Clinical Trial Protocol
Iranian Registry of Clinical Trials

18 Sep 2026

Phase I, Randomized, Double Blind, Placebo-controlled, Study of the Safety and Immunogenicity of mRNA-based COVID-19 Vaccine (COReNAPCIN) Produced by ReNAP Co. as Booster Dose in Healthy Population Aged 18-50 Years

Protocol summary

Study aim
Safety and immunogenicity evaluation of mRNA-based COVID-19 vaccine (COReNAPCIN) produced by ReNAP Co. as booster dose in healthy population

Design
Phase I, randomized, double-blind, placebo-controlled, parallel group clinical trial in 30 healthy subjects

Settings and conduct
The study will be conducted as a randomized, double-blind, placebo-controlled trial in 30 healthy subjects at Mahdi Clinic in Tehran. Subjects will be randomly assigned to receive COReNAPCIN or placebo as a booster dose. Subjects then will be evaluated for adverse events and immunogenicity parameters within 6 months.

Participants/Inclusion and exclusion criteria
Main inclusion criteria: Aged 18 to 50 years; received 3 doses of Sinopharm or COVIran Barekat vaccine and time interval from last dose of vaccine to intervention at least 90 days and maximum 18 months; Body Mass Index: 18-35 kg/m2; In good health based on clinical and laboratory criteria; Consent to contraception up to sixty days after the intervention. Main exclusion criteria: Pregnancy or breastfeeding; Positive test for Hepatitis B, Hepatitis C, or HIV; History of blood coagulation disorders; Use of any medication that may be associated with impaired immune responsiveness; History of alcohol abuse or other drugs; History of hypersensitivity to any medication or other substances; Positive PCR test of COVID-19 or influenza or symptoms consistent with these diseases; History of COVID-19 diagnosis within the last 3 months; Vulnerable groups and foreigners

Intervention groups
Intervention group1: 25 ug COReNAPCIN; Intervention group2: 50 ug COReNAPCIN; Placebo group: Normal saline 0.9 %

Main outcome variables
Reactogenicity during 1 hour; Solicited adverse events (AEs) during 7 days; Unsolicited AEs during 28 days; SAEs, NOCMCs, and MAAEs during 181 days; COReNAPCIN right dose selection; SARS-CoV-2 specific antibodies, Cell medicated immunity and cytokines

General information

Reason for update
Recording the actual recruitment start and end date; Changing one of the inclusion criteria: Adding the COVIran Barekat vaccine to vaccination history and increasing the maximum time interval between receiving the third dose of vaccine to receiving clinical study intervention from 12 months to 18 months

Acronym

IRCT registration information
IRCT registration number: **IRCT20230131057293N1**
Registration date: **2023-02-07, 1401/11/18**
Registration timing: **prospective**

Last update: **2023-05-31, 1402/03/10**
Update count: **1**

Registration date
2023-02-07, 1401/11/18

Registrant information

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Name of organization / entity
ReNAP Technology

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Recruitment status
Recruitment complete
Funding source

Expected recruitment start date
2023-02-08, 1401/11/19
Expected recruitment end date
2023-03-10, 1401/12/19
Actual recruitment start date
2023-02-21, 1401/12/02
Actual recruitment end date
2023-05-03, 1402/02/13
Trial completion date
empty

Scientific title
Phase I, Randomized, Double Blind, Placebo-controlled, Study of the Safety and Immunogenicity of mRNA-based COVID-19 Vaccine (COReNAPCIN) Produced by ReNAP Co. as Booster Dose in Healthy Population Aged 18-50 Years

