



Popular Science Lecture

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In Association With
**Department of Biosciences,
Union Christian College, Aluva**

Lecture on Gene Editing: Definitions and Perspectives



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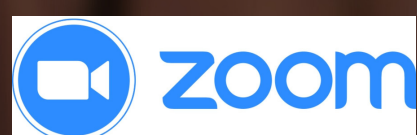
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Saturday, 09th of October

At 10.00 AM IST



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Abstract

In 1952, Hershey and Chase through series of remarkable experiments concluded that DNA but not protein is a genetic/hereditary material. Since then, many methods have been developed to manipulate/edit the genetic material of a particular organism. In 1973, very first gene editing was reported by Herb Boyer and Stanley by conferring antibiotic resistance to the bacteria and thus creating first genetically engineered organism. Consequently, gene editing in plants were also reported by means of Agrobacterium mediated transfer of Ti plasmid. Further, using protein engineering technology, it was possible to engineer nucleases (Zinc Finger Nucleases) targeting specific nucleotide sequences in the genome. Additional enhanced specificity was also achieved by designing Transcription Activator-like Effector Nucleases (TALENs). In 1987, an adaptive bacterial immune system was reported and named CRISPR (Clustered Regularly Interspaced Short Palindromic Repeat) but its enormous potential to edit/target specific nucleotide sequences was unfolded only 20 years later (2007). Its precision, handiness and multi-target programmable approach have got immediate recognition world-wide and Nobel prize was awarded in recognition of this technique to Charpentier and Doudnain 2020. In the current webinar, we will overview the biotechnological advances and challenges to gain insights into potential of gene editing methods in clinical diagnostics, gene therapy, therapeutics as well as GM plants and food security.

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MEETING ID- 946 450 4891

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