**Volunteer Information Sheet**

**Study Title:**  Recreating thrombosis models using tissue-engineered arterial constructs: A novel method to reduce and replace mice used in platelet research

Thank you for your interest in volunteering to participate in our research study **- “***Recreating thrombosis models using tissue-engineered arterial constructs: A novel method to reduce and replace mice used in platelet research*”. This work is being conducted by Dr Alan Harper and is part of a PhD studentship joint funded by the British Heart Foundation and The National Centre for the Replacement, Refinement and Reduction of Animals in Research. Before you decide whether or not you wish to take part, it is important for you to understand why this research is being done and what it will involve. Please take time to read this information carefully and discuss it with friends and relatives if you wish. Please ask us if there is anything that is unclear, or if you would like more information about the aims of the study or your involvement in it.

**Aims of the Research:** Acute cardiovascular events such as heart attack and strokes are amongst the leading causes of premature death in the UK. These are both caused by lodging of unwanted blood clots within the vessels supplying the heart and brain thus damaging these tissues by starving them of oxygen. Scientists are keen to understand the processes of both normal and abnormal blood clotting to help them develop new treatments that could prevent these unwanted clots to help save lives. To do this, scientists have therefore developed an imaging technique, called intravital microscopy, to watch blood clotting when blood vessels of anaesthetised mice are artificially damaged. This technique has provided valuable insight into the molecular events underlying blood clotting. This has led to widescale adoption of this technique across the world, leading to a growing reliance on experimentation on mice in platelet research. In this project we aim to create an alternative to the use of mice in these intravital microscopy experiments that should both help reduce and replace the number of mice used in these types of experiments. Previously we have managed to grow artificial human blood vessels that are able to replicate the properties of the native vessel both when injured and uninjured. We hypothesise that these vessels could be used to recreate the conditions within the human body, and therefore provide an alternative to studying blood clotting in live mice. To try to establish this we will assess the effect of perfusing our artificial blood vessels with human blood samples to assess whether they produce similar results to those observed in mice experiments. If initial experiments are experiments, we will directly test this possibility by conducting a direct comparison between our artificial blood vessels and experiments performed in mice. This will allow us to assess whether our artificial blood vessels could provide a feasible alternative to mouse studies. By doing this we aim to create a new model system which will reduce and replace the use of mice in platelet research.

**Who can take part?**

We are looking to recruit healthy adults aged between 18-50 years old to take part in our study

You **should not** agree to take part if:

* You have symptoms of COVID-19 infection (A high temperature, A new, continuous cough, A loss of, or change in, their normal sense of taste or smell)
* You are self-isolating as a member of your household has been infected, or is suspected of being infected, with COVID-19
* You have been advised to self-isolate due to having come into contact with some who has tested positive for COVID-19
* You have an underlying medical condition that would put you at higher risk of a severe response to COVID-19 infection
* You, or a member of your family, has been diagnosed with a bleeding disorder
* You are diabetic
* You are anaemic, are suffering from angina, low-blood pressure or have a heart condition
* You currently have a temperature, are having trouble breathing, or are feeling dizzy, nauseous or dehydrated
* You are currently taking a course of drugs prescribed by a doctor
* You are afraid of needles or medical environments
* You are pregnant or think you may be pregnant
* You know that you are, or think you might be, infected with a blood-borne virus, such as HIV or hepatitis.
* You have had a blood transfusion or undergone surgery in the last 3 months
* You have donated blood to the blood transfusion service in the last month

**Do I have to take part?**

You are free to decide whether you wish to take part or not. If you choose not to proceed after reading this information sheet, the research team will not contact you again. If you do decide to take part you will be asked to come to our labs in the Guy Hilton Research Centre where we will ensure that you are aware of what will happen to you and your blood during the project, as well as the data we gather. If you agree to continue we will ask you to sign two consent forms, one is for you to keep and the other is for our records. You are free to withdraw from this study at any time prior to giving blood and without giving any reasons. If after providing a blood sample, you can ask for your blood samples not to be used in experiments. This can be done either by verbally asking one of the research team at the appointment, or contacting Dr Harper by phone or email (01782-674472 or a.g.s.harper@keele.ac.uk).

