

Dr. Analabha Basu's most significant contributions have been to methodically connect the pattern of genomic relationships among human population groups with the pattern of prevalence of common diseases in the groups and dissect the genomic backgrounds of some of these diseases.

He has systematically identified the ancestral genomic components and their contributions to the gene pool of Indian ethnic population groups. By wide geographical sampling of DNA samples from ethnic groups of India and analyzing the sequences of these samples for patterns and relationships, he has identified four ancestral components and has carefully estimated the proportions of these ancestral components in a multitude of ethnic populations spread across India. This work has provided a clear reconstruction of evolution of Indian ethnic populations.

He has then devised and modified statistical methods to decipher genomic architectures of common diseases by studying admixed populations. These methods are now widely used.

He has collected data on common diseases, e.g., metabolic diseases, from multiple populations with variable patterns of ancestral admixture contributions. He has used existing statistical methods and those modified or devised by him to obtain profound insights into the genetic architectures of some common diseases. These insights have provided implementable solutions to the management of some common diseases.



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