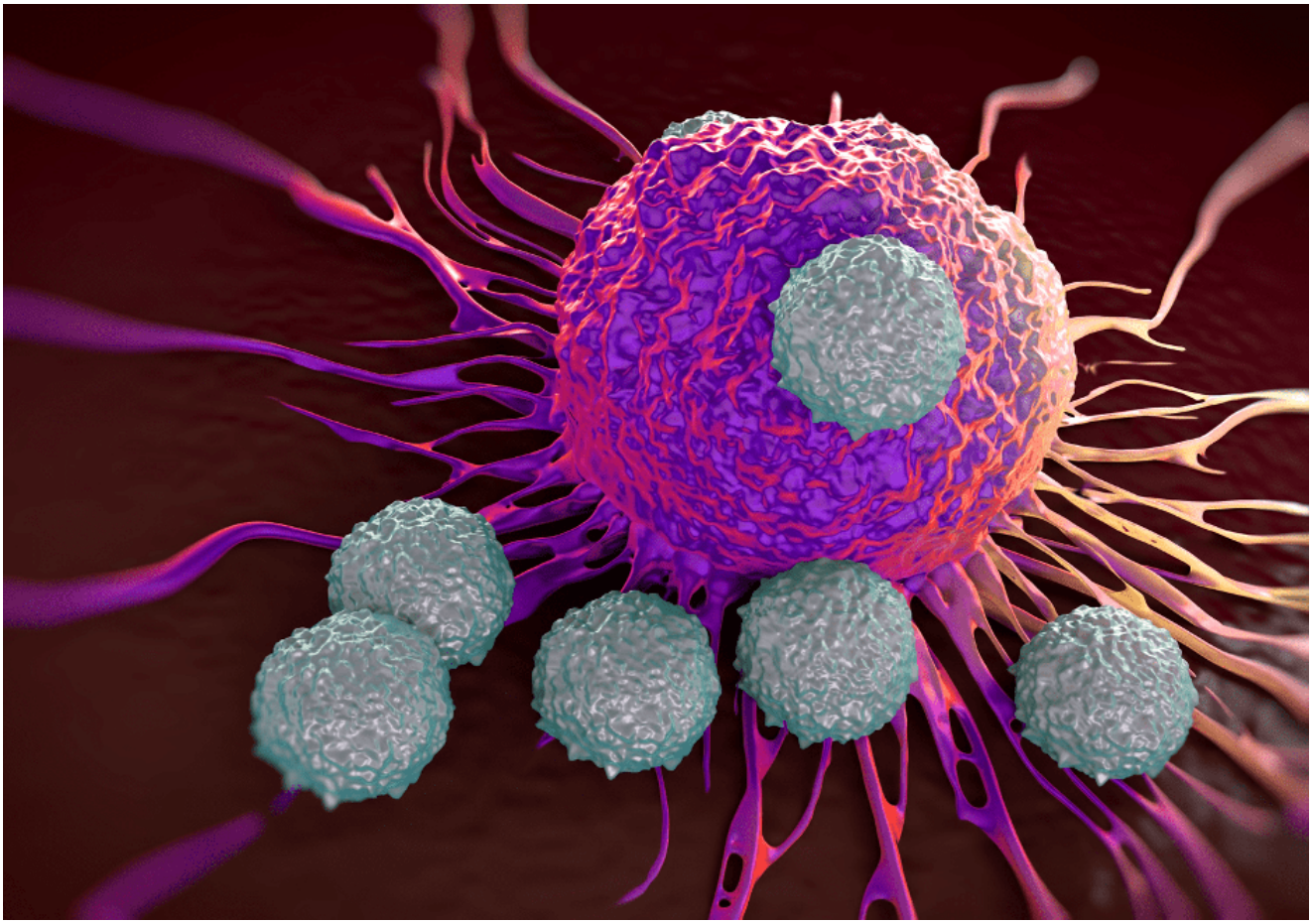
HEALTHY NEWS

Scientists Develop an ‘Invisibility Cloak’ for Cancer Drugs

By bestfolkmedicine · 24/03/2022 · 2 min read



According to Columbia Engineering researchers, they’ve developed a “cloaking” system that shortly hides the therapeutic bacteria from the immune systems and enabled them to boost the delivery of drugs to tumors and destroyed cancerous cells in lab mice.

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The study is published in the Nature Biotechnology journal and the team focused on capsular polysaccharides: sugar polymers that cover bacteria surfaces.

Important Findings for Therapy with Bacteria

To enable this, the team had to engineer a new CAP system. They manage it through an external cue (a molecule called IPTG) which stimulates the *E. coli* cell surface to be altered.

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The team manipulated the DNA of the microbes and programmed gene circuits that control the surface of bacteria and thus, create a molecular “cloak” around the bacteria.

According to the co-head of the study, Tal Danino, an associate professor of biomedical engineering, they are very excited about this finding since it gives them the opportunity to dynamically manage the system.

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They can manage the time that the bacteria will survive in the blood and elevate the maximum amount of tolerable dosage of bacteria.

They also showed that their system offers a new strategy for bacteria delivery. For it, they inject bacteria to a tumor that’s accessible and then they control and migrate them to metastases.

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The Use of Bacteria for Therapy Isn’t without Challenges

The usage of bacteria for therapy is a new and alternative method for cancer treatment and there are various challenges associated with it, including their toxicity. Unlike drugs, these are live bacteria with the power to proliferate in the body.

Moreover, they’re also detected by the immunity of the body as foreign elements that are a threat and may result in an increase in inflammation.

Excessive bacteria can cause high toxicity because of high inflammation or a fast elimination of bacteria. Too little bacteria decreases the therapeutic efficacy to zero.

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