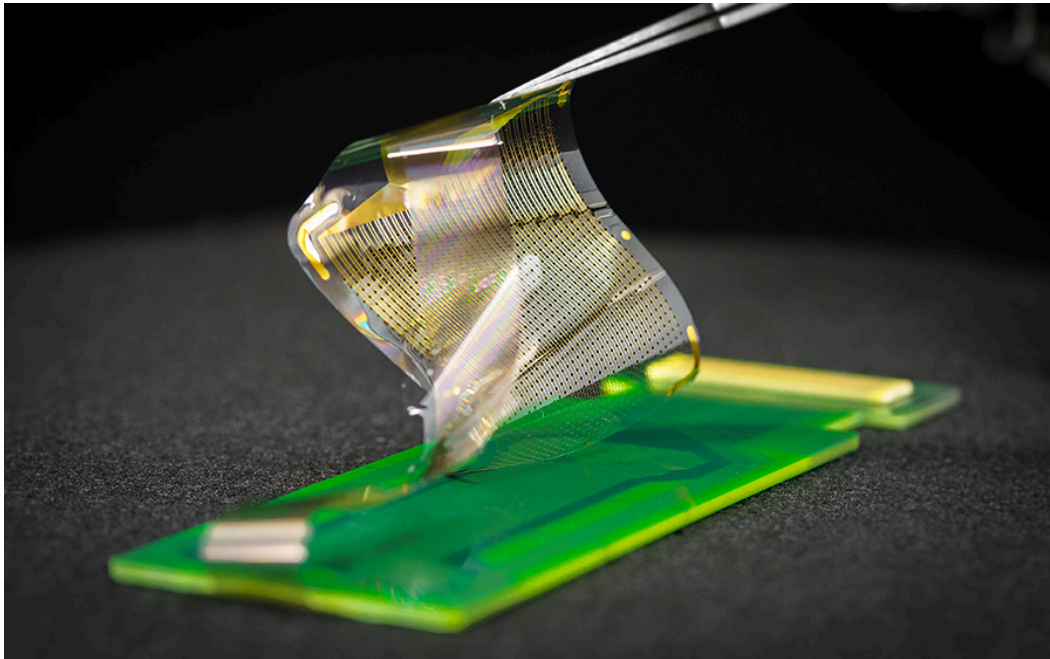


New Nanobot Drug Delivery



by [Sheza Kashif](#) on August 28

A major concern with standard Cancer treatments (chemotherapy and radiation) is that they target both cancer cells and healthy cells, which can cause significant side effects such as: hair loss, weight loss, and metaplasia. Nanorobots, however, can change cancer treatment by specifically targeting and attacking cancer cells without damaging surrounding healthy tissue. They do this through precise drug delivery and direct interaction with tumor cells, ensuring effective and safer treatment.

Nanorobots, or nanobots, are small robots that are constructed from various materials including metals, polymers, and biological molecules. The materials used depend on what the nanobot is being used for. These materials allow them to navigate through the body using either magnetic fields or ultrasound waves, enabling them to reach specific sites non-invasively.

Nanobot treatment can differ for various types of cancer. According to the national cancer institute, for solid tumors, nanobots may be engineered to recognize specific proteins on the surface of the

cancer cells while in blood cancers, nanobots can be designed to circulate through the bloodstream and selectively bind to cancerous cells based on their molecular structures.

While nanobots can be safer than traditional cancer treatments, there are still some risks to address. Some use hazardous materials and UV light which can pose risks to the patients and the environment. They can also face navigational challenges, leading to off target effects. Scientists are working on using safer, biocompatible materials and efficient targeting mechanisms to overcome these issues.

There are also some ethical concerns which need to be addressed. For example, when nanobots target cancer cells, they are actively storing data within. Due to this process, some might ask, how well can these nanobots store information? And more importantly, how well can they keep it private?

Nanobots have had a 80% success rate (success being considered when 100% of the tumor is eradicated). While they are still in the trial process, they are a promising treatment for cancer and will revolutionize the field of oncology.

Journal Sources

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