



# Study of Dose Confirmation and Safety of Crizanlizumab in Pediatric Sickle Cell Disease Patients

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## Main Information

**Primary registry identifying number**

LBCTR2019020198

**Protocol number**

SEG101B2201

**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**

Novartis Pharma Services Inc.

**Primary sponsor: Country of origin**

Novartis Pharmaceuticals

**Date of registration in primary registry**

12/10/2022

**Date of registration in national regulatory agency**

**Public title**

Study of Dose Confirmation and Safety of Crizanlizumab in Pediatric Sickle Cell Disease Patients

**Acronym**

**Scientific title**

A Phase 2, Multicenter, Open-Label Study to Assess Appropriate Dosing and to Evaluate Safety of Crizanlizumab, With or Without Hydroxyurea/Hydroxycarbamide, in Sequential, Descending Age Groups of Pediatric Sickle Cell Disease Patients With Vaso-Occlusive Crisis

**Acronym**

**Brief summary of the study: English**

The purpose of the Phase 2 CSEG101B2201 study is to confirm and to establish appropriate dosing and to evaluate the safety in pediatric patients ages 6 months to <18 years with a history of VOC with or without HU/HC, receiving crizanlizumab for 2 years. The efficacy and safety of crizanlizumab was already demonstrated in adults with sickle cell disease. The approach is to extrapolate from the PK/pharmacodynamics (PD) already established in the adult population. The study is designed as a Phase II, multicenter, open-label study.

**Brief summary of the study: Arabic**

دراسة مفتوحة اللصاق، متعددة المراكز، في المرحلة الثانية لتقييم الجرعات المناسبة وسلامة دواء كريزانليزوماب، مع أو بدون هيدروكسي يوريا / هيدروكسيكارباميد، لدى مرضى مصابين بداء الكريات المنجلية لدى الأطفال مع نوبة انسداد وعائي من فئات عمرية تسلسلية وتنازلية

**Health conditions/problem studied: Specify**

Sickle Cell Disease

**Interventions: Specify**

Drug: Crizanlizumab  
Crizanlizumab (SEG101) is a concentrate for solution for infusion, i.v. use. Supplied in single use 10 mL vials at a concentration of 10 mg/mL.



One vial contains 100 mg of crizanlizumab.

Other Name: SEG101

**Key inclusion and exclusion criteria: Inclusion criteria**

- Male or female patients aged 2 to <18 years (Group 3 will be expanded to allow enrolment of patients aged 6 to <24 months (and at least 6 kg) in Part B once the appropriate dose is confirmed in 2 to <6 year old patients)
- Confirmed diagnosis of sickle cell disease (SCD) (e.g. any genotype including HbSS, HbSC, HbSβ0-thalassemia, HbSβ+-thalassemia, and others) by hemoglobin electrophoresis or high-performance liquid chromatography (HPLC) performed locally.
- Experienced at least 1 VOC within the preceding 12 months, as determined by medical history. Prior VOC must have resolved at least 7 days prior to the first dose in the study and should include all the following:
  1. the occurrence of appropriate symptoms (see VOC definition in protocol Section 7.2.1.1)
  2. either a visit to a medical facility or healthcare professional,
  3. receipt of oral/parenteral opioid or other non-opioid parenteral analgesia.
- If receiving HU/HC or erythropoietin stimulating agent, must have been receiving the drug for at least 6 months prior to Screening and plan to continue taking at the same dose and schedule during the trial. Dose alterations of HU/HC during Part A are not allowed, and if this occurs, the patient will enter directly to the Part B.
- Received standard age-appropriate care for SCD, including penicillin prophylaxis, pneumococcal immunization, and parental education
- Transcranial Doppler (TCD) considered low risk within the past 6 months (for 2 to 16 years).

