Respiratory Medicine Unit, Nuffield Department of Clinical Medicine,
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Study Title: Epidemiology of type-2 biomarkers in healthy individuals

PARTICIPANT INFORMATION SHEET

Central University Research Ethics Committee Approval Reference: R87777/RE001

You are being invited to take part in a research study. Before you decide whether to take part it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear, or if you would like more information. Take time to decide whether you wish to take part.

Why is this research being conducted?
Patients with airways diseases such as asthma often have a type of airway inflammation called "type 2 inflammation", which is characterised by the presence of certain molecules (cytokines) and cells (eosinophils) in the lungs. As the deep airways cannot easily be accessed for testing, in patients with asthma, type-2 inflammation can more easily be measured using other accessible markers: eosinophil cell numbers in peripheral blood, and nitric oxide in exhaled breath (Fraction of exhaled Nitric Oxide, FeNO).

It is estimated that 5 to 20% of the healthy population have elevated type-2 markers, without having a respiratory (lung) disease or symptoms. We don't know if this means they necessarily have type-2 inflammation in their airways, or even if they do whether this means they will develop airways disease in the future.

The aim of this project is to describe the epidemiology of these two type-2 biomarkers, FeNO and blood eosinophil count, i.e. the spread of values and how commonly they are raised, in the healthy young population (ages 18-50 years old). This information will inform subsequent studies that will seek to understand the role of type-2 biomarkers in driving respiratory airways disease.

Why have I been invited to take part?
You have been invited to take part because you either responded to an advertisement for the study or approached our "lung health" testing station. The study is hoping to recruit between 100 and 500 participants aged 18-50 years old, with no previous respiratory disease diagnosis and on no respiratory medications (e.g. inhalers) or any other medications that may dampen the immune system (e.g. steroids).

Do I have to take part?
No. It is up to you to decide whether to take part. You can withdraw yourself from the research, without giving a reason, by advising us of this decision at any time. If you participate and then decide that you no longer wish to continue with the study, we would still retain any data already obtained from you unless you request otherwise. Once this has been combined anonymously with other data for analysis, it will not be possible to withdraw your data.

What will happen to me if I take part in the research?
If you decide to take part, the researchers will go over the study and answer any questions you may have and ask you to sign an informed consent form. The study only involves one visit, during which you will be asked to:

1. Complete a **short questionnaire about you**: age, sex, height, weight, background health (i.e. do you have any respiratory illnesses or other significant medical diagnoses and whether you take any relevant medications), smoking history (whether you smoke or have smoked, and if so how much).

2. Complete a **respiratory symptom questionnaire** (asking whether you have symptoms like cough, wheeze or breathlessness)

3. **Exhaled Nitric Oxide (FeNO) measurement**: This involves breathing out slowly (for up to approximately 15 seconds) into a machine that measures the levels of nitric oxide, an invisible molecule in your breath, which is a measure of airways inflammation.

4. **Blood eosinophil count**: This is a finger-prick blood test (similar to those used for measuring blood sugar levels) and is very quick. The researcher will wipe your finger with an alcohol wipe and allow it to dry. While wearing gloves, the researcher will prick the side of the tip of one finger using a sterile lancet. The first drop of blood will be wiped away using sterile gauze as it is unsuitable for measuring blood cells. The fingertip will be gently squeezed to produce a further drop of blood which will be collected into a testing cuvette and measured immediately in the portable analyser. This will calculate the white cell count, including the eosinophil count from this drop of blood. Everything will then be disposed of (no sample will be kept) in appropriate clinical waste containers.

The research visit is expected to last about 15 minutes and this marks the end of the study for you.
We will ask you to consent if you agree to be contacted for future ethically-approved studies, and ask to keep your contact details to contact you for this reason.

What are the possible disadvantages and risks in taking part?
The finger-prick test may cause slight discomfort but it is very quick. There are no risks or disadvantages in taking part. All data will be anonymised, and participants will not be identifiable from the data or from the research outputs.

