

Clinical Trial Protocol

Iranian Registry of Clinical Trials

17 Sep 2026

Phase I/II Clinical Trial (Safety and feasibility) using ex-vivo expanded Haploidentical donor-derived (Natural Killer Cell)-NK Cells against advanced refractory/relapsed Acute Myeloid Leukemia (AML)

Protocol summary

Study aim

Safety and feasibility study of allogeneic ex vivo expanded NK cell therapy against advanced refractory/relapsed AML

Design

Conditioning regimens, including cyclophosphamide at a dose of 20 mg/Kg every day during 2-1 days before injection and fludarabine at a dose of 20 mg/ml every day due to 4-1 days before injection (for three days) would be prescribed to the patient. One day after the completion of the conditioning regimen, $1-5 \times 10^6$ NK cells/Kg from an allogeneic source which have prepared in the laboratory would be injected due to 1 hour. The second infusion on the 7th day with increasing doses includes 5 -10 million cells per kilogram of body weight would be infused without a conditioning regimen.

Settings and conduct

Receive conditioning regime, intravenous injection of Natural killer cells twice a week apart in hospitals with special cell therapy and transplantation awards

Participants/Inclusion and exclusion criteria

Inclusion Criteria: Drug-resistant AML patients who have not responded to 2 treatment cycles or recurrent cases who are not candidates for routine therapies or bone marrow transplants. The toxicity or side effects of chemotherapy regimens such as severe cytopenia would be assigned and in case of severe symptoms, patients should be excluded from the study. Exclusion Criteria 1- Simultaneously receiving chemotherapy drugs 2- CHF history during the last 6 months (Congestive Heart Failure) 3- USA history during the last 6 months (Unstable Angina) 4 - Active bacterial, fungal, or viral infections in the last month who have reduced the patient's tolerance to a new treatment

Intervention groups

Patient with Drug-resistant acute myeloid leukemia who will receive two dosage NK cells ($1-5 \times 10^6$ per kg) after

conditioning regimen receiving.

Main outcome variables

-No systemic toxicity and allergy reactions in the patients after cell injection -reduction of tumor burden

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20200621047859N3**

Registration date: **2020-12-30, 1399/10/10**

Registration timing: **registered_while_recruiting**

Last update: **2020-12-30, 1399/10/10**

Update count: **0**

Registration date

2020-12-30, 1399/10/10

Registrant information

Name

Ramin Sarraami Forooshani

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 21 8879 6003

Email address

rsf1351@gmail.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2020-09-22, 1399/07/01

Expected recruitment end date

2021-12-22, 1400/10/01

Actual recruitment start date

empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title
Phase I/II Clinical Trial (Safety and feasibility) using ex-vivo expanded Haploidentical donor-derived (Natural Killer Cell)-NK Cells against advanced refractory/relapsed Acute Myeloid Leukemia (AML)

Public title
The Acute Myeloid Leukemia (AML) immune cell therapy using allogeneic ex-vivo expanded Natural Killer Cells (NK cells) transplantation

Purpose
Treatment

Inclusion/Exclusion criteria
Inclusion criteria:
1- Age 18 to 70 years 2. Drug-resistant AML patients with no response to 2 treatments line or recurrent cases that can not be candidates for standard therapies or bone marrow transplants 3- The toxicity of chemotherapy regimens (such as severe cytopenia) should be assigned and it would be checked as a regimen with no significant side effects. 4- PS $\geq$ 2 [Performance Status (PS)] 5- The results of these tests should be available: • [glomerular filtration rate (GFR)] GFR $\geq$ 60 or CR $\geq$ 2 mg / dl • ALT <2.5XULN / Bid $\leq$ 2 • O2Sat > 92% in room air • Cardiac classification status (III > NHC) or [ejection fraction] EF > 50% • Negative pregnancy test • Negative HIV testing
Exclusion criteria:

Age
From **18 years** old to **70 years** old

Gender
Both

Phase
1-2

Groups that have been masked
No information

Sample size
Target sample size: **30**

Randomization (investigator's opinion)
Not randomized

Randomization description

Blinding (investigator's opinion)
Not blinded

Blinding description

Placebo
Not used

Assignment
Single

Other design features

Secondary Ids
empty

Ethics committees

1

Ethics committee
Name of ethics committee
Research Ethics Committee of Motamed Cancer Institute academic center for education, culture and res

Street address
No146, South Ghandi, Vanaq Square

City
Tehran

Province
Tehran

Postal code
1517964311

Approval date
2019-10-16, 1398/07/24

Ethics committee reference number
IR.ACECR.IBCRC.REC.1398.015

Health conditions studied

1

Description of health condition studied
Acute Myeloid Leukemia (AML)

ICD-10 code
C92.0

ICD-10 code description
Acute myeloblastic leukemia

Primary outcomes

1

Description
Possible symptoms of hyper-sensitivity and allergy after injection

Timepoint
Daily until the third day after the injection and then weekly until the day +90 after the injection

