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A study to investigate human immune responses in lymph node cells before and after immunisation with a seasonal influenza vaccine in healthy adults with African or Asian ancestry

Submission date
09/08/2022

Recruitment status
No longer recruiting

Registration date
09/09/2022

Overall study status
Ongoing

Last Edited
10/01/2025

Condition category
Other

[_] 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
We are researching how our ancestry and ethnic diversity influences the way we respond to vaccination. To do this we are sampling the cells that respond to a vaccine. These cells are in lymph nodes throughout the body including in the armpit. The data that we get from these cells will be used to create a reference dataset, called a single-cell atlas that will be shared to answer many research questions about vaccines and about the human immune system. In this study we are investigating the response to influenza (flu) vaccine.

Who can participate?
Healthy, adult volunteers with African or Asian ancestry, who have been mostly resident in the UK for at least 5 years.

What does the study involve?
The study involves 5 visits to the NIHR Imperial Clinical Research Facility at Hammersmith Hospital, London, UK. Participants have a seasonal influenza (flu) vaccine and will donate blood samples, and samples of lymph node cells from both armpits, both before and after vaccination.

What are the possible benefits and risks of taking part?
Participants will have a health check which might be a benefit, and they should get some immunity from the influenza vaccine. The study results will help research of the human immune system. Many people feel that it is rewarding to make this very personal contribution to science. There are risks associated with reactions to the influenza vaccine, and with the procedure to sample lymph node cells (by 'fine needle aspiration'), and with blood sampling.

Where is the study run from?
NIHR Imperial Clinical Research Facility (UK)

When is the study starting and how long is it expected to run for?
From July 2022 to December 2025

Who is funding the study?
The Chan Zuckerberg Initiative (USA)

Who is the main contact?
1. Dr Katrina Pollock, k.pollock@imperial.ac.uk
2. Mrs Aime Palomeras, aime.boakye@nhs.net

Contact information

Type(s)
Principal Investigator

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Scientific

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Additional identifiers

EudraCT/CTIS number
Nil known

IRAS number
314444

ClinicalTrials.gov number
Nil known

Secondary identifying numbers
IRAS 314444, 22HH7619, CPMS 52717

Study information

Scientific Title
An experimental medicine study of seasonal influenza vaccination responses in Lymph nodE single-cell Genomics in AnCestrY (LEGACY01)

Acronym
LEGACY01

Study objectives
To investigate human immune responses in lymph node cells before and after immunisation with a seasonal influenza vaccine.

Ethics approval required
Ethics approval required

Ethics approval(s)
Approved 01/06/2022, London - Central Research Ethics Committee (3rd Floor Barlow House, 4 Minshull Street, Manchester , M1 3DZ, United Kingdom; +44 (0)207 104 8171; londoncentral.rec@hra.nhs.uk), ref: 22/LO/0343

Approved 01/06/2022, London - Central Research Ethics Committee (3rd Floor Barlow House, 4 Minshull Street, Manchester M1 3DZ; +44 (0)207 104 8171; londoncentral.rec@hra.nhs.uk), ref: 22/LO/0343

Study design
Interventional non-randomized clinical study

Primary study design
Interventional

Secondary study design
Non randomised study

Study setting(s)
Other

Study type(s)
Prevention

Participant information sheet
See study outputs table

Health condition(s) or problem(s) studied
Healthy volunteers receiving a seasonal influenza vaccine

Interventions
The LEGACY01 study is an interventional clinical study in 30 healthy volunteers who will donate blood, and cells sampled from their lymph nodes, both before and after receipt of a seasonal influenza vaccine.

Intervention Type
Biological/Vaccine

Phase
Not Applicable

Drug/device/biological/vaccine name(s)
Adjuvanted quadrivalent influenza vaccine (aQIV), also marketed as Fluad Tetra (Seqirus UK Ltd)

Primary outcome measure
Human immune responses measured using the following assays to generate a reference dataset :
1. Single-cell RNA sequencing analysis of lymph node cells (LNC) and matched paired peripheral blood mononuclear cells (PBMC) samples collected at baseline and at 5 days post-vaccination
2. Binding serum antibodies specific for influenza/A antigens (e.g. haemagglutinin) assays at baseline and at 5 and 28 days post-vaccination
3. Intracellular cytokine secretion or activation-induced marker assay of PBMC and LNC samples collected at baseline and at 5 and 28 days (PBMC only) post-vaccination
4. Genotypic assays such as HLA-testing at baseline

