Molecular and Clinical Sciences
St George's University of London
Cranmer Terrace
London, SW170RE
Tel: +44 (0)20 8266 6836

REC Reference: 18/NW/0757

IRAS ID:253663

Chief Investigator: Bridget Bax

Principle Investigator: Dr Elizabeth Rhodes

PARTICIPANT INFORMATION SHEET (PATIENT)

Study title: Prevention of red blood cell sicking in sickle cell disease

Invitation to participate in the above study

We would like to invite you to take part in our research study. Before you decide, it is important that you understand why the research is being done and what it will involve for you. Please take time to read this information, and discuss it with others if you wish. If there is anything that is not clear, or if you would like more information, please ask us. Take time to decide whether you wish to take part.

Part 1 of this Participant Information Sheet tells you about the purpose of this study and what will happen to you if you take part.

Part 2 gives you more detailed information about the conduct of the study.

Thank you for reading this.

PART 1

What is the purpose of the study?

As you know, you have been diagnosed with an inherited condition called sickle cell disease, which is caused by a faulty gene that changes the structure a protein contained in the red blood cell called haemoglobin. Haemoglobin A is produced in healthy individuals, but in individuals like yourself, haemoglobin S is produced instead. Haemoglobin S causes the red blood cell to form a crescent or sickle shape and this causes the red blood cells to become rigid and prone to getting trapped blood vessels. This eventually leads to blockages in the blood vessels causing pain and tissue damage.

We are investigating ways of reducing the amount of haemoglobin S in the red blood cells of individuals with sickle cell disease with the aims of preventing red blood cell sickling and improving future treatments for patients with sickle cell disease.

Why have I been invited?

You have been asked to volunteer because you have been diagnosed with sickle cell disease. Having red blood cells derived from individuals with sickle cell disease will help us develop methods to prevent red blood cell sickling and disease progression in this disorder.

Do I have to take part?

No. It is up to you to decide whether or not to take part. If you decide to take part, you are still free to withdraw at any time prior to the procedure and without giving a reason. A decision to withdraw, or a decision not to take part will not affect the standard of care you receive.

What will happen to me if I take part?

If you decide to take part you will be asked to sign and date a consent form. By signing it you are telling us that you:

- Understand what you have read
- Consent to take part in the research project
- Consent to have the blood test described below

You will be given a copy of this information sheet to keep.

If you agree to take part in this study, a 40 mL blood sample will be taken. The procedure will be performed by a medical doctor or a nurse, in the Sickle Cell Clinic at St George's Hospital. Participation in the study is a one-time process beginning when you agree to donating blood and ending when this is completed. There will be no dietary or other restrictions required for providing these samples.

The procedure will take around 10 minutes and wherever possible the blood sample will be taken at the same time as your routine blood sample taken as part of your standard clinical assessment.

The blood samples will be used solely for experimental purposes in the laboratory where we will investigate methods to prevent red blood cell sickling.

Excess cells isolated from you blood will be stored frozen anonymously. If you agree, excess cells not used will be stored frozen after this study has finished for use in future research projects. The samples will be released only to recognised researchers whose project has undergone ethical and scientific review within the UK. Any published results of the research project will not be traceable to you.

What will I have to do?

The study does not require any lifestyle restrictions other than ensuring that you make yourself available for a single study visit.

What are the possible disadvantages and risks of taking part?

Taking blood samples might cause discomfort when the needle is inserted into a vein and sometimes a bruise can develop where the needle entered the skin. Other complications are secondary infections (very rare) and fainting in susceptible individuals.

The study is a research project and so is unlikely to benefit you as an individual.

What are the possible benefits of taking part?

We do not expect any direct clinical benefit to you from taking part in this study. However, the information we gather using the blood sample you donated will help us to understand more about red blood cell sickling and ways to prevent this, and help to improve future treatments and disease prevention in sickle cell disease.

What if there is a problem?

Any complaint about the way you have been dealt with or any possible harm you might suffer will be addressed. The detailed information on this is given in part 2.

Will my taking part in the study be kept confidential?

Yes, we will follow ethical and legal practice and all information about you will be handled in confidence. The details are included in Part 2.

This completes Part 1. If the information in Part 1 has interested you and you are considering participation, please read the additional information in part 2 before making any decision.

PART 2

What if there is a problem?

If you have a concern about any aspect of this study, you should ask to speak to the researchers who will do their best to answer your questions [contact number]. If you remain unhappy and wish to complain formally, you can do this by contacting St Georges University Hospitals NHS Foundation Trust Patient Advice and Liaison Service (PALS). [insert details e.g. NHS Complaints Procedure or Private Institutional arrangements]. Details can be obtained from their website https://www.stgeorges.nhs.uk/patients-and-visitors/help/ or by emailing/calling them on pals@stgeorges.nhs.uk / 020 8725 2453.