Method of measurement
Using CTCAE check list

2

Description
Decrease of tumor burden

Timepoint
A week after injection and every month until 3 months

Method of measurement
Physical Examination, Flow cytometry, CBC

3

Description
Graft versus host disease (GVHD) symptoms

Timepoint
Daily until the third day after the injection and then weekly until the day +90 after the injection

Method of measurement
Physical examination - Imaging - Laboratory tests

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group: Patients with acute resistant myeloid leukemia who receive conditioning regimen 3 days before cell therapy then 5-10 million cell per kilogram of patient weight would be infused intravenously one week apart

Category

Treatment - Other

Recruitment centers

1

Recruitment center

Name of recruitment center

Imam Reza Hospital

Full name of responsible person

Dr Mohsen Rajaei nejhadi

Street address

West Fatemi avenue, Etemadzade street

City

Tehran

Province

Tehran

Postal code

14117 1854

Phone

+98 21 8609 6931

Email

mrjaei@gmail.com

2

Recruitment center

Name of recruitment center

Shariati hospital

Full name of responsible person

Dr Maryam Barkhordari

Street address

North Kargar St., Jalal Al-Ahmad Intersection, Shariati Hospital

City

Tehran

Province

Tehran

Postal code

1411713135

Phone

+98 21 8490 1000

Email

barkhordarm.n@gmail.com

3

Recruitment center

Name of recruitment center

Dei Hospital

Full name of responsible person

Dr Ardeshir Ghavamzadeh

Street address

Valiasr St., corner of Shahid Abbaspour

City

Tehran

Province

Tehran

Postal code

1517964311

Phone

+98 21 8879 7111

Email

ghavamza@sina.tums.ac.ir

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Motamed Cancer Institute

Full name of responsible person

Dr Keivan Majidzadeh Ardebili

Street address

No146, South Ghandi, Vanaq Square

City

Tehran

Province

Tehran

Postal code

1517964311

Phone

+98 21 8879 6003

Email

K1majidzadeh@gmail.com

Grant name

Grant code / Reference number

Is the source of funding the same sponsor organization/entity?

No

Title of funding source

Cell therapy budget of the Islamic Consultative Assembly

Proportion provided by this source

10

Public or private sector

Public

Domestic or foreign origin

Domestic

Category of foreign source of funding

empty

Country of origin

Type of organization providing the funding

Other

2

Sponsor

Name of organization / entity

Modiriat Atiye Bahman Company

Full name of responsible person

Sina Hasnalizadeh

Street address

No-1, Ghasemi, Tabatabaei

City

Tehran

Province

Tehran

Postal code

1459973114

Phone

+98 21 8879 6003

Email

rsf1351@gmail.com

Grant name**Grant code / Reference number****Is the source of funding the same sponsor organization/entity?**

Yes

Title of funding source

Modiriat Atiye Bahman Company

Proportion provided by this source

90

Public or private sector

Private

Domestic or foreign origin

Domestic

Category of foreign source of funding

empty

Country of origin**Type of organization providing the funding**

Other

Person responsible for general inquiries**Contact****Name of organization / entity**

Iranian academic center for education culture and research

Full name of responsible person

Dr Ramin Sarraami Forooshani

Position

Associated Professor

Latest degree

Ph.D.

Other areas of specialty/work

Virology

Street address

No 146, South Ghandi, Vanaq Square

City

Tehran

Province

Tehran

Postal code

1517964311

Phone

+98 21 8879 6003

Email

rsf1351@gmail.com

Person responsible for scientific inquiries**Contact****Name of organization / entity**

Iranian academic center for education culture and research

Full name of responsible person

Dr Ardeshir Ghavamzadeh

Position

Professor

Latest degree

Subspecialist

Other areas of specialty/work

Hematology-Oncology

Street address

No146, South Ghandi, Vanaq Square

City

Tehran

Province

Tehran

Postal code

1517964311

Phone

+98 21 8879 6003

Email

ghavamza@sina.tums.ac.ir

Person responsible for updating data**Contact****Name of organization / entity**

Iranian academic center for education culture and research

Full name of responsible person

Dr Zahra sadat Hashemi

Position

PhD

Latest degree

Ph.D.

Other areas of specialty/work

Medical Biotechnology

Street address

No146, Vanaq Square, South Ghandi

City

Tehran

Province

Tehran

Postal code

15179643111

Phone

+98 21 8879 6003

Email

z.hashemi87@gmail.com

Sharing plan**Deidentified Individual Participant Data Set (IPD)**

Undecided - It is not yet known if there will be a plan to make this available

Study Protocol

Undecided - It is not yet known if there will be a plan to

make this available
Statistical Analysis Plan
Not applicable
Informed Consent Form
Undecided - It is not yet known if there will be a plan to
make this available

Clinical Study Report
Not applicable
Analytic Code
Not applicable
Data Dictionary
Not applicable