We know that type-2 biomarkers are often raised in patients with asthma, but also know that healthy volunteers can have raised biomarkers without having any respiratory disease. It is possible that the symptom questionnaire may identify some participants that have respiratory symptoms. If this is the case for you, we will provide you with a short note that you can take to your GP explaining the study and the results. The finger-prick blood test also provides results on other types of white blood cell – if a severe abnormality were detected we would also suggest you contact your GP to arrange a further blood test and investigations as appropriate.

Are there any benefits of taking part in the research?
There will be no direct or personal benefit to you from taking part in this research. However, understanding more about type-2 biomarkers in health, will help further research into their role in airways diseases such as asthma.

Expenses and payments
You will receive an online shopping voucher of £5 for your participation, as a token of thanks. We will ask for your email address to be able to send this to you.

What will happen to my data?
We will collect research data including age, sex, height, weight, smoking history and respiratory symptom questionnaires and values for FeNO and blood eosinophil count. These data are important to establish the epidemiology of type-2 biomarkers in the healthy population, which is the objective of the study. Your name

will not be on the results record – only on your consent form, which will be stored separately. Your results data will be stored in an anonymised manner, linked just to a number, electronically on study databases on university computers and servers, and only shared within the research team using OneDrive for Business, provided by the University. These anonymised data will be stored for 10 years after the end of the study.

We will use as little personally-identifiable information as possible. Identifiable personal data (such as name and contact details e.g. email address) will be kept for the purposes of emailing you the reimbursement voucher and to contact you to participate for future ethically-approved research (if you have consented to this). For the latter, we will keep this information for up to 5 years after the end of this study. We will keep a copy of your consent form with this database, as your consent is our legal basis for re-contacting you under UK data protection law. Consent forms will be kept in a locked filing cabinet in the researchers' office, in a room that is locked when unoccupied.

The University of Oxford is the data controller with respect to your personal data and, as such, will determine how your personal data is used in the research. The University will process your personal data for the purpose of the research outlined above. Research is a task that we perform in the public interest. Further information about your rights with respect to your personal data is available from https://compliance.web.ox.ac.uk/individual-rights.

Will the research be published? Could I be identified from any publications or other research outputs?
The findings from the research may be written up in an academic thesis and are expected to be presented in conference presentations or published in academic journals. It will not be possible for participants to be identifiable from the outputs of this research. If you would like to find out about the results of the study, we would be happy to provide this by email, post or telephone, according to your preference.

If this research is written up in an academic thesis, a copy of this will be deposited both in print and online in the Oxford University Research Archive where it will be publicly available to facilitate its use in future research.

Who has reviewed this research?
This research has received ethics approval from a subcommittee of the University of Oxford Central University Research Ethics Committee. (Ethics reference: R87777/RE001).

Who is organising and funding the research?
The research is organised by Dr Nayia Petousi (Respiratory Consultant) and Dr Helen Ashdown (GP). It is funded by the NIHR Oxford Biomedical Research Centre (Respiratory Theme) and University of Oxford John Fell Fund.

Who do I contact if I have a concern about the research, or I wish to complain?
If you have a concern about any aspect of this research, please contact Dr Nayia Petousi (Nayia.petousi@dpag.ox.ac.uk) or Dr Helen Ashdown (helen.ashdown@phc.ox.ac.uk) and we will do our best to answer your query. We will acknowledge your concern within 10 working days and give you an indication of how it will be dealt with.

If you remain unhappy or wish to make a formal complaint, please contact the Chair of the Medical Sciences Interdivisional Research Ethics Committee at the University of Oxford who will seek to resolve the matter as soon as possible:
Email: ethics@medsci.ox.ac.uk; Address: Research Services, University of Oxford, Boundary Brook House, Churchill Drive, Headington, Oxford OX3 7GB.

Further Information and Contact Details
If you would like to discuss the research with someone beforehand (or if you have questions afterwards), please contact: haopeng.xu@ndm.ox.ac.uk