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IIT-D identifies new drug delivery platform technology

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Novel technology that engineers Red Blood Cells to load chemotherapeutic drugs for advanced and effective chemotherapy



A technology has been developed for chemotherapy applications using Red Blood Cell (RBC) membrane by a research group at the Indian Institute of Technology Delhi (IIT-D) Centre for Biomedical Engineering (CBME).

The technology is a significant success in achieving personalized therapy as it can be based on the RBC membrane of patient, thereby minimizing the side-effects.

The technology involves engineering the RBCs in the lab to produce smaller (nano sized) biocompatible vesicles. Drug molecules can simply be trapped inside the particle's lipid bilayer and circulate for a longer time. This work was validated in an animal system by Prof Neetu Singh's lab in collaboration with Prof Sujata Mohanty from the All India Institute of Medical Sciences (AIIMS), New Delhi.

"The concept here utilizes body's own cells to load multiple drugs at the same time and reach tumor sites in significant concentrations. Interestingly, this nano-RBCs platform has synthetic tunability similar to other polymeric systems or the commonly used liposomes but have proved to be more efficacious", Prof Neetu Singh, CBME, IIT Delhi said.