A PHASE 2 CLINICAL TRIAL

GRASP

Gene therapy to Reduce All Sickle Pain

Full Trial Name

A Gene Transfer Study Inducing Fetal Hemoglobin in Sickle Cell Disease

Trial Funding

This study is funded in part by the National Institutes for Health (NIH)/National Heart, Lung, and Blood Institute and the California Institute for Regenerative Medicine.

Trial Purpose

To test whether the gene therapy approach (lentiviral vector shRNA) which decreases expression of the BCL11A gene can improve or eliminate painful episodes.

Trial Background

This phase 2 trial is based on a pilot/phase 1 study also funded by the NIH being completed at Boston Children's Hospital, which showed early safety and efficacy in the initial 10 patients enrolled in the trial.

The study is designed to test whether a gene therapy approach targeting the BCL11A gene can eliminate painful episodes. In this study, a patients' blood-forming cells (blood stem cells) are collected and modified in the laboratory (gene transfer) in order to reduce the expression of the form of hemoglobin that causes the red blood cells to sickle and to increase a naturally occurring form of hemoglobin that does not sickle called fetal hemoglobin (HbF). The goal of this gene therapy is to maintain high levels of HbF production. In a pilot study, decreasing the expression of this gene in sickle cell patients increased the amount of fetal hemoglobin while also reducing the amount of sickle hemoglobin in their blood, which reduced the severity of the disease. The gene being targeted for change in this study controls the level of fetal hemoglobin is BCL11A (B cell lymphoma/leukemia 11A) that is not required for red blood cells to function.

"We know that just after birth babies with sickle cell disease have few symptoms due to their high levels of fetal hemoglobin but that their red blood cells function perfectly. We aim to "flip the switch" back in red cells by changing the adult red cells into cells more like those in a baby."

-David A. Williams, MD

TRIAL INFORMATION

Eligibility

- Male or Female
- 13–40 years old
- Had four or more pain episodes or acute chest syndrome requiring hospitalizations or clinic or emergency room visits in the past 2 years.

PARTICIPANTS IN THIS STUDY WILL:

- Be evaluated at a study site (see below for site listing) to assess their ability to be part of the trial.
- Have monthly blood transfusions for 3 months prior to gene therapy to prepare for the treatment.
- Undergo collection of their blood stem cells for gene therapy.
- Be admitted to a hematopoietic stem cell transplant inpatient unit at a study site for at least one month for bone marrow conditioning, gene therapy administration, and recovery.
- Undergo close monitoring after gene therapy to assess the safety and efficacy of the treatment.

Trial Sites

- Ann & Robert H. Lurie Children's Hospital of Chicago, Chicago, IL
- Boston Children's Hospital, Boston, MA
- Children's Hospital of Los Angeles, Los Angeles, CA
- Children's National Medical Center, Washington, DC
- Dana-Farber Cancer Institute/Brigham & Women's Hospital, Boston, MA
- Emory University, Atlanta, GA
- Medical College of Wisconsin, Milwaukee, WI
- University of California Davis, CA
- University of California Los Angeles (UCLA), Los Angeles, CA
- University of California San Francisco (UCSF), Benioff Children's Hospital of Oakland, Oakland, CA

Contact

FOR MORE INFORMATION
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Clinical Trial Listing (Clinicaltrials.gov)

Download Trial Details

POTENTIAL QUESTIONS FOR PATIENTS TO DISCUSS WITH PROVIDERS AND THE TRIAL SITE

- Do you think this trial could be an option for me to consider? Why?
- Would I be eligible to participate based on my medical history?
- What are the risks? What are the benefits?
- What will happen if I decide to participate?
- Will my care be any different if I choose to participate?
- What will be the role of my provider while I am participating?
- How long is the trial process?
- How long will I be in the hospital?
- What specifically will happen during the trial? What procedures will be done? What are the side effects?
- What happens after the trial?

TRIAL-SPECIFIC LINKS

NEJM: Post-Transcriptional Genetic Silencing of BCL11A to Treat Sickle Cell Disease