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A clinical trial to assess whether a self-amplifying ribonucleic acid (saRNA) vaccine against Rabies viruses is safe and induces immune responses

Submission date
13/02/2026

Recruitment status
Not yet recruiting

Registration date
22/05/2026

Overall study status
Ongoing

Last Edited
22/05/2026

Condition category
Infections and Infestations

[X] Prospectively registered
[X] Protocol
[_] Statistical analysis plan
[_] Results
[_] Individual participant data
[X] Record updated in last year

Plain English summary of protocol

Background and study aims
RAB-Vac is a trial testing a new RNA vaccine against the Rabies virus, which causes rabies. The trial aims to evaluate the vaccine's safety, as it will be the first time it has been used in humans. However, this trial does not assess whether the vaccine provides protection. It solely focuses on the safety of the vaccine and how the immune system responds to it. Since this is the first time this vaccine has been used in humans, the safety will be assessed in healthy young adults.

Who can participate?
Healthy volunteers aged 18-50 years

What does the study involve?
Participants will be randomly assigned to one of six different groups, receiving one of three doses of the self-amplifying RNA (saRNA) vaccine by injection into the muscle and administered at either 0, 4, and 24 weeks or 0, 12, and 24 weeks. Participants will be carefully monitored for any reactions to the vaccine. Participants will be asked to record symptoms in an online diary. To see how well the immune system is responding, participants will need to give blood samples to assess the durability of the immune response.

What are the possible benefits and risks of participating?
There are no direct health benefits for participants, but participation in this study could provide the information for the development of a new rabies vaccine that is effective, safe and widely available.
The requirement to attend all study visits within specified windows might be an inconvenience to some volunteers if
their circumstances change during the trial. Additional participants may be enrolled to replace any early withdrawals.
Study staff will make every effort to contact participants who do not attend their scheduled visits. At least three attempts will be made to contact the participant during the period from

enrolment through to Week 52.
This risk is moderate given that the participants will be in the trial for a year.
An immunization given to a pregnant woman might harm the unborn child. To avoid this, we will ask that women use
an effective form of contraception and have frequent pregnancy tests including on the day of each immunisation. In
the event of a confirmed positive pregnancy test, immunisations will be discontinued, and the participant will be
followed up as far as possible during the pregnancy. The participant would also be followed up for immunogenicity
assessments if warranted scientifically and withdrawn from the study.
If female capable of becoming pregnant, they must (in addition to requiring male partner to use condoms) agree to
use hormonal contraception, from at least 14 days before the first vaccination until at least 1 month after the last.
Note: Periodic abstinence (e.g. calendar, ovulation, symptothermal, post-ovulation methods) and withdrawal, and
IUD/IUS, are not acceptable methods of contraception.
If sexually active male, they must agree to use condoms from the day of first vaccination until at least 1 month after the
last vaccination. [Note: Additional use of an effective method of contraception is recommended for any non-pregnant
female partner over the same period.] This might be a burden, as might the following:
Participants must agree to abstain from donating blood for 3 months after the end of their participation in the trial, or
longer if necessary.
Blood sampling as part of the trial can sometimes cause bruising and soreness of the arms or, very rarely, a
blockage of a vein or a small nerve injury which can cause numbness and pain. Normally these problems disappear
with time. Some volunteers may faint while the blood is being drawn, so they will be seated or lying down for this
procedure.
An saRNA vaccine encoding the Spike glycoprotein of SARS-CoV-2 has previously been tested in men and women, by
the intramuscular route in a Phase I clinical study. Based on the safety information collected in this study we will warn
potential volunteers that they may experience the following:
Adverse reactions to saRNA vaccination may be anticipated following vaccination in more than1 in 10 people, are
expected to be of short duration, resolving within 1-7 days. These effects are expected to be mild to moderate, short-
lived reactions at the injection site such as discomfort, warmth, redness and swelling. Short-lived systemic
symptoms such as fatigue, general malaise and headache are expected very commonly (more than 1 in 10 people).
Less common reactions (expected in fewer than 1 in 10 people, but in more than 1 in 100) include chills, muscle
pain, rash, and injection site itching. Uncommon side effects (1 in 100 people) include abdominal pain, diarrhoea,
sore throat, enlarged lymph nodes, insomnia and allergic reactions such as rash or itching. These are also

anticipated to resolve within a few days (<7 days). Rare reactions associated with mRNA vaccine, that may also be
associated with saRNA vaccines include (less than 1 in 1,000 people, but more than 1 in 10,000) include enlarged
lymph nodes, high fever (≥40 °C), hypersensitivity (exaggerated reaction to the vaccine), urticaria (raised, itchy skin
rash), and granuloma (area of inflammation in the skin) or sterile abscess (lump) at the injection site. Non-severe
allergic reactions (1 in 1,000) such as hives or swelling of the face may occur and severe very rare allergic reactions
(1 in 1 million) may occur, however those with a history of allergy will not be eligible. Very rarely (less than 1 in 10,000
people) vaccines may cause convulsions with fever, drowsiness, and macrophagic myofasciitis (a rare muscle
disease). Myocarditis (inflammation of the heart muscle), and pericarditis (inflammation of the lining outside the
heart) are also very rare serious side effects associated with mRNA vaccine occurring most commonly in adolescent
males 12 through 17 years of age (1 in 37,000). Those with any previous history of either of these conditions will not
be eligible.
Overall, we have sought to minimize the potential risks and burdens, but some are unavoidable to ensure the safety and wellbeing of subjects, and to maintain the scientific integrity of the study.
Subjects will be monitored closely during the trial, to identify as early as possible any problems so that they can be
handled appropriately.

