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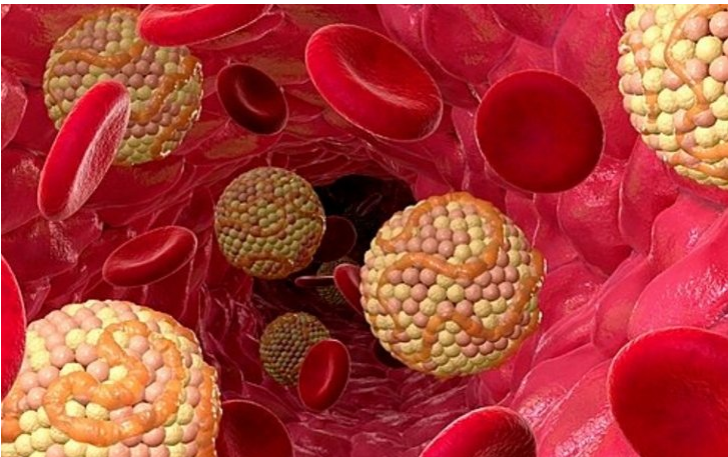
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IIT-B opens new path for tackling high cholesterol and fat-related disorders

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A potentially important therapeutic opportunity for metabolic disorders



Tucked inside liver cells, there are microscopic compartments called lipid droplets, temporary reservoirs for fats such as triglycerides and cholesterol. The liver packages some of these fats into tiny particles called very low-density lipoproteins (VLDL) and releases them into the bloodstream.

But push this system too hard with a consistently high-fat diet, and then this natural process is disturbed and causes a dangerous build-up of lipids, paving the way for obesity, diabetes, and heart disease.

Now, researchers at the Indian Institute of Technology, Bombay (IIT-B), along with collaborators from the Indian Institute of Science Education and Research (IISER) Pune, and IISER Kolkata, have uncovered one of the key cellular mechanisms that can interrupt this VLDL release from the liver by targeting the physical movement of lipid droplets instead of enzymes, receptors, or genes that are traditionally used for lowering lipids in the bloodstream.

Importantly, interrupting this cellular mechanism does not cause lipid buildup in the liver—a critical safety advantage for future drug development. The findings open a potential new avenue for treating disorders such as high cholesterol and high triglycerides, as well as conditions like fatty liver disease.

The work is at a preclinical stage, requiring future studies to assess long-term safety, optimise peptide delivery, and evaluate efficacy in mammals. Nevertheless, the study points toward a promising direction that has so far received little attention in the treatment of metabolic diseases.