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Indian researchers suggest non-surgical treatment for cancer

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The team is planning to carry out clinical trials (Phase I) on people with oral cancer.



The researchers from Mumbai's Indian Institute of Technology Bombay and Tata Memorial Centre have synthesised hybrid polymer-gold nanoparticles as photothermal agent to ablate solid tumours.

The near infrared light heats up the nanoparticles and the heated nanoparticles, in turn, can kill the cancer cells. Unlike other agents tried out by others, the hybrid nanoparticles used by the Mumbai team has no toxicity, is biodegradable and gets cleared from the body through urine.

The team used a thermoresponsive polymer (poly(N-vinyl caprolactam)) nanoshell which can be loaded with an anticancer drug. The polymer nanoshell is coated with gold nanoparticles.

Besides killing the cancer cells through thermal ablation, the polymer degrades at about 43 degree celsius and releases the drug to completely kill the tumour. Cancer cells get killed above 42 degree celsius.

The hybrid nanoparticles can be injected into the blood and need not be injected directly into the tumour. The nanoparticles are able to reach the tumour cells through enhanced permeability and retention effect.

The team is planning to carry out clinical trials (Phase I) on people with oral cancer. Trials in animals have already been carried out and the efficiency has been encouraging.