A Study Evaluating the Efficacy and Safety of Mitapivat in Participants With Non-Transfusion Dependent Alpha- or Beta-Thalassemia (α- or β-NTDT)

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Main Information

Primary registry identifying number
LBCTR2022014844

Protocol number
AG348-C-017

MOH registration number

Study registered at the country of origin
Yes

Study registered at the country of origin: Specify

Type of registration
Prospective

Type of registration: Justify
N/A

Date of registration in national regulatory agency

Primary sponsor
Agios Pharmaceuticals, Inc.

Primary sponsor: Country of origin
USA

Date of registration in primary registry
07/03/2022

Date of registration in national regulatory agency

Public title
A Study Evaluating the Efficacy and Safety of Mitapivat in Participants With Non-Transfusion Dependent Alpha- or Beta-Thalassemia (α- or β-NTDT)

Acronym

Scientific title
A Phase 3, Double-blind, Randomized, Placebo-Controlled, Multicenter Study Evaluating the Efficacy and Safety of Mitapivat in Subjects With Non–Transfusion-Dependent Alpha- or Beta-Thalassemia (ENERGIZE)

Acronym

Brief summary of the study: English

This is a Phase 3, double-blind, randomized, placebo-controlled, multicenter study evaluating the efficacy and safety of mitapivat versus placebo in adult subjects with α- or β-NTDT followed by an Open-label Extension Period.

The primary objective of the study is to compare the effect of mitapivat versus placebo on anemia, supported by patient-reported outcome (FACIT-Fatigue) and performance outcome (6MWT) measures evaluating how subjects feel and function, and hemolytic and erythropoietic parameters and iron metabolism.
Other secondary objectives include the evaluation of pharmacokinetic and pharmacodynamic parameters and safety.

Brief summary of the study: Arabic

هذه الدراسة في المرحلة 3هو تقييم مزدوجة التعمية والعشوائية ، بالمقارنة مع دواء وهمي، و دراسة متعددة المراكز. إن الهدف من هذه الدراسة يساعد على تحسين مستويات الهيموغلوبين لدى مرضى الثلاسيميا من نوع ألفا أو بيتا الذين لا يحتاجون mitapivat ما إذا كان دواء ميتابيفات لنقل الدم بانتظام، وما إذا كان هذا الدواء آمنا. الأهداف الثانوية هي تقييم الحرائك الدوائية والديناميكا الدوائية .

Health conditions/problem studied: Specify

Patients with a diagnosis of NTDT thalassemia (β-thalassemia with or without α-globin gene mutations, HbE/β-thalassemia, or α-thalassemia/HbH disease). Non–transfusion dependent, defined as ≤5 red blood cell (RBC) units during the 24-week period before randomization, and no RBC transfusions ≤8 weeks before providing informed consent or during the Screening Period.

Interventions: Specify

The study will include approximately 171 adult and adolescent participants (≥ 18 years of age) with NTDT. Subjects will receive 100 mg twice-daily mitapivat or matched-placebo for oral administration.
Eligible subjects will be randomly assigned in a 2:1 ratio to receive study drug (mitapivat or placebo, respectively)
Randomization will be stratified by baseline Hb concentration (≤9.0 g/dL or 9.1-10.0 g/dL) and by thalassemia genotype. Study subjects, Investigators, clinical study center personnel, pharmacists, and the Sponsor will be blinded to the subject's treatment assignment. During the Double-blind Period, an unblinded Independent Data Monitoring Committee will be responsible for ongoing monitoring of the safety of subjects.

Key inclusion and exclusion criteria: Inclusion criteria

1. ≥18 years of age at the time of providing informed consent.

2. Documented diagnosis of thalassemia (β-thalassemia with or without α-globin gene mutations, HbE/β-thalassemia, or α-thalassemia/HbH disease) based on Hb electrophoresis, Hb high-performance liquid chromatography, and/or DNA analysis from the subject's medical record. If this information is not available from the subject's medical record, the test(s) can be performed by a local laboratory during the Screening Period. If a local laboratory is unable to perform the test(s), results from the comprehensive α- and β-globin genotyping performed by the study central laboratory can be used.

3. Hb concentration ≤10.0 g/dL, based on an average of at least 2 Hb concentration measurements (separated by ≥7 days) collected during the Screening Period.

4. Non–transfusion dependent, defined as ≤5 red blood cell (RBC) units during the 24-week period before randomization, and no RBC transfusions ≤8 weeks before providing informed consent or during the Screening Period.

5. If taking hydroxyurea, the hydroxyurea dose must be stable for ≥16 weeks before randomization.

6. Women of childbearing potential (WOCBP) and men with partners who are WOCBP must be abstinent of sexual activities that may result in pregnancy as part of their usual lifestyle or agree to use 2 forms of contraception, 1 of which must be considered highly effective, from the time of providing informed consent, throughout the study, and for 28 days after the last dose of study drug for women and 90 days after the last dose of
study drug for men. The second form of contraception can be an acceptable barrier method.

