Medical Xpress

Novel RNAi-based therapy for anemia stimulates liver to produce EPO

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To treat the debilitating anemia associated with reduced erythropoietin (EPO) production by the kidneys in chronic renal disease, patients are often given recombinant human EPO to increase hemoglobin levels. But that treatment has risks. A new approach that uses a small interfering RNA (siRNA) drug to stimulate natural EPO production by the liver has shown promising results in nonhuman primates, as reported in *Nucleic Acid Therapeutics*, a peer-reviewed journal from Mary Ann Liebert, Inc. publishers. The article is available free on the *Nucleic Acid Therapeutics* website until November 16, 2014.

Marc T. Abrams and colleagues, Merck Research Laboratories (West Point, PA and Boston, MA), designed a siRNA drug that targets and inhibits expression of the EGLN1 gene, thereby blocking production of a protein called prolyl-4-hydrolase 2 (PHD2). The liver normally makes only small amounts of EPO in adult primates and humans, but one dose of the siRNA drug led to increased levels of EPO and hemoglobin in the blood of the primates. The siRNA effect was dose-dependent and was sustained for at least two months, report the authors in the article "A Single Dose of EGLN1 siRNA Yields Increased Erythropoiesis in Nonhuman Primates."

"The translational relevance of this paper is that it successfully advances the in vivo therapeutic investigation of PHD inhibitors from previous mouse-based work to achieve increased serum EPO and hemoglobin in a primate model, " 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: *Nucleic Acid Therapeutics* online.liebertpub.com/doi/full … 0.1089/nat.2014.0495