**University-Industry Interaction**

**Centre for Science Education and Communication and Genotypic Technology, Bangalore**

**Hands-on Training in Next Generation Sequencing**

**30 September- 01 October 2016**

Working of academic institutions in association with industries is the need of the hour. As an example of the same, the Centre for Science Education and Communication in association with Genotypic Technology, Bangalore organized the first Hands-on training in Next Generation Sequencing (NGS) Technologies during 30 September 30 and 01 October, 2016 at Centre for Science education and Communication, University of Delhi. Speakers from several organizations were invited to discuss their research work in the related area and an intensive Hands-on Training in NGS technology was imparted by the Research and Development team from Genotypic Technologies, Bangalore. The program started with an inaugural lecture of Prof. Dwaipayan Bharadwaj on ‘Candidate genes to pathway to GWAS to NGS: Hunt for elusive T2DM markers Next Generation Sequencing (NGS)’. Prof. Bharadwaj highlighted various methodologies adopted for studying complex disease, diabetes, and how NGS technologies has made diabetic studies more manageable. Dr. Vivekanandan Perumal from Kusuma School of Biological Sciences, Indian Institute of Technology, Delhi meticulously explained the evolution of the NGS technology in his lecture on ‘A decade of Next Generation Sequencing’. He primarily focussed on various applications of NGS technology. Prof. Ashis Kumar Das from Birla Institute of Technology, Pilani, was also invited to discuss an application of the technique. He presented his research work and discussed how genomics and transcriptomics could be useful in translational research on malaria.

The inherent component of the training program was to provide practical exposure to the participants in the area of DNA sequencing and help them to analyse of the data so generated. Research Scientists from Genotypic Technologies gave practical exposure to the participants. Genotypic ran through various platforms, applications, workflows and interpretations of NGS data. A demonstration of the revolutionary Oxford Nanopore Sequencer enlightened the participants with its capacity of long read sequencing technology. Participants were equally excited to know that the said sequencer was portable, affordable and fast. Further the team discussed various case studies with relevant published data. Hands-on data analysis of Metagenome, Exome and Gene prediction applications opened the doors to self-reliant way of performing NGS data analysis. Online cloud based data analysis tools like Illumina BaseSpace, Galaxy were used for demonstrations. Open source data was used from NCBI Gene Expression Omnibus (GEO) forum. NGS project planning session enabled the participants to know about the prerequisites for sequencing and data analysis. Participants performed NGS data analysis on their own at the end of the workshop.

The overall aim of the training program was to enlighten the participants with various applications of the upcoming technology. Participants, during the training program, were made to realize that it’s an era wherein there is an explosive growth in the availability of DNA sequence, however, analysing these sequences in a right manner is extremely important. University of Delhi in collaboration with Genotypic Technologies, Bangalore, has taken an initial step towards providing a platform for young researchers throughout India to understand this analysis part in detail. The organizers sincerely hope the program would be useful to the participants and each one of them would have enough learning to be taken back and practiced later.