

ANAND RANGANATHAN

Research Scientist

Recombinant Gene Products Group

International Centre for Genetic Engineering and Biotechnology

Aruna Asaf Ali Marg, New Delhi – 110067, India

Brief biography:

1994: B.A. (Tripos), Natural Sciences, Chemistry, Pembroke College, University of Cambridge, UK

1997: Ph.D. (Biochemistry), Pembroke College, University of Cambridge, UK

1998: M.A. (honorary) Pembroke College, University of Cambridge, UK

1999: Post-doctoral fellowship, Department of Biochemistry, University of Cambridge, UK

1999-present: Research Scientist, Recombinant Gene Products Group, International Centre for Genetic Engineering and Biotechnology, India

Talk title: ‘Conscious evolution of proteins’**Talk abstract:**

The laboratory evolution of structural and functional proteins holds great fascination as an effective tool for searching and discovering novelty in the protein space. Widely used techniques like gene-shuffling and cassette mutagenesis have, over the years, resulted in a host of ‘evolved’ protein progenies that are geared for increased stress tolerance. As an alternative to the above-mentioned methods for the directed-evolution of proteins, we have employed a simple molecular approach for generating a multitude of structurally diverse yet functionally similar proteins that have all “evolved” from the chosen parent enzyme. By randomly combining a set of fourteen DNA-hexamer duplexes, each corresponding to judiciously chosen amino acid pairs, we were able to generate functional proteins that contained large regions of previously unknown sequences. Our approach holds promise in searching for novel structural as well as functional proteins. The talk will focus on the present and future applications of our method, with a special emphasis on using the technique in order to generate inhibitors for protein targets in pathogenic organisms, especially *Mycobacterium tuberculosis*.