RNA aptamers targeted to plasminogen activator inhibitor

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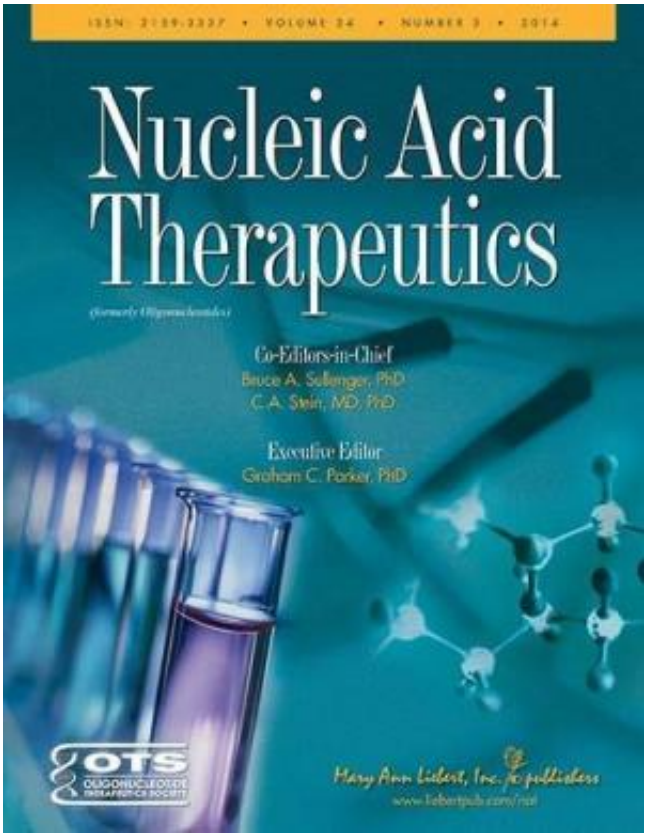

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Plasminogen activators are proteins involved in the breakdown of blood clots, and an elevated level of plasminogen activator inhibitor-1 (PAI-1) is associated with an increased risk for clotting and cardiovascular disease. No PAI-1 inhibitors are currently available for clinical use, but a

novel therapeutic approach using a targeted RNA aptamer drug that has been shown to block PAI-1 activity and prevent PAI-1-associated vascular events is described in *Nucleic Acid Therapeutics*.

Jared Damare, Stephanie Brandal, and Yolanda Fortenberry, Johns Hopkins University School of Medicine, Baltimore, MD, designed a library of small RNA molecules that target different regions of PAI-1. They then screened the library and enriched for the aptamers that were the most selective for binding to and inhibiting the function of PAI-1. The authors demonstrate the ability of these RNA aptamers to prevent PAI-1 from interacting with plasminogen activators in the article "Inhibition of PAI-1 Antiproteolytic Activity Against tPA by RNA Aptamers."

"Even beyond the admirable care and rigor of the work, the therapeutic significance lies in the authors addressing a vital concern: the identification of an aptamer that can specifically disrupt the target function of PAI-1 without inhibiting its other functions," 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.

Nucleic Acid Therapeutics is under the editorial leadership of Co-Editors-in-Chief Bruce A. Sullenger, PhD, Duke Translational Research Institute, Duke University Medical Center, Durham, NC, and C.A. Stein, MD, PhD, City of Hope National Medical Center, Duarte, CA; and Executive Editor Graham C. Parker, PhD.

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