tandem repeat (STR) profiling for identification of the criminal. Use of epigenetics, particularly in Forensic cases is still infancy in India. Recent advancement in genomics can provide additional information regarding the donor of biological evidence, such as chronological age, which could prove useful in police investigations and provide substantial investigative leads. Estimating the age of a recovered stain could potentially narrow down the number of suspects and speedy trial.

- Identification of biomarkers both for accurate age prediction and phenotype determination
- Validation of biomarkers in Indian population.
- Development of a computational model for most accurate age prediction in Indian population.
- Developing single-tube multiplex assay kit targeting the phenotype predictive SNP's

DNA methylation is a stable modification and will be helpful in old forensic casework samples. Retrieving age of unknown from DNA left behind at a crime scene can be useful for identification of criminals and helpful in the elimination of innocent samples. Proper implementation of these procedures in Forensic laboratories will speed up the casework. Prediction of age and phenotype from DNA can be useful for finding potential relatives in missing person cases. It can also be related clinically and useful in research to identify age accelerator or decelerator for extended human life span.