St. George's University of London has appropriate insurance in place in the unlikely event that you suffer any harm as a direct consequence of your participation in this study. Any negligent harm caused by the clinical NHS researchers during your participation in the study is indemnified by the NHS negligence arrangements.

Will my taking part in the study be kept confidential?

Your confidentiality will be safeguarded throughout and after completion of the study.
St Georges, University of London (SGUL) is the sponsor for this study based in the United Kingdom. We will be using information from you and/or your medical records in order to undertake this study and will act as the data controller for this study. This means that we are responsible for looking after

your information and using it properly. As sponsor we may keep information collected for the purpose of the study up to 5 years after the study has finished. This is to ensure integrity of the results. All data will be stored in a secure manner.

St Georges Hospital will collect information from you and/or your medical records for this research study in accordance with our instructions.

St Georges Hospital will keep your name, contact details and other identifiers confidential and will not pass this information to SGUL. St Georges Hospital will use this information as needed, to contact you about the research study, and make sure that relevant information about the study is recorded for your care, and to oversee the quality of the study. Certain individuals from St Georges Hospital, SGUL and regulatory organisations may look at your medical and research records to check the accuracy of the research study. SGUL will only receive information without any identifying information. The people who analyse the information will not be able to identify you and will not be able to find out your name, identifying information or contact details. We will send your GP a brief letter informing them of your participation in the study. We will ask your permission to do this.

All personal data will be stored confidentially on NHS password protected computers at St George's Hospital. St Georges Hospital will keep identifiable information about you from this study for up to 5 years after the study has finished.

Your rights to access, change or move your information are limited, as we need to manage the data in specific ways to ensure the research we conduct is reliable and accurate. If you withdraw your consent to participate in a research project, this will not mean we will have to remove all data as well. We will keep the information about you that we have already obtained to ensure research integrity is maintained in the public's interest. To safeguard your rights, we will strive to use the minimum personally-identifiable information possible.

You can find out more about how SGUL uses research information https://www.sgul.ac.uk/privacy.

For general information on how the NHS uses research data please visit https://www.hra.nhs.uk/information-about-patients/

What will happen to any samples I give?

We will separate the red blood cells from your blood and make them permeable by putting them in a solution more dilute than normal. This will allow haemoglobin S to move out of the red blood cells and therefore reduce the amount of faulty haemoglobin contained within the red blood cells. We will also investigate the possibility of introducing healthy haemoglobin into the cells by adding haemoglobin A. We will then return the red blood to a normal strength solution which will reverse the impermeability.

We will then test the cells to see if this manipulation has reduced the sickling potential and improved the physical properties of the red blood cells. Your samples will be stored in a locked freezer at -80^{o}, within a secure Laboratory at St. George's, University of London after the study is finished. After the study is finished, we will break the link that may identify you. All samples will be stored anonymised with a unique identifier and only project associated staff will have access. We will seek ethics approval for the use of these samples in the future. There is no intention to transfer samples outside the UK.

What will happen to the results of the research study?

After study analysis is completed we would like to retain any remaining blood sample for use in future research. The results of this study will be analysed and evaluated scientifically. We plan to submit the data for publication in scientific and clinical journals and present data at scientific meetings. We will also prepare a written summary of the study results once all the data has been analysed. You will not be identified in any report/publication/presentation. We will send you a copy of this if you would like to receive it.

Who is organising and funding the research?

The study is being run by St George's, University of London, and the principal researcher is Dr Bridget Bax, with Postdoctoral Researcher Dr Dario Pacitti. Drs Elizabeth Rhodes and Niranjanan Nirmalananthan will be the clinicians responsible at St Georges Hospital. The sponsor is St. George's University of London. Orphan Technologies fund the research project.

Who has reviewed the study?

All research in the NHS is looked at by independent group of people, called a Research Ethics Committee (REC), to protect your interests. This study has been reviewed and given favourable opinion by North West - Greater Manchester East Research Ethics Committee, consisting of both medical and lay members.

Further information and contact details

If you require more information about this study, please call one of the telephone numbers or email addresses provided below to speak to a member of the research team:

Dr Bridget Bax: 020 8266 6836, bebax@sgul.ac.uk

Dr Dario Pacitti: 0202 8725 5898, dpacitti@sgul.ac.uk

Dr Niranjanan Nirmalananthan: 020 8725 4630, n.nirmalananthan@nhs.net

Dr Elizabeth Rhodes: 020 8725 0885, Elizabeth.rhodes@stgeorges.nhs.uk

Thank you for considering taking part.

Please keep this information sheet for your records.

If you agree to enter the study, please sign the attached consent form and we will return a copy to you.