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Kochi - 683102

Lecture on

"Genomics and its applications"

BY:

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Venue: T. B. Ninan Hall,
Union Christian College
(Autonomous), Aluva

Friday, September 12, 2025
(10.30 am)

All are cordially invited to attend

ABSTRACT

Genomics and its applications

Genomics, the study of whole genomes of organisms, helps us to understand the structure, function, evolution, mapping, and editing of genomes. The application of genomics covers the entire range of living organisms, but its greatest impact is in the diagnosis and treatment of human diseases, crop improvement, understanding human ancestry, forensic studies, and metagenomics. Genomics studies have thrown light on the molecular aspects of cancer, paving the way for personalized treatments. Non-invasive tests have been developed to determine the risk profile of individuals against cancer, cardiovascular diseases, and also to determine the potential effectiveness of certain drugs. The sensitivity of tests has improved so much that tests like NIPT (non-invasive prenatal tests, also known as cfDNA -cell-free DNA- screening) have been developed, which can identify genetic defects in the foetus by studying the fragments of foetal DNA that are floating in the mother's blood. While huge amounts of sequence data can be generated in a few days, even by non-experts, thanks to the technology being made easy, challenges remain in making sense of the gigabytes of information to help make use of the information obtained. Two major offshoots of the genomics revolution are gene editing and microbiome studies.