**Key inclusion and exclusion criteria: Gender**

Both

**Key inclusion and exclusion criteria: Specify gender**

**Key inclusion and exclusion criteria: Age minimum**

1

**Key inclusion and exclusion criteria: Age maximum**

18

**Key inclusion and exclusion criteria: Exclusion criteria**

- History of stem cell transplant.
- Received any blood products within 30 days of Day 1 dosing.
- Participating in a chronic transfusion program (preplanned series of transfusions for prophylactic purposes).
- Patients with bleeding disorders
- Planning on undergoing an exchange transfusion during the duration of the study. Patients requiring episodic transfusion in response to worsened anemia or VOC are permitted.
- Contraindication or hypersensitivity to any drug from similar class as study drug or to any excipients of the study drug formulation.
- Received a monoclonal antibody or immunoglobulin-based therapy within 6 months of Screening, or has documented immunogenicity to a prior monoclonal antibody.
- Received active treatment on another investigational trial within 30 days (or 5 half lives of that agent, whichever is greater) prior to Screening or plans to participate in another investigational drug trial.
- Pregnant females or females who have given birth within the past 90 days or who are breastfeeding.
- Any documented history of a stroke or intracranial hemorrhage, or an uninvestigated neurologic finding within the past 12 months
- Any conditional TCD within the past 12 months
- Use of therapeutic anticoagulation (prophylactic doses permitted) or antiplatelet therapy (other than aspirin) within the 10 days prior to Week 1 Day 1 dosing
- Hospitalized at Screening
- Planning to undergo a major surgical procedure during the duration of the study
- Planning to initiate or terminate HU/HC while on study, other than for safety reasons
- Patient with active HIV infection (detectable viral load)
- Patients with known active Hepatitis B infection.
- Patients with known Hepatitis C history.
- Significant active infection or immune deficiency (including chronic use of immunosuppressive drugs) in the opinion of the investigator.
- Malignant disease. Exceptions to this exclusion include the following: malignancies that were treated curatively and have not recurred within 2 years prior to study treatment; any completely resected carcinoma in situ.
- Has a serious mental or physical illness, which, in the opinion of the Investigator would compromise participation in the study.
- Resting QTcF ≥450 msec at pretreatment (baseline) for patients under 12 years of age and ≥450 msec for males and ≥460 msec for female patients 12 years and older.
- Cardiac or cardiac repolarization abnormality
- Long QT syndrome, family history of idiopathic sudden death or congenital long QT syndrome
- Sexually active females who are unwilling to comply with reliable method of birth control until 15 weeks following last dose of study drug.
- Current drug or alcohol abuse:
  1. Has a positive qualitative urine drug test at Screening for cocaine, phencyclidine (PCP), or amphetamines (opioids are permitted).
  2. Consumes >12 (for males) or >8 (for females) standard alcoholic beverages per week.
- Not able to understand and to comply with study instructions and requirements.
- Subjects, who are an employee of the sponsor or investigator or otherwise dependent on them.
- Subjects, who are committed to an institution by virtue of an order issued either by the judicial or the administrative authorities.

**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**

N/A: Single arm study

**Study design: Masking**

Open (masking not used)

**Study design: Control**

N/A

**Study phase**

2

**Study design: Purpose**

Prevention

**Study design: Specify purpose**

N/A

**Study design: Assignment**

Single

**Study design: Specify assignment**

N/A

**IMP has market authorization**

No

**IMP has market authorization: Specify**

**Name of IMP**

SEG101 - Crizanlizumab

**Year of authorization**

**Month of authorization**

**Type of IMP**

Immunological

**Pharmaceutical class**

anti-human P-selectin antibody G1

**Therapeutic indication**

prevention of vaso-occlusive crises (VOCs) in patients of all genotypes with sickle cell disease (SCD)

**Therapeutic benefit**

- 1.Number of Vaso Occusive Crisis (VOC) events leading to healthcare visit in clinic/ER/hospital
- 2.Number of Vaso Occusive Crisis (VOC) events treated at home
- 3.Number of each subcategory of VOC event (uncomplicated pain crisis, acute chest syndrome, hepatic sequestration, splenic sequestration, priapism)

**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 without DNA

**Biospecimen description**

All Blood samples and Urine Samples will be shipped to Covance Geneva Central Lab

**Target sample size**

8

**Actual enrollment target size**

8

**Date of first enrollment: Type**

Actual

**Date of first enrollment: Date**

13/12/2019

**Date of study closure: Type**

Actual

**Date of study closure: Date**

20/07/2022

**Recruitment status**

Recruiting

**Recruitment status: Specify**

**Date of completion**

30/06/2021

**IPD sharing statement plan**

No

**IPD sharing statement description**

Novartis is committed to sharing with qualified external researchers, access to patient-level data and supporting clinical documents from eligible studies. These requests are reviewed and approved by an independent expert panel on the basis of scientific merit. All data provided is anonymized to respect the privacy of patients who have participated in the trial in line with applicable laws and regulations.

This trial data is currently available according to the process described on [www.clinicalstudydatarequest.com](http://www.clinicalstudydatarequest.com).

