Researchers optimize aptamer with enhanced myelin-binding properties for multiple sclerosis treatment

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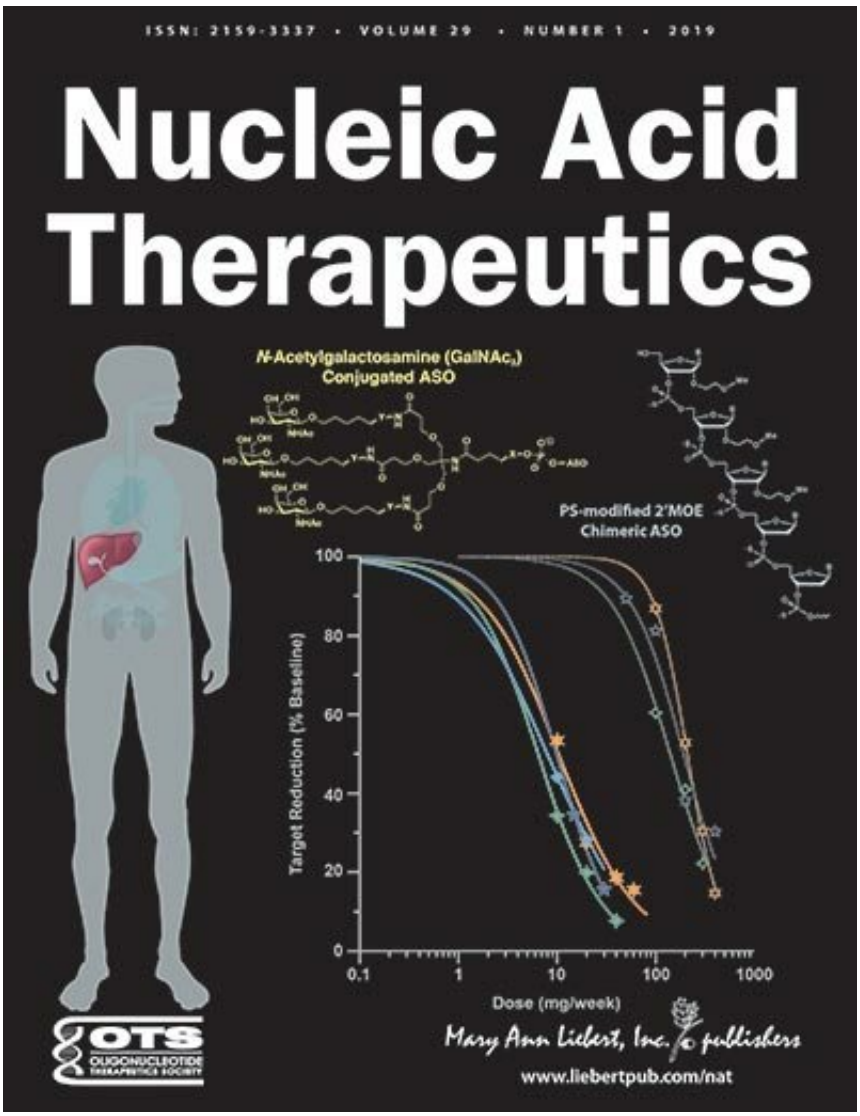

Credit: Mary Ann Liebert, Inc., publishers

A new study has demonstrated the enhanced ability of an optimized 20-nucleotide derivative of a larger DNA aptamer to bind myelin in a mouse model of multiple sclerosis. The study, which also provides the first evidence of cross-reactivity of this myelin-binding aptamer with human brain cells, is published in *Nucleic Acid Therapeutics*.

The laboratories of L. James Maher, III and Moses Rodriguez from Mayo Clinic College of Medicine and Science (Rochester, MN) coauthored the article entitled "Optimization of a 40-mer Antimyelin DNA Aptamer Identifies a 20-mer with Enhanced Properties for Potential Multiple Sclerosis Therapy." The researchers took a 20-nucleotide region of a parental 40-nucleotide myelin-binding DNA aptamer and used a rational, non-biased approach to molecular evolution to optimize the 20-nucleotide minimal sequence for improved myelin binding. They conclude that due to its cross-reactivity with human oligodendroglioma cells in vitro, it represents a promising lead molecule for further investigation.

"The authors highlight the value of aptamer refinement of a therapeutic for multiple sclerosis treatment and present a novel application for cell imaging," says Executive Editor Graham C. Parker, Ph.D., The Carman and Ann Adams Department of Pediatrics, Wayne State University School of Medicine, Children's Hospital of Michigan, Detroit, MI.

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