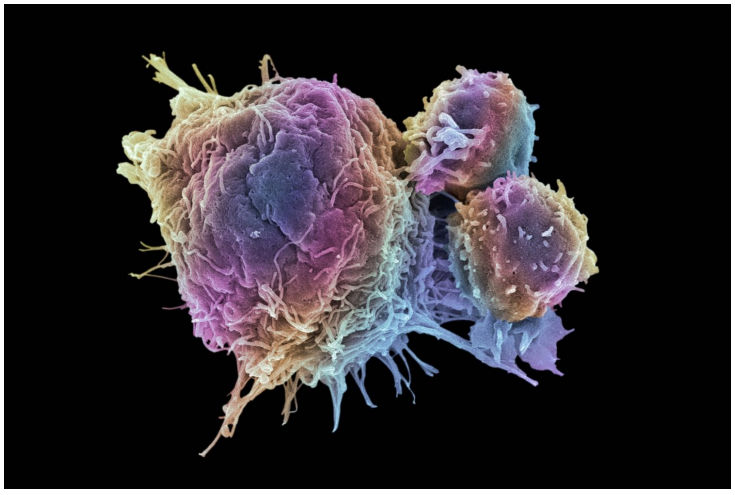
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Scientists in Mohali design method to synthesise nano-cups that can blaze cancer with heat

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Procedure significantly improved survival rate and minimised tumour relapse in preclinical mice model



Scientists from the Institute of Nano Science and Technology (INST), Mohali, an autonomous institute under the Department of Science and Technology (DST), in collaboration with researchers from Advanced Centre for Treatment Research & Education in Cancer, Tata Memorial Centre (ACTREC) and Indian Institute of Technology, Bombay (IIT-B), have developed a novel one-step colloidal synthesis method for fabricating PEGylated semi-shells (SS) with nano-cup morphology at room temperature.

The novel one-step colloidal synthesis method for nanoparticles with a unique shell structure with nano-cup morphology that is partly covered with polyethylene glycol (PEG) can help with photothermal therapy (PTT) to treat cancer.

The simplified yet highly unique approach circumvents all the drawbacks of previously reported processes by using a biocompatible metal-organic framework (MOF), ZIF-8, as a sacrificial template. The synthesis employs mild reducing agents like ascorbic acid (Vitamin C) at room temperature.

Future studies aim to explore chemo-photothermal therapy for highly selective oncological applications and investigate the potential of these semi shells in Surface-Enhanced Raman Spectroscopy (SERS) biosensing, leveraging their unique optical properties for advanced biomedical applications.