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Chinese scientists devise a nanoparticle based vehicle

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The team found and tested a multifunctional tool based on simple components that effectively delivers and releases the CRISPR-Cas9 system into tumors.



A team of scientists from National Center for NanoScience and Technology, Beijing, China, in cooperation with medical scientists in Japan and China, have developed a gold-nanoparticle-based multifunctional vehicle to transport gene scissors to the tumor cell genome.

The team found and tested a multifunctional tool based on simple components that effectively delivers and releases the CRISPR-Cas9 system into tumors. Laser irradiation was used to disassemble the lipid-nanogold vehicle after its entry in the tumor cells and enable the CRISPR-Cas9 gene editing. The knockout of the targeted gene then led to apoptosis and tumor growth inhibition.

The researchers are hopeful that this relatively simple design entailing gold nanoparticles, peptides, and lipids assembled into a sophisticated multifunctional carrier or release system could serve as a multifunctional delivery platform for various aspects of gene therapy.