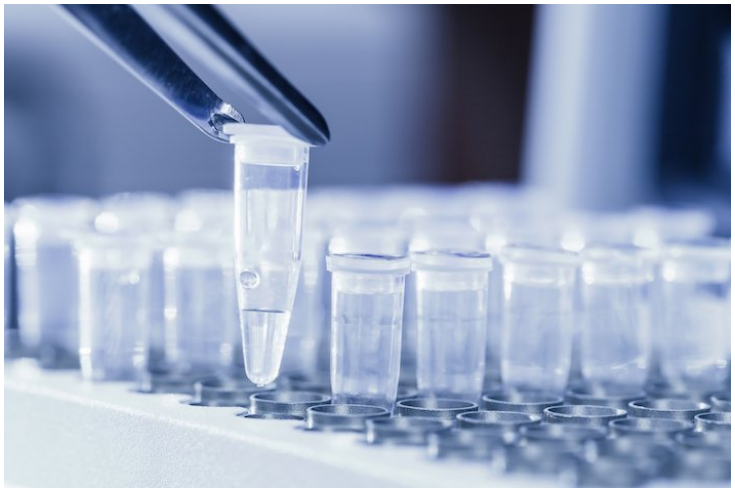
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INST develops bio-nanocarrier to effectively treat visceral leishmaniasis

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Non-invasive, easy to administer way to enhance oral bioavailability and efficacy of Visceral Leishmaniasis therapy



A group of researchers at the Institute of Nano Science and Technology (INST), Mohali has developed a non-invasive, easy to administer, cost-effective, and patient compliant potential therapeutic strategy against Visceral Leishmaniasis, a neglected tropical disease.

Their strategy based on nano carrier-based oral drugs coated with Vitamin B_{12} enhanced oral bioavailability and efficacy of the therapy by more than 90%.

Visceral Leishmaniasis (VL) is a complex infectious disease transmitted by the bite of female *Phlebotomine* sandflies. It is a neglected tropical disease that affects millions annually, making it the second most common parasitic killer after malaria.

The researchers have developed a smart and intelligent nanocarrier utilizing the natural intrinsic Vitamin B_{12} pathway present in human body that can mitigate stability challenges and drug-associated toxicity.

They have disguised the toxic but highly efficient drug of the disease within a biocompatible lipid nanocarrier shielding it from degradation in the hostile gastric environment, thus overcoming the gastrointestinal enzymatic barriers endured by any foreign synthetic drug molecule.

Anchoring Vitamin B_{12} on the surface of solid lipid nanoparticles augmented the stability and targeted delivery of the poorly soluble drugs and also enhanced the therapeutic efficiency with reduced risks of off-target actions.