

Presentation title: Foundations of genomics, bioinformatics, and systems biology

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Abstract:

The Central Dogma of Molecular Biology is that genes, encoded within the genome, are first transcribed to RNA which is then translated into protein. It is these proteins, interacting with diverse elements form the pathways that regulate cellular processes. Genomics have given us new tools for exploring these processes, allowing us to look globally at the spectrum of genetic alterations changes in RNA transcript levels.

This holistic view has provided us with new opportunities for discovering the processes that control development and disease, but interpreting genomic data ultimately requires that we place these data into their biological context.

This lecture will provide an introduction to the fundamental biological concepts necessary to analyze and interpret genomic data.