7. Written informed consent before any study-related procedures are conducted and willing to comply with all study procedures for the duration of the study.

Key inclusion and exclusion criteria: Gender

Both

Key inclusion and exclusion criteria: Specify gender

Key inclusion and exclusion criteria: Age minimum

18

Key inclusion and exclusion criteria: Age maximum

99

Key inclusion and exclusion criteria: Exclusion criteria

1. Pregnant or breastfeeding.

2. Documented history of homozygous or heterozygous HbS or HbC.

3. Prior exposure to gene therapy or prior bone marrow or stem cell transplantation.

4. Currently receiving treatment with luspatercept; the last dose must have been administered ≥12 weeks before screening.

5. Currently receiving treatment with hematopoietic stimulating agents; the last dose must have been administered ≥12 weeks before screening.

6. History of any malignancy, except for nonmelanomatous skin cancer in situ, cervical carcinoma in situ, or breast carcinoma in situ. Subjects must not have active disease or received anticancer treatment ≤5 years before providing informed consent.

7. History of active and/or uncontrolled cardiac or pulmonary disease ≤6 months before providing informed consent, including but not limited to:
a. New York Heart Association Class III or IV heart failure or clinically significant dysrhythmia
b. Myocardial infarction or unstable angina pectoris; hemorrhagic, embolic, or thrombotic stroke; deep venous thrombosis; or pulmonary or arterial embolism
c. Heart rate–corrected QT interval using Fridericia's method ≥450 milliseconds, except for right or left bundle branch block
d. Severe pulmonary fibrosis as defined by severe hypoxia, evidence of right-sided heart failure, and radiographic pulmonary fibrosis >50%
e. Severe pulmonary hypertension as defined by severe symptoms associated with hypoxia, right-sided heart failure, and oxygen indicated

8. Hepatobiliary disorders, including but not limited to:
a. Liver disease with histopathological evidence of cirrhosis or severe fibrosis
b. Clinically symptomatic cholelithiasis or cholecystitis (prior cholecystectomy is not exclusionary)

c. History of drug-induced cholestatic hepatitis
d. Aspartate aminotransferase >2.5 × upper limit of normal (ULN); unless due to hemolysis and hepatic iron deposition) and alanine aminotransferase >2.5 × ULN (unless due to hepatic iron deposition)

9. Estimated glomerular filtration rate <45 mL/min/1.73 m2 by Chronic Kidney Disease Epidemiology Collaboration creatinine equation.

10. Nonfasting triglycerides >440 mg/dL (5 mmol/L)

11. Active infection requiring systemic antimicrobial therapy at the time of providing informed consent. If antimicrobial therapy is required during the Screening Period, screening procedures should not be performed while antimicrobial therapy is being administered, and the last dose of antimicrobial therapy must be administered ≥7 days before randomization.

12. Positive test for hepatitis C virus (HCV) antibody (Ab) with evidence of active HCV infection, or positive test for hepatitis B surface antigen.

13. Positive test for HIV-1 Ab or HIV-2 Ab.

14. History of major surgery (including splenectomy) ≤16 weeks before providing informed consent and/or a major surgical procedure planned during the study.

15. Current enrollment or past participation (≤12 weeks before administration of the first dose of study drug or a time frame equivalent to 5 half-lives of the investigational study drug, whichever is longer) in any other clinical study involving an investigational treatment or device.

16. Receiving strong cytochrome P450 (CYP)3A4/5 inhibitors that have not been stopped for ≥5 days or a time frame equivalent to 5 half-lives (whichever is longer), or strong CYP3A4 inducers that have not been stopped for ≥4 weeks or a time frame equivalent to 5 half-lives (whichever is longer), before administration of the first dose of study drug.

17. Receiving anabolic steroids, including testosterone preparations, that have not been stopped for ≤4 weeks before administration of the first dose of study drug.

18. Known allergy to mitapivat or its excipients (microcrystalline cellulose, croscarmellose sodium, sodium stearyl fumarate, mannitol, and magnesium stearate).

19. Any medical, hematological, psychological, or behavioral condition(s) or prior or current therapy that, in the opinion of the Investigator, may confer an unacceptable risk to participating in the study and/or could confound the interpretation of the study data.