Secondary outcome measures
There are no secondary outcome measures

Overall study start date
01/12/2021

Completion date
31/12/2025

Eligibility

Key inclusion criteria

1. Healthy adults aged ≥18 years and ≤55 years on the day of screening
2. Willing and able to provide written informed consent
3. Identifies as having African or Asian ancestry
4. Usually resident in the UK for ≥5 years prior to screening
5. Not pregnant on the day of screening and willing to use a highly effective form of contraception until 12 weeks after the study immunisation, if a person of childbearing potential
6. Willing to avoid all other vaccines within 4 weeks either side of the study injection and fine needle aspiration
7. Willing and able to comply with the visit schedule and provide samples
8. Willing to grant authorised persons access to their trial related medical record and GP records either directly or indirectly

Participant type(s)
Healthy volunteer

Age group
Adult

Lower age limit
18 Years

Upper age limit
55 Years

Sex
Both

Target number of participants
30

Total final enrolment
33

Key exclusion criteria
1. Pregnant or lactating
2. Has a significant clinical history, physical finding on clinical examination or laboratory finding 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 tissue sampling or compromise interpretation of the immune response to vaccine. Individuals with mild/moderate, well-controlled comorbidities are allowed.
3. Body mass index (BMI) of ≥30
4. History of anaphylaxis or angioedema
5. History of severe or multiple allergies to drugs or pharmaceutical agents or contraindicated from receiving influenza vaccine or local anaesthetic including lidocaine.
6. History of severe local or general reaction to vaccination defined as:
6.1. Local:
6.1.1. Extensive, indurated redness and swelling involving most of the arm
6.1.2. Not resolving within 72 h

6.2. General:
6.2.1. Fever ≥39.5 °C within 48 h
6.2.2. Bronchospasm
6.2.3. Laryngeal oedema
6.2.4. Collapse
6.2.5. Convulsions or encephalopathy within 72 h
7. Receipt of any immunosuppressive agents within 18 weeks of screening by any route other than topical
8. Prescribed regular blood thinning medication likely to induce bruising or bleeding on fine needle aspiration
9. Detection of antibodies to hepatitis C
10. Detection of antibodies to HIV
11. Detection of anti-hepatitis B core antibodies
12. Participating in a clinical trial with an investigational drug or device or treated with an investigational drug within 28 days of screening

Date of first enrolment
22/07/2022

Date of final enrolment
31/01/2024

Locations

Countries of recruitment
England

United Kingdom

Study participating centre
NIHR Imperial Clinical Research Facility
Hammersmith Hospital
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Sponsor information

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Sponsor type
University/education

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ROR
https://ror.org/041kmwe10

Funder(s)

Funder type
Charity

Funder Name
Chan Zuckerberg Initiative

Alternative Name(s)
Chan Zuckerberg Initiative LLC, CZI

Funding Body Type
Private sector organisation

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

Location
United States of America

Results and Publications

Publication and dissemination plan
Planned publication in a high-impact, peer-reviewed journal.

Intention to publish date
31/12/2026

Individual participant data (IPD) sharing plan

Raw data will be made available in public and managed-access repositories. The data will comprise the outputs of the immunological and transcriptomic analyses, along with a limited amount of 'meta data' such as the ancestry, sex and age of the donor, and their influenza vaccine status. Some data will be stored in the Human Cell Atlas - other data may be stored elsewhere (details to be confirmed). A persistent weblink, the process for requesting access, and timing for availability will be confirmed at a later date. Participant consent will be obtained, and the data will be linked-anonymised ('pseudonymised') - i.e. identified by the participants' study IDs.

IPD sharing plan summary

Stored in publicly available repository, Stored in non-publicly available repository

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Participant information sheet	version 2.0	19/05/2022	10/08/2022	No	Yes
Protocol file	version 2.0	19/05/2022	10/08/2022	No	No
HRA research summary			28/06/2023	No	No
Participant information sheet	version 3.1	06/07/2023	10/01/2025	No	Yes
Protocol file	version 2.1	09/08/2022	10/01/2025	No	No
Protocol file	version 3.1	06/07/2023	10/01/2025	No	No