Clinical Trial Protocol
Iranian Registry of Clinical Trials

24 Oct 2026

A randomized, double-blinded, placebo-controlled phase I clinical trial to evaluate the safety and immunogenicity of three dose regimens of COVID-19 RBD protein recombinant vaccine (AmitisGen; 80µg and 120µg) in a healthy population

Protocol summary

Study aim

To determine the safety and immunogenicity of COVID-19 recombinant RBD protein vaccine in a healthy population

Design

Phase I, randomized, double-blind, parallel arms, placebo-control clinical trial on 70 healthy volunteers

Settings and conduct

This double-blind (participants and outcome assessors) placebo control study will be conducted on 70 healthy volunteers. After random assignment to 80 micrograms, 120 micrograms, or placebo group, they will receive the intervention three times on days 0, 21, 35 and following-up until day 49 for any adverse events and measuring humoral and cellular immunity. All participants will be followed up for 360 days.

Participants/Inclusion and exclusion criteria

Main inclusion criteria: Healthy 18-50 years, willing to participate, the ability to understand the study, signing the informed consent, not being pregnant, using effective contraception during the study. Main exclusion criteria: Positive PCR test, previous history of infection (positive antibody), symptoms consistent with COVID-19, history of close contact with COVID-19 patient in the last 14 days, abnormal paraclinical findings, history of allergy to the vaccine, neurologic disease, immunodeficiency, coagulopathy, psychiatric and other chronic diseases, Receiving live vaccine in one month or other vaccines in 14 days before inoculation, Receiving immunoglobulins or blood products in 3 months before inoculation or investigational products in 6 months before inoculation, willing to pregnancy or lactation, the high-risk job for SARS-CoV2 exposure

Intervention groups

Group 1: 80 µg (30), Group 2: 120µg (30), Placebo (10)

Main outcome variables

Incidence of any side effects after injection, during 7 days, 125 days, and a year. The titer of specific antibodies (including spike, RBD, Neutralizing, ...), the incidence of SARS-COV-2 infection, measurement of cellular immunity.

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20210620051639N1**
Registration date: **2021-06-25, 1400/04/04**
Registration timing: **registered_while_recruiting**

Last update: **2021-06-25, 1400/04/04**
Update count: **0**

Registration date

2021-06-25, 1400/04/04

Registrant information

Name

Jafar Salimian

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 21 8755 4530

Email address

jafar.salimian@gmail.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2021-06-25, 1400/04/04

Expected recruitment end date
2021-08-26, 1400/06/04
Actual recruitment start date
empty
Actual recruitment end date
empty
Trial completion date
empty

Scientific title
A randomized, double-blinded, placebo-controlled phase I clinical trial to evaluate the safety and immunogenicity of three dose regimens of COVID-19 RBD protein recombinant vaccine (AmitisGen; 80µg and 120µg) in a healthy population

Public title
Safety and immunogenicity of COVID-19 RBD protein recombinant vaccine (AmitisGen): phase I study.
Purpose
Prevention
Inclusion/Exclusion criteria
Inclusion criteria:
Age between 18 and 50 years old Healthy in terms of past medical history, physical examination, and laboratory data- Body mass index: 17-35 kg/m2 Willingness to participate in the study and complete follow-up Ability to comprehend study methodology Ability to comprehend and sign informed consent- Provision of consent to access medical documents in case of contracting COVID-19 For women: negative pregnancy screening Acceptance of contraception use from 21 days before randomization until six months after receiving the last vaccine dose Acceptance of not receiving blood product or bone marrow from randomization until three months after receiving last vaccine dose
Exclusion criteria:
Positive COVID-19 PCR test Positive antibodies against SARS-CoV-2 (IgG, IgM) History of infection with SARS-CoV-2 documented with RT-PCR test Close contact with COVID-19 infected individual in the past 14 days Isolation due to signs and symptoms that are suspicious of COVID-19 Fever (axillary temperature > 37° C), dry cough, fatigue, nasal congestion, rhinorrhea, sore throat, myalgia, diarrhea, dyspnea in the past 14 days Laboratory abnormalities in biochemistry profile, blood, and urine (including urea, creatinine, fasting blood sugar, Na, K, aspartate transaminase, alanine transaminase, alkaline phosphatase, total bilirubin, hemoglobin, leukocyte count, neutrophil count, lymphocyte count, platelet count, urine protein, urine glucose, blood cells in urine) History of severe allergic reactions or allergy to vaccine components (latex) Experience to severe allergic or allergic reactions to components of the recombinant RBD protein vaccine (latex sensitivity) Personal or family history of seizure, epilepsy, encephalopathy, psychiatric disorder Congenital malformations -History of neurologic diseases or seizure (except for febrile seizure at childhood) Growth disorders Genetic disorders Malnutrition Renal or liver abnormalities Uncontrolled hypertension (>140/90 mmHg) Heart failure with NYHA class ≥2 Recent exacerbations of cardiovascular disease include cardiovascular intervention, the addition of new cardiovascular drugs to control symptoms, or unstable angina. Chronic obstructive lung disease with GOLD score ≥2- Asthma Diabetic complications BMI > 35 kg/m2 History of malignancy in the past five years Exacerbation of chronic diseases in the past 7 days Immunodeficiency, lymphoma, leukemia, autoimmune diseases Thyroid disease or history of thyroidectomy without proper control Splenectomy or history of resection of solid organs Coagulation abnormalities Anti-tuberculosis treatment Positive HBSAg Positive HIV Ab Positive HCV Ab Receiving immunosuppressive therapy for 14 consecutive days in the past 3 months or need for such therapy in the following 6 months Receiving any off-label or investigational therapy for COVID-19 Receiving flu vaccine in the past 14 days or other vaccines in the past 4 weeks History of drug or alcohol abuse in the prior year Receiving immunoglobulin or blood products in the prior 3 months Receiving investigational drugs in the past 45 days Planning to receive other vaccines in the next month Severe psychiatric disorders interfering with participation in the trial Women with positive beta-HCG, pregnancy, or during breastfeeding, or plan to become pregnant during the study High risk occupation for COVID-19 exposure (health care workers) or with decision of investigators First degree family members of the trial personnel Any other reason that the investigators document making volunteers ineligible-
Age
From **18 years** old to **50 years** old
Gender
Both