Type of study

Interventional

Type of intervention

Pharmaceutical

Type of intervention: Specify type

N/A

Trial scope

Other

Trial scope: Specify scope

Study design: Allocation

Randomized controlled trial

Study design: Masking

Blinded (masking used)

Study design: Control

Placebo

Study phase

3

Study design: Purpose

Treatment

Study design: Specify purpose

N/A

Study design: Assignment

Parallel

Study design: Specify assignment

N/A

IMP has market authorization

No

IMP has market authorization: Specify

Name of IMP

Mitapivat

Year of authorization

Month of authorization

Type of IMP

Others

Pharmaceutical class

The investigational drug mitapivat (also known as mitapivat sulfate and AG-348) is a first-in-class, orally bioavailable, potent, allosteric activator of wild-type RBC-specific form of pyruvate kinase (PKR) and a range of PKR-mutant enzymes (Kung et al, 2017). The RBC-specific form of pyruvate kinase is 1 of 4 pyruvate kinase isoenzymes expressed in human tissues from 2 separate genes, liver-specific form of pyruvate kinase (PKL) and pyruvate kinase muscle isozyme (PKM). Both PKR and PKL are splice isoforms of the PKLR gene, while PKM1 and PKM2 are both expressed from the PKM gene. Mitapivat is an allosteric activator of the PKR, PKL, and PKM2 isoenzymes, with similar potency against each.

Therapeutic indication

α- or β- Non transfusion dependent thalassemia (α- or β-NTDT)

Therapeutic benefit

Mitapivat has the potential to treat anemia and improve how patients feel and function in a broader portion of the population of patients with thalassemia, while providing the option of oral administration.

Study model

N/A

Study model: Explain model

N/A

Study model: Specify model

N/A

Time perspective

N/A

Time perspective: Explain time perspective

N/A

Time perspective: Specify perspective

N/A

Target follow-up duration

Target follow-up duration: Unit

Number of groups/cohorts

Biospecimen retention

Samples with DNA**

Biospecimen description

Blood samples collected for comprehensive α- and β-globin genotyping and for UGT1A1 and PKLR genotyping samples will be analyzed by Centogene. Samples will be maintained in a secure storage facility with adequate measures to protect subject confidentiality. Samples will be retained for a maximum of 10 years.

Target sample size

171

Actual enrollment target size

Date of first enrollment: Type

Anticipated

Date of first enrollment: Date

01/02/2022

Date of study closure: Type

Anticipated

Date of study closure: Date

Recruitment status

Pending

Recruitment status: Specify

Date of completion

IPD sharing statement plan
No

IPD sharing statement description
No IPD sharing statement plan

Additional data URL

Admin comments

Trial status
Approved

Secondary Identifying Numbers

Full name of issuing authority	Secondary identifying number
NA	NA

Sources of Monetary or Material Support

Name
Agios Pharmaceuticals, Inc.

Secondary Sponsors

Name
NA

Contact for Public/Scientific Queries

Contact type	Contact full name	Address	Country	Telephone	Email	Affiliation
Public	Aziz Zoghbi	MCT-CRO, Berytech Technology and Health, 5th Floor Damascus Road, Beirut, Lebanon	Lebanon	009617100 8269	aziz.zoghbi@mct-cro.com	Director of Country Oversight and Management MENA, Gulf and Africa
Scientific	Ali Taher	Chronic Care Center (CCC), Hazmieh, Lebanon	Lebanon	+9613 755 669	ataher@aub.edu.lb	PI

Centers/Hospitals Involved in the Study

Center/Hospital name	Name of principles investigator	Principles investigator speciality	Ethical approval
Chronic Care Center	Dr.Ali Taher	Professor of Medicine, Hematology & Oncology	Pending

Ethics Review

Ethics approval obtained	Approval date	Contact name	Contact email	Contact phone
Chronic Care Center	18/11/2021	Michelle Abi Saad	cccmas@chroniccare.org.lb	05-455101

Countries of Recruitment

No Countries

Health Conditions or Problems Studied

Condition	Code	Keyword
Non transfusion dependent thalassemia	Thalassaemia (D56)	Thalassemia beta-Thalassemia alpha-Thalassemia Anemia, Hemolytic, Congenital Anemia, Hemolytic Anemia Hematologic Diseases

Interventions

Intervention	Description	Keyword
Mitapivat	subjects will be randomly assigned in a 2:1 ratio to receive study drug (mitapivat or placebo, respectively)	Treatment

Primary Outcomes

Name	Time Points	Measure
Effect of mitapivat versus placebo on anemia (Hemoglobin (Hb) response)	from Week 12 through Week 24 compared with baseline	≥1.0 g/dL increase in average Hb concentration

Key Secondary Outcomes

Name	Time Points	Measure
Effect of mitapivat versus placebo on fatigue	Change from baseline from Week 12 through Week 24	average Functional Assessment of Chronic Illness Therapy-Fatigue (FACIT-Fatigue) subscale score
Effect of mitapivat versus placebo on additional measures of anemia	Change from baseline from Week 12 through Week 24	average Hb concentration

Trial Results

Summary results

Study results globally

Date of posting of results summaries

Date of first journal publication of results

Results URL link

Baseline characteristics

Participant flow

Adverse events

Outcome measures

URL to protocol files