Where is the study run from?
Imperial College London (UK)

When is the study starting and how long is it expected to run for?
May 2026 to February 2028

Who is funding the study?
Coalition for Epidemic Preparedness Innovations

Who is the main contact?
Dr Marta Boffito, marta.boffito@nhs.net

Contact information

Type(s)
Scientific

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Additional identifiers

Integrated Research Application System (IRAS)
1013204

Sponsor's protocol code number
172417

Study information

Scientific Title
A phase I clinical trial to assess the reactogenicity, tolerability and immunogenicity of a self-amplifying ribonucleic acid (saRNA) vaccine encoding the surface glycoprotein of rabies virus (RAB-Vac)

Acronym
RAB-Vac

Study objectives
Primary objective:
The main research objective is to evaluate the safety and immune responses of three immunisations with a self-amplifying RNA vaccine to Rabies virus, administered in the deltoid muscles at either 0, 4, and 24 weeks or 0, 12 and 24 weeks apart
in healthy volunteers.

Secondary objective:
To characterise the types of immune responses and cells that are generated following administration of three doses of a self-amplifying RNA vaccine to Rabies virus, administered in the deltoid muscles at either 0, 4, and 24 weeks or 0, 12 and 24 weeks apart in healthy volunteers.

Ethics approval required
Ethics approval required

Ethics approval(s)
notYetSubmitted

Primary study design
Interventional

Allocation
Randomized controlled trial

Masking
Blinded (masking used)

Control
Dose comparison

Assignment
Single

Purpose
Prevention

Study type(s)

Health condition(s) or problem(s) studied
Rabies

Interventions
RAB-Vac is a single-blinded, randomised Phase I trial using the online tool “sealed envelope” to generate randomisation lists. Healthy participants aged 18-50 years will be enrolled at a single centre and immunised with a self-amplifying ribonucleic acid (saRNA) vaccine; LNP-RABVsaRNA-01 via the intramuscular route at three timepoints. There will be 6 groups with 8 participants per group. A total of 48 participants will be recruited to the trial. Blood samples will be collected for safety and immunogenicity analysis at follow-up visits on days 0, 1, 14, 28, 29, 56, 70, 84, 168, 169, 182, 196, 252, 532 (Groups 1-3) and days 0, 1, 14, 28, 84, 85, 98, 112, 168, 169, 182, 196, 252, 532 (Groups 4-6).

Group 1 receives 0.2 µg/dose of LNP-RABVsaRNA-01 (Rabies glycoprotein RNA) at weeks 0,4, 24 weeks
Group 2 receives 1 µg/dose of LNP-RABVsaRNA-01 (Rabies glycoprotein RNA) at weeks 0,4, 24 weeks
Group 3 receives 5 µg/dose of LNP-RABVsaRNA-01 (Rabies glycoprotein RNA) at weeks 0,4, 24 weeks
Group 4 receives 0.2 µg/dose of LNP-RABVsaRNA-01 (Rabies glycoprotein RNA) at weeks 0,12, 24 weeks
Group 5 receives 1 µg/dose of LNP-RABVsaRNA-01 (Rabies glycoprotein RNA) at weeks 0,12, 24 weeks
Group 6 receives 5 µg/dose of LNP-RABVsaRNA-01 (Rabies glycoprotein RNA) at weeks 0,12, 24 weeks

Intervention Type
Drug

Phase
Phase I

Drug/device/biological/vaccine name(s)
LNP-RABVsaRNA-01

Primary outcome(s)
The safety of a self-amplifying ribonucleic acid (saRNA) vaccine encoding the surfaceglycoprotein of Rabies virus, assessed using:
1. Solicited local injection site reactions starting within 7 days of administration of the vaccine: pain, tenderness, erythema, swelling. These will be measured using a participant diary card.
2. Solicited systemic reactions starting within 7 days of administration of the vaccine: pyrexia, fatigue, myalgia, headache, chills, arthralgia. These will be measured using a participant diary card
3. Unsolicited adverse reactions (ARs) recorded throughout the trial period (including serious ARs)
4. Serious adverse events recorded throughout the trial period
5. Unsolicited adverse events recorded throughout the trial period

Key secondary outcome(s))
The immunogenicity of a self-amplifying ribonucleic acid (saRNA) vaccine encoding the surface glycoprotein of Rabies virus, measured using the titre of vaccine-induced neutralising antibody responses to the Rabies virus surface glycoproteins at 4 weeks after the second vaccinations

