Dicerna Update on Primary Hyperoxaluria Development Program

DCR-PHXC: Investigational Therapy for the Treatment of Patients with Primary Hyperoxaluria

About Primary Hyperoxaluria

Primary hyperoxaluria (PH) is a family of severe, rare, genetic liver disorders characterized by overproduction of oxalate, a natural chemical in the body that is normally eliminated as waste through the kidneys. In patients with PH, the kidneys are unable to eliminate the large amount of oxalate that is produced, and the accumulation of oxalate can result in severe damage to the kidneys and other organs. Currently, there are no approved therapies for the treatment of PH in the US.

There are three known types of PH, each of which results from a mutation in a specific gene. The mutation causes a decrease in the activity of a specific enzyme in the liver, triggering an increase in oxalate production. In each case the decreased enzyme activity changes how the liver makes oxalate, resulting in overproduction of oxalate.

The estimated genetic prevalence of PH1, the most common type of PH, is 1 in 151,887, which suggests more than 5,000 patients in the US and EU have the disease.[1] The median age at the first appearance of PH1 symptoms is 5.8 years.[2] The median age at diagnosis of PH1 is between 4.2 and 11.5 years, depending on whether nephrocalcinosis (calcification in the renal parenchyma, the functional part of the kidney) is present.[3] Fifty percent of patients with PH1 reach end-stage renal disease (ESRD) by their mid-30s.[4]

In some patients with PH, a genetic mutation has not been identified. These individuals are often referred to as having idiopathic PH (IPH) or "no mutation detected" (NMD) PH.

About PHYOS

To facilitate DCR-PHXC development, Dicerna continues to advance its **P**rimary **HY**peroxaluria **O**bservational **S**tudy ("PHYOS"), an international, multicenter, observational study in patients with a genetically confirmed diagnosis of PH1. PHYOS is collecting data on key biochemical parameters implicated in the pathogenesis of PH1. Dicerna hopes to use the data to better understand the baseline PH1 disease state, which will help guide long-term drug development plans.

About DCR-PHXC

Dicerna is investigating DCR-PHXC for the potential treatment of all forms of PH. DCR-PHXC is in preclinical development, and has advanced into Investigational New Drug (IND)-enabling studies. In animal models of PH, DCR-PHXC reduces oxalate production to near-normal levels, an effect that may prevent the damage to kidneys and other organs caused by oxalate accumulation. Dicerna is preparing to file a clinical trial application (CTA) in the EU in the fourth quarter, 2017, and plans to begin Phase 1 clinical trials in early 2018 as the Company pursues its goal of developing new therapies that address the full range of patients with PH.

About Dicerna

Dicerna Pharmaceuticals, Inc., is a biopharmaceutical company focused on the discovery and development of innovative RNAi-based therapeutics for diseases involving the liver, including rare diseases, chronic liver diseases, cardiovascular diseases, and viral infectious diseases. The Company is leveraging its proprietary GalXC™ RNAi technology platform to build a broad pipeline in these core therapeutic areas, focusing on target genes where connections between target gene and diseases are well understood and documented. The Company intends to discover, develop and commercialize novel therapeutics either on its own or in collaboration with pharmaceutical partners. For more information, please visit www.dicerna.com.

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For more information about Dicerna's development program, please contact Dr. Ralf Rosskamp, Dicerna's chief medical officer, at rrosskamp@dicerna.com.

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