Phase
1
Groups that have been masked

- Participant
- Care provider
- Investigator
- Outcome assessor

Sample size
Target sample size: **70**
Randomization (investigator's opinion)
Randomized
Randomization description
A random sequence of length 70 (the size of the sample size) is generated by the online system (SealedEnvelope.com). For this purpose, 10 random blocks with size 7 are produced, in each block, 3 people are given the low-dose vaccine, 3 people are given high-dose vaccine and 1 person is assigned to the placebo group. The generated codes are pasted on the vaccine vials before the start of the study and are assigned to the candidates during the study by the study software.
Blinding (investigator's opinion)
Double blinded
Blinding description
Each vaccine dose is in a separate vial with an identifier code. Vaccine boxes and vials are identical in shape, color, and smell, making participants, investigators, and outcome adjudicators all blinded to the randomized

intervention. After injection of each vaccine, the abbreviated ID of the participant and the date will be written on the outside box and a label with the same ID will be added to the trial file. Study personnel who are in charge of vaccine injection check all relevant IDs before injection. During the study, all vaccine packages will be archived.

Placebo
Used

Assignment
Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee
Reserch ethics committees of national research committee

Street address
13th floor, Block A, Ministry of health, Simaye Iran street, Shahrake ghods

City
Tehran

Province
Tehran

Postal code
1417993337

Approval date
2021-06-23, 1400/04/02

Ethics committee reference number
IR.NREC.1400.004

Health conditions studied

1

Description of health condition studied
COVID-19

ICD-10 code
U07.1

ICD-10 code description
COVID-19, virus identified

Primary outcomes

1

Description
Any immediate adverse reaction after inoculation

Timepoint
30 min after injection

Method of measurement
close monitoring

2

Description
Any local adverse events

Timepoint
0-7 days after each injection

Method of measurement
Examination, history, and report of the study participant based on the Vaccine Adverse Event Reporting System

3

Description
Any systemic adverse events

Timepoint
0-7 days after each injection

Method of measurement
Examination, history, and report of the study participant based on the Vaccine Adverse Event Reporting System

4

Description
Any laboratory adverse events

Timepoint
0-7 days after each injection

Method of measurement
Examination, history, and report of the study participant based on the Vaccine Adverse Event Reporting System

5

Description
Any serious adverse events

Timepoint
0-7 days after each injection

Method of measurement
Examination, history, and report of the study participant based on the Vaccine Adverse Event Reporting System

6

Description
Any serious adverse event, medically attended adverse event, or adverse event of interest

Timepoint
0-125 days after each injection

Method of measurement
Examination, history, and report of the study participant based on the Vaccine Adverse Event Reporting System

Secondary outcomes

1

Description
IgG antibody against RBD protein

Timepoint
in days 0, 7, 28, 35, 42, and 49 after injection of the first dose

Method of measurement
based on geometric means and seroconversion (at least fourfold increase in antibody titer)

2

Description
IgG antibody level against RBD protein
Timepoint
in days 0, 7, 28, 35, 42, and 49 after injection of the first dose
Method of measurement
based on ELISA method and seroconversion rate (proportion of individuals with at least twofold and fourfold inreases) and seroresponse (proportion of individuals with an increase above the 95th percentile of placebo group titers)

