More potent, inexpensive gene silencing agents described

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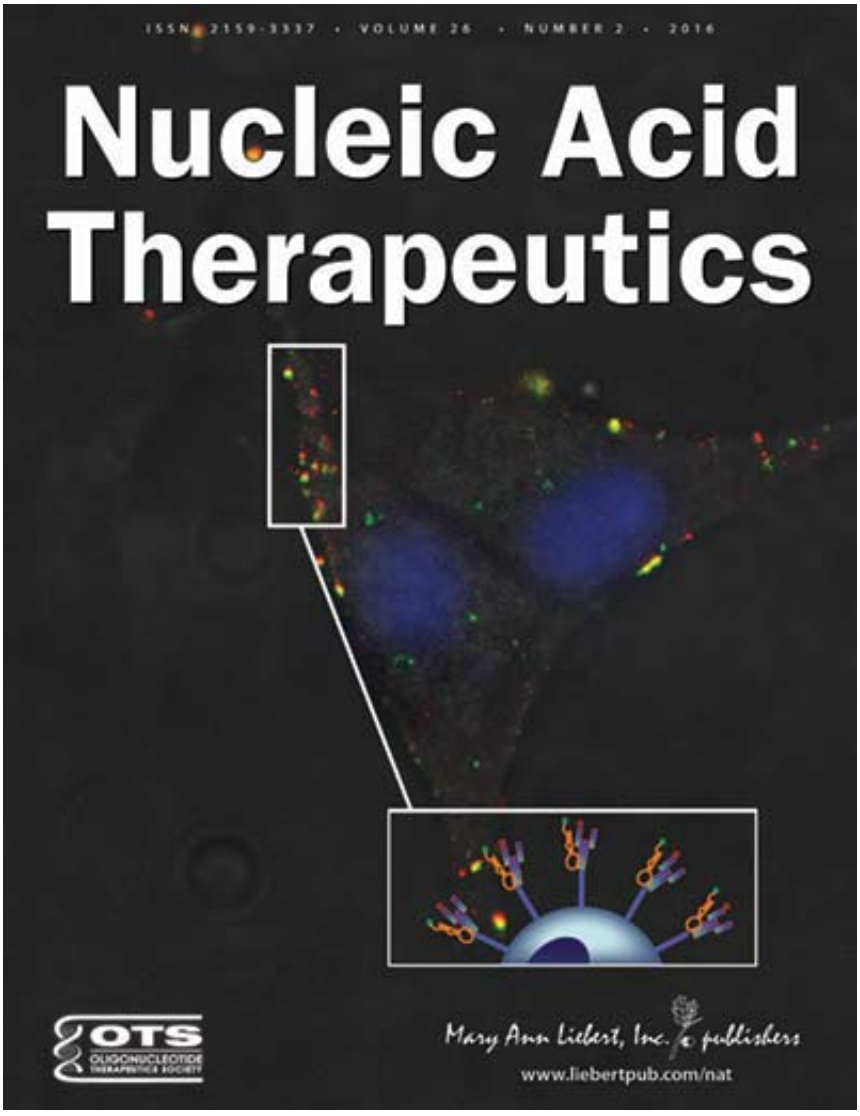

Credit: Mary Ann Liebert, Inc., publishers

Combining the therapeutic potential and advantages of existing oligonucleotide-based approaches to turn off disease-related genes, a type of single-stranded silencing RNAs (ss-siRNAs) has shown significantly improved potency and activity. The chemical modification used to create these novel ss-siRNAs is both inexpensive and readily available to researchers, as described in an article in *Nucleic Acid Therapeutics*.

In "Single-Stranded Silencing RNAs (ss-siRNAs): Hit Rate and Chemical Modification," Hannah Pendergraff, Alexandre Debacker, and Jonathan Watts, University of Southampton, U.K., and UMass Medical School, Worcester, present the key features of ss-siRNAs. These compounds combine the advantages of the two established mechanisms of gene silencing being used in nucleic acid-based drug development: single-stranded antisense oligonucleotides, and duplex RNA interference (siRNA). The researchers' attempts to develop and optimize ss-siRNAs based on chemical modification of active siRNA duplexes led to some compounds that lost their gene silencing activity and some with increased toxicity. One modification, however, led to increased silencing activity without affecting toxicity.

"Scientific research is resource intensive, and the advances described here help bring within reach tools to allow more researchers to ask and answer therapeutic questions and democratize the research endeavor," says Executive Editor Graham C. Parker, PhD, The Carman and Ann Adams Department of Pediatrics, Wayne State University School of Medicine, Children's Hospital of Michigan, Detroit, MI.

More information: Hannah M. Pendergraff et al, Single-Stranded Silencing RNAs: Hit Rate and Chemical Modification, *Nucleic Acid Therapeutics* (2016). DOI: 10.1089/nat.2015.0557