**Additional data URL**

<https://clinicaltrials.gov/ct2/show/NCT03474965?term=seg101&rank=2>

**Admin comments**

**Trial status**

Approved

## Secondary Identifying Numbers

| Full name of issuing authority | Secondary identifying number |
|--------------------------------|------------------------------|
| Clinical Trials. gov           | NCT03474965                  |



## Sources of Monetary or Material Support

**Name**

Novartis Pharma Services Inc.

## Secondary Sponsors

**Name**

NA

## Contact for Public/Scientific Queries

| Contact type | Contact full name | Address    | Country | Telephone              | Email                         | Affiliation                                  |
|--------------|-------------------|------------|---------|------------------------|-------------------------------|--|
| Public       | Adlette Inati     | Tripoli    | Lebanon | 009613228033           | adlette.inati@lau.edu.lb      | Nini Hospital                                |
| Scientific   | Hind Khairallah   | Sin El Fil | Lebanon | +961 1 512002 Ext. 271 | Hind.Khairallah@fattal.com.lb | Khalil Fattal et Fils s.a.l.                 |
| Public       | Miguel Abboud     | Beirut     | Lebanon | 00961 (0) 3 534 213    | ma56@aub.edu.lb               | American University of Beirut Medical Center |

## Centers/Hospitals Involved in the Study

| Center/Hospital name                         | Name of principles investigator | Principles investigator speciality | Ethical approval |
|--|---------------------------------|------------------------------------|------------------|
| Nini Hospital                                | Dr Adlette Inati                | Hematology                         | Approved         |
| American University of Beirut Medical Center | Dr Miguel Abboud                | Hematology                         | Approved         |

## Ethics Review

| Ethics approval obtained                     | Approval date | Contact name  | Contact email                  | Contact phone               |
|--|---------------|---------------|--------------------------------|-----------------------------|
| Nini Hospital                                | 17/12/2018    | Nabil Kabbara | Nabil.kabbara@hospitalnini.com | +961 (0) 6 431 400 ext 1062 |
| American University of Beirut Medical Center | 16/10/2019    | Fuad Ziyadeh  | fz05@aub.edu.lb                | +961 (0) 1 350 000 ext:5445 |



| Countries of Recruitment |  |
|--------------------------|--|
| Name                     |  |
| Lebanon                  |  |
| Belgium                  |  |
| Germany                  |  |
| India                    |  |
| United States of America |  |
| Canada                   |  |
| Colombia                 |  |
| France                   |  |
| Italy                    |  |
| Oman                     |  |
| Spain                    |  |
| Switzerland              |  |
| Turkey                   |  |
| United Kingdom           |  |

| Health Conditions or Problems Studied |                             |         |
|---------------------------------------|-----------------------------|---------|
| Condition                             | Code                        | Keyword |
| Sickle Cell Disease                   | Sickle-cell disorders (D57) | SCD     |

| Interventions   |   |               |
|---|---|---------------|
| Intervention  | Description   | Keyword       |
| Please refer to table 7- 1 in the attached Protocol V00, page 51Consenting process, Physical Exam, Vital Signs, Medical History, Lab assessments, efficacy assessments and Biomarker assessments, pharmacokinetics and immunogenicity | Consenting process, Physical Exam, Vital Signs, Medical History, Lab assessments, efficacy assessments and Biomarker assessments, pharmacokinetics and immunogenicity | ICF, IMP, Lab |



## Primary Outcomes

| Name   | Time Points        | Measure            |
|--|--------------------|--------------------|
| PK (AUCd15) after 1st dose, Confirm appropriate dosing of crizanlizumab in patients aged 2 to < 18 years | 15 days            | 15 days            |
| •PK (AUCtau) after 5th dose  | week 15            | week 15            |
| •Frequency of any adverse events (AEs) as a measure of safety and tolerability                           | 6 months , 2 years | 6 months , 2 years |

## Key Secondary Outcomes

| Name   | Time Points                 | Measure                     |
|--|-----------------------------|-----------------------------|
| •Number of Vaso Occusive Crisis (VOC) events leading to healthcare visit in clinic/ER/hospital   | 6 months, 2 years           | 6 months, 2 years           |
| •Number of Vaso Occusive Crisis (VOC) events treated at home (based on documentation by health care provider following phone contact with the patient) | 6 months, 2 years           | 6 months, 2 years           |
| •Number of hospitalizations and ER visits (both overall and VOC-related)   | 6 months, 2 years           | 6 months, 2 years           |
| •Absolute change from baseline in hemoglobin   | Baseline, 6 months, 2 years | Baseline, 6 months, 2 years |



## 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**