

# Institute Lecture

## Open Innovation, Big Data and Crowd Sourcing: The Next Frontier



Prof. Samir K Brahmachari  
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Chief Mentor, CSIR-Open Source Drug Discovery,  
Academy Professor, Academy of Scientific and Innovative Research,  
Founder Director, CSIR-Institute of Genomics and Integrative Biology,  
Former Director General, Council of Scientific and Industrial Research

Saturday, 18<sup>th</sup> October, 2014, Time: 6.00 PM, Venue: L-17, Lecture Hall Complex

### Abstract

Launched with the promise of improving insights into human health and disease, the Human Genome Project a decade after its completion has revealed a wealth of information. The advent of next generation sequencing technologies and other high throughput measurements of 'omics' data, along with clinical phenotype association studies, have created a data deluge. However, explosive growth in biomedical data generation has not yet translated to proportionate increases in clinical returns. The increase in computing capabilities and availability of different data from advanced technologies will allow researchers to build System Biology models of various diseases in order to efficiently develop new therapeutic interventions and reduce the current prohibitively large costs of drug discovery. However, this would only be possible if we are able to capture, curate and analyze clinical data with 'omics' datasets using novel informatics tools to establish correlations with high level of confidence. This major transformation that hoped to bridge the gap between researchers and clinicians will primarily be driven by transformation of silos of biomedical research to an integrative field of intensive data driven discovery. Towards this the Open Source Drug Discovery (OSDD) initiative for system level understanding of *Mycobacterium tuberculosis* which has created a new paradigm for distributed co-creation through crowd sourcing and the application of social media for data gathering will be presented. The talk will highlight how OSDD community has successfully built the biological network of Mtb by implementing the concepts of social networking, bringing together a large community of researchers and students across the globe. In conclusion, the talk will also cover as to what extent such approaches could be applied for other areas of science and technology.

### About the speaker

Prof. Samir K Brahmachari was the Founder Director, CSIR-Institute of Genomics and Integrative Biology, and Former Director General, Council of Scientific and Industrial Research. Currently, he is the Academy Professor, Academy of Scientific and Innovative Research and a JC Bose National Fellow at IGIB, and Chief Mentor, CSIR-Open Source Drug Discovery program. During his early scientific career, Prof Brahmachari has made fundamental contributions towards the basic understanding of structure-function relationship of peptides, proteins and DNA and the role of DNA structural variability in regulating various biological processes. During the 90's, foreseeing the potential of using the large genetic pool of Indian population for Functional Genomics studies in the post human genome sequencing era, Prof. Brahmachari, established the first Functional Genomics Unit and successfully led the well-recognized Indian Genome Variation Project. Prof. Brahmachari is the pioneer of genome analysis using computational tools. Besides developing many novel Bioinformatics tools and databases, he has made major contributions in the area of miRNA mediated regulation of host- pathogen interactions and cellular regulation. The Open Source Drug Discovery platform, with its unprecedented scale of participation by students and professionals, under the innovative directions provided by Prof. Brahmachari, not only accelerates drug discovery, but also holds a promise of tremendous and disruptive impact on the economics of drug development for neglected tropical diseases like TB. Prof. Brahmachari has more than 12 patents, 23 copyrights and over 155 research publications to his credit. He is the recipient of large number of National and International awards, including the prestigious Shanti Swarup Bhatnagar Award (1990) and is an elected member of all four academies of science and engineering in India.

**Tea at 5.45 PM**

**All interested are welcome.**

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