Public title
Evaluation of safety and immunogenicity of mRNA-based COVID-19 vaccine (COReNAPCIN) in healthy population: Phase 1 study
Purpose
Prevention
Inclusion/Exclusion criteria
Inclusion criteria:
Provides written informed consent prior to initiation of any study procedures Be able to understand the purpose and risks of the study and willing and able to comply with planned study procedures and be available for all study visits Agrees to perform all study procedures, including the collection of venous blood per protocol 18 to 50 years of age, inclusive Body Mass Index 18-35 kg/m2 Women of childbearing potential must agree to use a reliable method of contraception from the time of enrollment until sixty days after receiving the intervention and negative urine or serum pregnancy test within 24 hours prior to intervention administration Male subjects of childbearing potential with a female partner of childbearing potential agree to use effective contraception from intervention through 60 days after Male subjects agree to refrain from sperm donation from the time of intervention through 60 days after In good health as determined by medical history and physical examination and the opinion of the principal investigator Has received 3 doses of inactivated Sinopharm or COVIran Barekat vaccine and the time interval from receiving the last dose of vaccine to receiving clinical study intervention at least 90 days and maximum 18 months, vaccination history must be checked and approved through the vaccination record Normal vital signs at the screening visit and at the time of intervention including: temperature less than 38.0 °C; pulse no greater than 100 beats per minute; systolic blood pressure 90 to 140 mmHg and diastolic blood pressure 60 to 90 mmHg; Oxygen saturation≥ 95%; respiration rate 12 to 20 BPM Clinical screening laboratory evaluations (WBC, Hgb, PLTs, ALT, AST, BUN, Cr, ALP, T.Bili, Lipase, PT, PTT, TSH, T4, FBS, and CRP) are within acceptable normal reference ranges Agree to refrain from donating blood or plasma during the study (outside of this study)
Exclusion criteria:
Positive pregnancy test either at screening or just prior to intervention administration Female subject who is breastfeeding or plans to breastfeed from the time of intervention through 60 days after Has any medical disease or condition that, in the opinion of the principal investigator, precludes study participation Presence of self-reported or medically documented significant medical (including respiratory, cardiovascular, neurological, autoimmune, Immunodeficiency, and kidney diseases...) or psychiatric condition Has an acute illness within 2 weeks prior to injection, with or without fever [temperature ≥38.0°C], runny nose or eyes, shortness of breath, cough, weakness, and diarrhea, that in the opinion of the principal investigator, precludes study participation Has a positive test result for hepatitis B surface antigen, hepatitis C virus antibody, or HIV types 1 or 2 antibodies Has participated in another investigational study involving any investigational product (study drug, biologic, or device) within 60 days, or 5 half-lives, whichever is longer, before intervention administration Currently enrolled in or plans to participate in another clinical trial during the study period Has previously participated in an investigational study involving lipid nanoparticles (LNPs) Has a history of hypersensitivity or severe allergic reaction (e.g., anaphylaxis, generalized urticaria, angioedema, other significant reaction) to any components of the study product, any previous licensed or investigational vaccines or medication, and to any food or cosmetics History of using any medication that, in the opinion of the principal investigator or the study pharmacotherapist, may be associated with impaired immune responsiveness Anticipating the need for immunosuppressive treatment within Within 6 months after study enrollment Received immunoglobulins and/or any blood or blood products within the 4 months before intervention administration or the possible need to use at any time during the study Has any blood dyscrasias or significant disorder of coagulation Has any chronic liver disease, including fatty liver Has a history of alcohol abuse or other recreational drug use within 6 months before intervention administration Has a positive test result for drugs of abuse at screening Has any abnormality or permanent body art (e.g., tattoo) that would interfere with the ability to observe local reactions at the injection site (deltoid region) Received or plans to receive a licensed, live vaccine within 4 weeks before or after intervention administration Received or plans to receive a licensed, inactivated vaccine within 2 weeks before or after intervention administration History of clinical or virological diagnosis of COVID-19 within 3 months before intervention administration Positive SARS-CoV-2 or influenza PCR test from nasopharyngeal swab at the screening visit, with a maximum time interval of 48 hours between taking the test and intervention administration History of receiving medication to prevent COVID-19 within 3 months before intervention administration On current treatment with investigational agents for prophylaxis of COVID-19 Current use of any

prescription or over-the-counter medications within 7 days prior to intervention administration, unless approved by the investigator or necessary to manage a chronic condition Bleeding diathesis or condition associated with prolonged bleeding that would, in the opinion of the investigator, contraindicate intramuscular injection Plan to travel outside Iran from enrollment through 28 days after intervention administration Reside in a nursing home or other skilled nursing facility or have a requirement for skilled nursing care Non-ambulatory Recent (within the last 12 months) use of a dermal filler History of thrombosis Vulnerable groups and foreigners

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: **30**

Actual sample size reached: **30**

Randomization (investigator's opinion)

