DBT programme helps make genome editing tools delivery more efficient

New Delhi, July 31: Genome editing offers great potential for developing treatment for various rare and genetic diseases that were hitherto untreatable. However, there is a need for an efficient and precise delivery system to ensure therapeutically relevant efficiency of the intended genome modifications to facilitate transfer of the gene editing technology to clinics.

A new study supported by the Department of Biotechnology under its Genome Editing Programme has led to the development of a novel bio-inspired lipid nanocarrier system for efficient intracellular delivery of CRISPR-Cas9-based genome editing tools. The lipid nanocarrier system was found to show significantly higher efficiency in delivering large therapeutic molecules including DNA, mRNA and proteins as compared to the other commercially available reagents. The development of bio-inspired lipid nanocarrier delivery systems would open new vistas for devising novel gene therapy-based therapeutic solutions for various rare and genetic diseases.

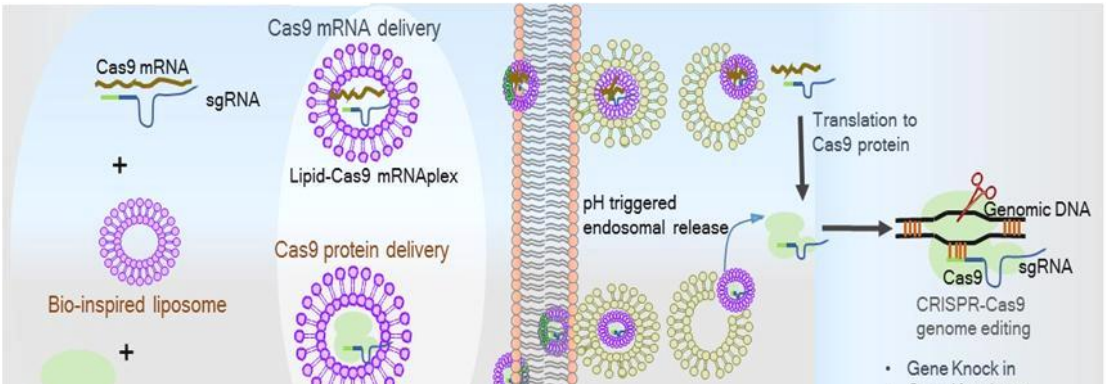

Fig: Schematic representation showing the mechanism of intracellular delivery of CRISPR-Cas9-based tools to a target cell using bio-inspired lipid nanocarrier system

An Indian patent application entitled: “Compact liposomal vehicle for delivery of large molecules” (Application No: 2202041010160) has been filed for this technology

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