3

Description
neutralizing antibodies
Timepoint
in days 0, 7, 28, 35, 42, and 49 after injection of the first dose
Method of measurement
based on geometric mean titers and ratios and seroconversion rate (proportion of individuals with at least twofold and fourfold inreases) and seroresponse (proportion of individuals with an increase above the 95th percentile of placebo group titers)

4

Description
Cellular immunity response
Timepoint
in days 0, 7, 28, 35, 42, and 49 after injection of the first dose
Method of measurement
determining Th1 or Th2 dominance based on levels of IL-4، IL-10، IL-12، IL-13 و INFγ with ELISA measurement, and levels of CD3، CD4، CD8 with INFγ based on flow cytometry measurement

Intervention groups

1

Description
Intervention group: receiving 80 micrograms of RBD protein recombinant SARS-CoV-2 vaccine in days 0, 21, and 35; intramuscular (deltoid muscle)
Category
Prevention

2

Description
Intervention group: receiving 120 micrograms of RBD protein recombinant SARS-CoV-2 vaccine in days 0, 21, and 35; intramuscular (deltoid muscle)
Category
Prevention

3

Description
Control group: the placebo group will receive an intramuscular injection (in the deltoid muscle) consisting of buffer and adjuvant only, on days 0, 21, and 35
Category
Placebo

Recruitment centers

1

Recruitment center
Name of recruitment center
Ŝhahid Ghassem Soleimani Clinical Trial Center
Full name of responsible person
Dr. Hassan Abolghasemi
Street address
Ŝhahid Ghassem Soleimani Clinical Trial Center, Baqiyatallah University of Medical Sciences,Shahid Nosrati Alley, Sŏuth Sheykh Bahaei, Mollasadra Street , Tehran,
City
Tehran
Province
Tehran
Postal code
1435916471
Phone
+98 21 8862 0903
Email
H.abolghasemi.ha@gmail.com

Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Bagheiat-allah University of Medical Sciences
Full name of responsible person
Dr. Jafar Salimian
Street address
Shahid Soleimani clinical trial center,Shahid Nosrati alley, Mollasadra st, Sheikh Bahaei st.
City
Tehran
Province
Tehran
Postal code
1435915371
Phone
+98 21 8216 2440
Email
jafar.salimian@gmail.com
Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source

Bagheiat-allah University of Medical Sciences

Proportion provided by this source

100

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

Academic

Person responsible for general inquiries

Contact

Name of organization / entity

Bagheiat-allah University of Medical Sciences

Full name of responsible person

Dr. Hassan Abolghasemi

Position

Professor

Latest degree

Subspecialist

Other areas of specialty/work

Pediatric Hematology and Oncology

Street address

Baqiyatallah University of Medical Sciences, Shahid Nosrati alley, Shiekh Bahaei st., Mollasadra st,

City

Tehran

Province

Tehran

Postal code

1435915371

Phone

+98 21 8216 2440

Email

H.abolghasemi.ha@gmail.com

Person responsible for scientific inquiries

Contact

Name of organization / entity

Bagheiat-allah University of Medical Sciences

Full name of responsible person

Dr. Hassan Abolghasemi

Position

Professor

Latest degree

Specialist

Other areas of specialty/work

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City

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Province

Tehran

Postal code

1435915371

Phone

+98 21 8216 2440

Email

H.abolghasemi.ha@gmail.com

Person responsible for updating data

Contact

Name of organization / entity

Bagheiat-allah University of Medical Sciences

Full name of responsible person

Dr. Hassan Abolghasemi

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City

Tehran

Province

Tehran

Postal code

1435915371

Phone

+98 21 8216 2440

Email

H.abolghasemi.ha@gmail.com

Sharing plan

Deidentified Individual Participant Data Set (IPD)

No - There is not a plan to make this available

Justification/reason for indecision/not sharing IPD

No plans to release patient data

Study Protocol

Yes - There is a plan to make this available

Statistical Analysis Plan

Yes - There is a plan to make this available

Informed Consent Form

Yes - There is a plan to make this available

Clinical Study Report

Yes - There is a plan to make this available

Analytic Code

Yes - There is a plan to make this available

Data Dictionary

Yes - There is a plan to make this available

Title and more details about the data/document

Data will be available to regulatory bodies and the ethics committee

When the data will become available and for how long

The protocol and results will become available to the public after completion of the study.

To whom data/document is available

The regulatory body and the ethics committee will have access to the study data. The monitoring team will have access to the study data during the conduct. DSMB will

have access to the study data and results in predefined timelines and decides about the continuation of the study.

Under which criteria data/document could be used

With the permission of the sponsor and the approval of regulatory

From where data/document is obtainable

The study sponsor is responding to this request

What processes are involved for a request to access data/document

After contacting the principal investigator and obtaining permission from the sponsor

Comments