Randomized

Randomization description

The randomization process in this study will be done in four stages by creating a block randomization sequence (with odd units). In the first block, five participants will randomly be assigned to the sentinel group. Four subjects will receive a dose of 25 micrograms of COReNAPCIN and one subject will receive placebo intervention. In the second phase, after confirming the safety of 25 micrograms of COReNAPCIN in the sentinel group, 10 other participants will randomly be assigned to the study, of whom 8 subjects will receive a dose of 25 micrograms of COReNAPCIN and 2 subjects will receive placebo. For this purpose, two block sequences with size five are generated, including four subjects in the COReNAPCIN group and one subject in the placebo group. In the third phase, five participants will randomly be assigned to the second sentinel group. Four subjects will receive a dose of 50 micrograms of COReNAPCIN and one subject will receive placebo. In the fourth phase, after confirming the safety of 50 micrograms of COReNAPCIN in the sentinel group, 10 other participants will randomly be assigned to the study, of whom 8 subjects will receive a dose of 50 micrograms COReNAPCIN and 2 subjects will receive placebo. For this purpose, two block sequences with size five are generated, including four subjects in the COReNAPCIN group and one subject in the placebo group. Random codes will be generated by R-CRAN software version 4.0.1.

Blinding (investigator's opinion)

Double blinded

Blinding description

In this study, the participants' group and the type of intervention they receive will not be disclosed. The site personnel, including the principal investigator, co-investigator, and study team, will be unaware of the type of intervention (COReNAPCIN or placebo) administered to each participant. This is especially important for those who evaluate participants' safety. Vials of vaccine and placebo have the same research label (contains unique blinding codes) and syringes will be relabeled in the same way during intervention preparation so that the person who injects interventions and the participants will not be aware of the type of intervention. An unblinded person is present in the study who holds the randomization list and will assign randomization codes to subjects. This person will not participate in other parts of this clinical study. Randomization information will be stored in opaque sealed envelopes at the study center and in a place with limited access.

Placebo

Used

Assignment

Parallel

Other design features

In order to identify possible safety signals, vaccination will proceed in a staged fashion. Sentinel groups will be formed with 5 participants (4 subjects injected with COReNAPCIN and 1 subject injected with placebo). Subjects in sentinel groups will stay at the study center and be monitored for 48 hours after the injection. During this period, the injection site will be examined, vital signs and clinical symptoms will be evaluated at specific time intervals, and any adverse event will be documented. Participants in non-sentinel groups will stay at the study center for 2 hours after injection and will be monitored for vital signs and safety events. By comparing the data gathered from safety and immunogenicity assays during the study period, it will be determined which dose will be the right dose of COReNAPCIN to enter the next stages of development.

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Iran National Committee for Ethics in Biomedical Research

Street address

Ministry of Health & Medical Education Headquarters, Between Zarafashan & South Falamak, Sima-ye-Iran St., Qods Town

City

Tehran

Province

Tehran

Postal code

1467664961

Approval date
2023-01-25, 1401/11/05
Ethics committee reference number
IR.NREC.1401.007

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
Reactogenicity
Timepoint
During 1 hour after intervention administration
Method of measurement
History checking and examination including injection site examination, clinical and vital signs monitoring, participant reports

2

Description
Frequency and grade of each solicited local and systemic adverse event
Timepoint
From day 1 (intervention administration) to 7 days after
Method of measurement
History checking and examination including injection site examination, clinical and vital signs monitoring, and participant reports

3

Description
Frequency and grade of any unsolicited AEs
Timepoint
From day 1 (intervention administration) to 28 days after
Method of measurement
History checking and examination including injection site examination, clinical and vital signs monitoring, participant reports, Clinical laboratory evaluations

4

Description
Frequency of Serious Adverse Events (SAEs)
Timepoint
from Day 1 (intervention administration) to Day 181
Method of measurement
History checking and examination in follow-up visits, participant reports, Clinical laboratory evaluations

5

Description
Frequency of New Onset Chronic Medical Conditions (NOCMCs)
Timepoint
from Day 1 (intervention administration) to Day 181
Method of measurement
History checking and examination in follow-up visits, participant reports, Clinical laboratory evaluations

6

Description
Frequency of Medically Attended Adverse Event (MAAEs)
Timepoint
from Day 1 (intervention administration) to Day 181
Method of measurement
Participant reports

