



Krystal Submits Investigational New Drug (IND) Application for KB105, Topical Gene Therapy Candidate for Transglutaminase-1 Deficient Autosomal Recessive Congenital Ichthyosis

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KB105 is a new gene therapy candidate engineered with a Transglutaminase-1 (TGM1) gene construct to treat TGM1 deficient autosomal recessive congenital ichthyosis

KB105 is the second pipeline product based on the STAR-D platform and is part of a growing pipeline of gene therapy candidates for skin diseases

PITTSBURGH, June 14, 2019 (GLOBE NEWSWIRE) -- [Krystal Biotech Inc.](#), ("Krystal") (NASDAQ: KRYS), a gene therapy company developing medicines to treat dermatological diseases, today announces that it has submitted an Investigational New Drug (IND) application with the U.S. Food and Drug Administration (FDA) to initiate a Phase 1/2, first in-human trial of KB105, an HSV-1 based gene therapy engineered to deliver a human transglutaminase-1 (TGM1) gene to patients with TGM1-deficient autosomal recessive congenital ichthyosis (ARCI).

TGM1-deficient ARCI is a debilitating rare skin disease characterized by excessive, thick scaling of the skin and causing multiple chronic health conditions. Leveraging its Skin Targeted Delivery (STAR-D) platform technology, Krystal's approach is to use a non-replicating, non-integrating engineered HSV-1 virus, to deliver the TGM1 gene to dividing and non-dividing skin cells, causing them to produce the TGM1 protein that is lacking in this patient population. KB105 is designed to be an off-the-shelf treatment for TGM1-deficient ARCI that can be applied topically, directly to a patient's skin.

"Advancing KB105 into the clinic is an important step for Krystal Biotech in our mission to bring life-changing treatments to people suffering from debilitating skin diseases," said Suma Krishnan, founder and chief operating officer of Krystal. "As we head into the second half of 2019, we look forward to initiating a Phase 1/2 trial with KB105 and advancing KB103, our lead development candidate for dystrophic epidermolysis bullosa into a Phase 3 registration trial."

About KB105

KB105 is Krystal's second product candidate, currently in preclinical development, and seeks to use gene therapy to treat patients with TGM-1 deficient ARCI. KB105 is a replication-defective, non-integrating viral vector that has been engineered employing Krystal's STAR-D platform to deliver functional human TGM-1 gene directly to the patients' dividing and non-dividing skin cells. HSV-1 is Krystal's replication-deficient, non-integrating viral vector that can penetrate skin cells more efficiently than other viral vectors. Its high payload capacity allows it to accommodate large or multiple genes and its low immunogenicity makes it a suitable choice for direct and repeat delivery to the skin.

About Autosomal Recessive Congenital Ichthyosis

Transglutaminase 1 (TGM-1) is an essential epidermal enzyme that facilitates the formation of the epidermal barrier, which prevents dehydration, and protects the skin from unwanted toxins and surface microorganisms. The loss of TGM-1-activity results in the severe genetic skin disease autosomal recessive congenital ichthyosis (ARCI). Most patients with a TGM-1-deficiency exhibit life-long pronounced scaling with increased transepidermal water loss (TEWL). The scales are plate-like, often of a dark color, and cover the whole body surface area. Erythroderma is either absent or minimal. Such patients usually have ectropion and, at times, eclabium, hypoplasia of joint and nasal cartilage, scarring alopecia, especially at the edge of the scalp, and palmoplantar keratoderma. Additional complications include episodes of sepsis, fluid and electrolyte imbalances due to impaired skin barrier function, and failure to thrive, especially during neonatal period and infancy. Severe heat intolerance, and nail dystrophy are also frequently observed. TGM-1-deficient ARCI is associated with increased mortality in the neonatal period and has a dramatic impact on quality of life. No efficient treatment is available; current therapy only relieves some symptoms. There are approximately 23,000 cases of TGM1 deficient ARCI worldwide and about 400 new cases per year globally.

About the STAR-D Gene Therapy Platform

Krystal's Skin TARgeted Delivery platform, or STAR-D platform, is a proprietary gene therapy platform consisting of an engineered viral vector and skin-optimized gene transfer technology that Krystal is employing to develop off-the-shelf treatments for dermatological diseases for which there are no known effective treatments. The company believes that the STAR-D platform provides an optimal approach for treating dermatological conditions due to the nature of the HSV-1 viral vector it has created. Certain inherent features of the HSV-1 virus, combined with the ability to strategically modify the virus in the form employed as a gene delivery backbone, provide the STAR-D platform with several advantages over other viral vector platforms for use in dermatological applications.

About Krystal Biotech

Krystal Biotech, Inc. (NASDAQ:KRYS) is a gene therapy company dedicated to developing and commercializing novel treatments for patients suffering from dermatological diseases. For more information, please visit <http://www.krystalbio.com>.

Forward-Looking Statements

This press release includes certain disclosures that contain "forward-looking statements," including, without limitation, statements regarding the potential of KB103 to treat the underlying causes of DEB, the timetable for bringing GMP manufacturing in-house and the potential for rapid development of the company's clinical programs. You can identify forward-looking statements because they contain words such as "believes" and "expects." Forward-looking statements are based on Krystal's current expectations and assumptions. Because forward-looking statements relate to the future, they are subject to inherent uncertainties, risks and changes in circumstances that may differ materially from those contemplated by the forward-looking statements, which are neither statements of historical fact nor guarantees or assurances of future performance. Important factors that could cause actual results to differ materially from those in the forward-looking statements are set forth in Krystal's filings with the Securities and Exchange Commission, including its registration statement on Form S-1 and Form 10-K, as amended from time to time, under the caption "Risk Factors."

CONTACTS:

Investors:

Ashley R. Robinson
LifeSci Advisors
arr@lifesciadvisors.com

Media:

Darren Opland, PhD
LifeSci Public Relations
darren@lifescipublicrelations.com



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