A natural sugar delivers DNA aptamer drug inside tumor cells

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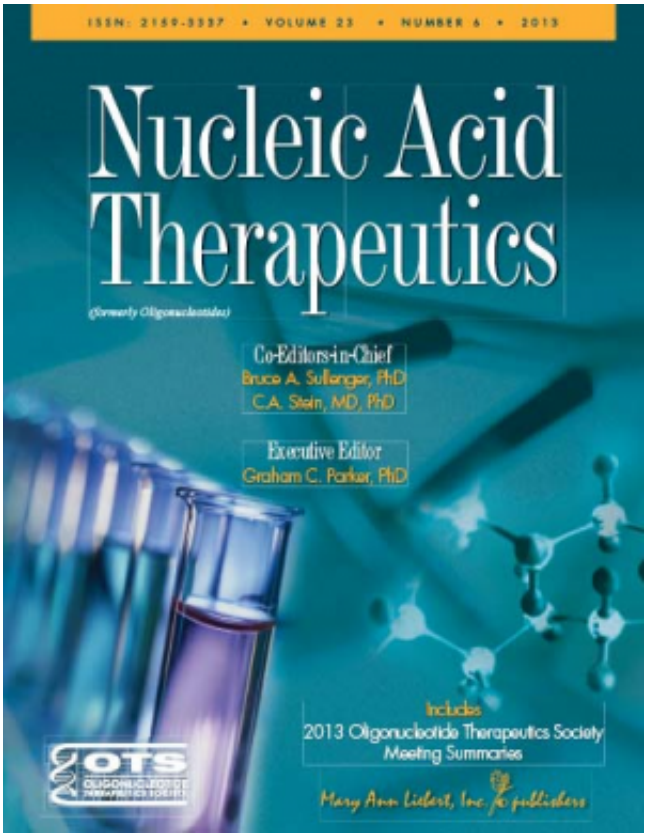

Drugs comprised of single strands of DNA, called aptamers, can bind to targets inside tumor cells causing cell death. But these DNA drugs cannot readily get inside tumor cells on their own. Effective delivery of DNA aptamers using a natural polysaccharide as a carrier is described in

an article in *Nucleic Acid Therapeutics*.

Tatyana Zamay and coauthors, Krasnoyarsk State Medical University, Siberian Branch Russian Academy of Sciences, and Center for Reproductive Medicine (Krasnoyarsk, Russia), and University of Ottawa, Canada, combined the polysaccharide arabinogalactan, obtained from the larch tree, with a DNA drug that binds to and disrupts the activity of vimentin, a structural protein required for cell division. Vimentin is often over-produced by tumor cells compared to normal cells.

In the article "DNA-Aptamer Targeting Vimentin for Tumor Therapy in Vivo" the authors show that an aptamer targeting vimentin inhibits tumor growth more effectively when it is administered as a mixture with arabinogalactan than alone.

"This work demonstrates the advancement of aptamer therapeutic application through increased bioavailability using a nontoxic polysaccharide based therapy," says Executive Editor Graham C. Parker, PhD.

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