Completion date
15/02/2028

Eligibility

Key inclusion criteria
1. Healthy adults, aged 18-50 years on the day of screening
2. Willing and able to provide written informed consent
3. If female and of childbearing potential, willing to use a highly effective method of contraception from screening until 18 weeks after last injection
4. If male and not sterilised, willing to avoid impregnating female partners from screening until 18 weeks after last injection
5. Willing to avoid all other vaccines from within 4 weeks before and after the first and second injection
6. Willing and able to comply with visit schedule, complete online diaries and provide samples
7. Willing to abstain from donating blood for 3 months after the end of their participation in the trial or longer, if necessary
8. Willing to grant authorised persons access to his/her trial-related medical record and GP records either directly or indirectly

1. A woman will be considered of childbearing potential following menarche and until becoming post-menopausal unless permanently sterile. Permanent sterilisation methods include hysterectomy, bilateral salpingectomy and bilateral oophorectomy. A post-menopausal state is

defined as no menses for 18 months without an alternative medical cause.
2. The following methods are considered highly effective:
2.1. Combined (estrogen and progestogen containing) hormonal contraception associated with inhibition of ovulation – oral, intravaginal or transdermal
2.2. Progestogen-only hormonal contraception associated with inhibition of ovulation – oral, injectable or implantable
2.3. Intrauterine device (IUD)
2.4. Intrauterine hormone-releasing system (IUS)
2.5. Bilateral tubal occlusion
2.6. Vasectomised partner, where the vasectomised partner has received medical assessment of the surgical success
2.7. Sexual abstinence, defined as refraining from heterosexual intercourse – must be the preferred and usual lifestyle of the
participant
3. Nonclinical studies of saRNAs showed maximal expression of the vaccine immunogen at 7 days post-immunisation, approaching baseline by 3 weeks post-immunisation, with some residual very low expression seen out to 9 weeks. Biodistribution studies with LNP-RABVsaRNA are planned, but in the absence of data we wish to take a conservative approach to the contraception period and require an 18-week washout period.
4. Through the use of condoms or sexual abstinence

It is recommended that participants have an up to date vaccination status for any required immunisations.

Healthy volunteers allowed
Yes

Age group
Adult

Lower age limit
18 years

Upper age limit
50 years

Sex
All

Total final enrolment
0

Key exclusion criteria
1. Pregnant or lactating
2. Has a significant clinical history, physical finding on clinical examination during screening, or presence of a disease that is active or requires treatment to control it, including cardiac, respiratory, endocrine, metabolic, autoimmune, liver, neurological, oncological, psychiatric, immunosuppressive/immunodeficient or other disorders which in the opinion of the investigator is not compatible with healthy status, may compromise the volunteer’s safety, preclude vaccination or compromise interpretation of the immune response to vaccine. Individuals with mild/moderate, well-controlled comorbidities are allowed.

3. History of rabies infection
4. History of anaphylaxis or angioedema
5. History of severe or multiple allergies to drugs or pharmaceutical agents
6. History of severe local or general reaction to vaccination defined as:
6.1. Local: extensive, indurated redness and swelling involving most of the arm, not resolving within 72 hours
6.2. General: fever ≥39.5 °C within 48 hours; bronchospasm; laryngeal oedema; collapse; convulsions or encephalopathy within 72 hours
7. Have ever received an experimental or authorised vaccine against Rabies virus
8. Receipt of any immunosuppressive agents within 18 weeks of screening by any route other than topical
9. Detection of antibodies to hepatitis C
10. Detection of antibodies to HIV
11. Grade 1i and above abnormalities in routine laboratory parameters (see Table 4) using the FDA toxicity table Toxicity Grading Scale for Healthy Adult and Adolescent Volunteers Enrolled in Preventive Vaccine Clinical Trials, taking account of local laboratory reference ranges. https://www.fda.gov/media/73679/download
12. Participating in another clinical trial with an investigational drug or device or treated with an investigational drug within 28 days of screening.
13. Has received an immunisation within 28 days of screening

Trace of protein and/or blood on dipstick urinalysis and ALT/AST ≤1.2 x ULN are not exclusion criteria

Date of first enrolment
31/05/2026

Date of final enrolment
31/08/2026

Locations

Countries of recruitment
United Kingdom

England

Study participating centre
Chelsea and Westminster Hospital Clinical Research Facility (CRF) at St Stephen’s Centre
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Sponsor information

Organisation
Imperial College London

ROR
https://ror.org/041kmwe10

Funder(s)

Funder type

Funder Name
Coalition for Epidemic Preparedness Innovations

Alternative Name(s)
CEPI Norway, CEPI

Funding Body Type
Government organisation

Funding Body Subtype
Trusts, charities, foundations (both public and private)

Location
Norway

Results and Publications

Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study will be available upon request following publication from Prof. Robin Shattock (r.shattock@imperial.ac.uk). Access will require approval, by the clinical PI and scientific lead investigator and will be based on the presentation of a legitimate analysis plan and time frame. Only fully anonymized data will be made available, and this provision is covered by participant consent. Data set availability will be maintained for a minimum of 10 years from completion of the study.

IPD sharing plan summary
Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Participant information sheet	version 1	02/02/2026	13/02/2026	No	Yes
Protocol file	version 1	02/02/2026	13/02/2026	No	No