Secondary outcomes

1

Description
IgG assay to the SARS-CoV-2 S (spike) protein by ELISA method
Timepoint
Days 1, 8, 15, 29, 91, 181
Method of measurement
Geometric mean titer (GMT) of antibody; Percentage of subjects who seroconverted (4-fold increase in antibody titer over baseline); The geometric mean fold rise (GMFR) in IgG titer from baseline

2

Description
IgG assay to the SARS-CoV-2 receptor-binding domain (RBD) protein by ELISA method
Timepoint
Days 1, 8, 15, 29, 91, 181
Method of measurement
Geometric mean titer (GMT) of antibody; Percentage of subjects who seroconverted (4-fold increase in antibody titer over baseline); The geometric mean fold rise (GMFR) in IgG titer from baseline

3

Description
Neutralizing antibodies assay (cVNT test)
Timepoint
Days 1 and 15
Method of measurement
Geometric mean titer (GMT) of neutralizing antibody at each timepoint; Percentage of subjects who seroconverted (4-fold increase in antibody titer over baseline); The geometric mean fold rise (GMFR) in neutralizing antibody titer from baseline

4

Description
Evaluation of specific T-cell responses
Timepoint
Days 1 and 15
Method of measurement
Percentage of specific CD4+ and CD8+ lymphocytes producing IFN-Y and IL-4 cytokines measured by flow cytometry

5

Description
Evaluating the response of peripheral blood lymphocytes to vaccination
Timepoint
Days 1, 8, 15, 29.
Method of measurement
Percentage of CD3+, CD4+, CD8+ T cells, B cells and NK cells by Flow cytometry

6

Description
Measurement of serum levels of cytokines IL-10, IL-17, IL-4, IL-2, IL-6, IL-1B, TNF-α, IFN-γ
Timepoint
Days 1, 8, 15, 29
Method of measurement
ELISA method

Intervention groups

1

Description
Intervention group 1: a single dose of 25 µg/0.25 ml of COReNAPCIN vaccine (Produced by ReNAP Co.) on day 1, which is received intramuscularly (deltoid muscle). COReNAPCIN is an mRNA vaccine encapsulated by lipid nanoparticles (LNP), containing mRNA encoding the spike protein of the SARS-CoV-2 virus.
Category
Prevention

2

Description
Intervention group 1: a single dose of 50 µg/0.5 ml of COReNAPCIN vaccine (Produced by ReNAP Co.) on day 1, which is received intramuscularly (deltoid muscle). COReNAPCIN is an mRNA vaccine encapsulated by lipid nanoparticles (LNP), containing mRNA encoding the spike protein of the SARS-CoV-2 virus.
Category
Prevention

3

Description
Control group: single dose of normal saline (0.9% sodium chloride solution for injection), (0.25 or 0.5 ml) on day 1, which is received intramuscularly (deltoid muscle).
Category
Placebo

Recruitment centers

1

Recruitment center
Name of recruitment center
Mahdi clinic
Full name of responsible person
Mohamadreza Salehi
Street address
West side of Imam Khomeini Hospital, East Baqerkhan St., Shahid Chamran Highway
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
ReNAP Company
Full name of responsible person
Somaye Dehghanizadeh
Street address
No. 41, Comprehensive Center for Stem Cells and Reconstructive Medicine, Tehran University of Medical Sciences, Italy St., Vesal St., Keshavarz Blvd.
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Phone
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Email
contact@renap.ir
Web page address
https://renap.ir/
Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
ReNAP Company
Proportion provided by this source

100

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
Industry

Person responsible for general inquiries

Contact

Name of organization / entity
Pharmed Pajoohan Viera

Full name of responsible person
Maryam Badri

Position
Chief Executive Officer

Latest degree
Master

Other areas of specialty/work
Pharmacovigilance and pharmacoepidemiology

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Person responsible for updating data

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Name of organization / entity
ReNAP Company

Full name of responsible person
Alireza Nematollahi

Position
Qualified Person (QP)

Latest degree
Ph.D.

Other areas of specialty/work
Medical Pharmacy

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No. 41, Comprehensive Center for Stem Cells and Reconstructive Medicine, Tehran University of Medical Sciences, Italy St., Vesal St., Keshavarz Blvd.

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

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

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

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

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