**What will happen if I take part?**

If you decide to take part, then we will arrange an appointment for you to visit the Guy Hilton Research Centre to give blood at a time that is convenient for you. We will email you to remind you not to attend if you are currently showing signs of COVID-19 infection (A high temperature, A new, continuous cough, A loss of, or change in, their normal sense of taste or smell). The email will also remind you to wear a facemask when entering the Guy Hilton Research Centre. If you are unwell, please stay at home and self-isolate following government guidance (<https://www.gov.uk/coronavirus>). Please also stay at home, if you have been advised to self-isolate after coming into close contact with someone who has COVID-19 or is suspected of having COVID-19.

Upon arrival at the Guy Hilton Research Centre, please wear a facemask and report to the reception area and maintain social distance of 2m from other staff and students. Dr Alan Harper or Dr David Cabrera will meet you in the reception where he will use an infra-red temperature monitor and confirm that you are not experiencing any current symptoms of COVID-19 infection. Dr Harper or Cabrera will also test their temperature prior to your arrival. If you are showing symptoms, we will ask you to go home to self-isolate and arrange a COVID test. If you are asymptomatic then we will then take you to the consulting room for the blood take.

Before entering the consulting room, we will ask you to wash your hands using the station outside the room. We will also ask you to put on a face visor and disposable apron to minimise risk of COVID transmission between you and the blood taker. The blood taker will also wash their hands, and be wearing a facemask, face visor and disposable apron. The blood taker will also do the same and then put on a pair of disposable gloves to minimise contact with you. We will ask a few questions to ensure that you understand what will happen to you and you are fit and willing to give blood. We will also give you an opportunity to ask any questions you may have about the project. If you are still happy to give blood, we will then ask you to sign a consent form. After this we will then take up to 60 millilitres of blood (which is around a quarter the volume of a typical wine glass and 1/10th of the volume taken by the blood donation service) by venepuncture from your arm. After we have taken blood we will give you a plaster to cover the puncture site. After you have disposed of your PPE, washed your hands and left the consulting room, we will also offer you something to drink. After this you will be able to leave once you feel ready to. We anticipate that your visit to us will last about twenty minutes in total.

At the time of your first donation, you will also be asked whether you would be interested in giving blood to us again in this study or in future experimental projects. If you are you will be asked to indicate this on the consent form, as well as providing us with your preferred method of being contacted by us. If you decide not to, then we will not contact you again after this blood donation. If you consent to being approached for further blood donations, then we will use the contact details provided to enquire whether you would be willing to give again. This will be at least one month after your last donation. You are free to decline to donate blood at any time, and you can ask to be removed from our contact list at any point by contacting Dr Harper using his contact details provided in the letter head.

**If I take part, what do I have to do?**

If you are eligible, and still wish to take part in the study, please contact us (Tel: 01782-674472 or email: a.g.s.harper@keele.ac.uk) and we will then arrange a time that is convenient for you to come and donate blood at the Guy Hilton Research Centre. Prior to coming to give blood it is helpful to ensure that you have had something to eat in the last few hours and that you are well hydrated. If you are unable to attend your appointment it would be helpful if you could let us know (Tel: 01782-674472 or email: a.g.s.harper@keele.ac.uk), although you are under no obligation to do so.

**What are the risks and benefits (if any) of taking part in this study?**

There are no direct benefits for yourself through taking parts in this study as we are not able to offer any financial compensation for your participation. However we hope this research will allow us to create a new experimental system in which new drugs for strokes and heart attacks can be assessed in more realistic conditions, without the need to use mice in these studies.

It will not be possible to maintain social distancing with the blood taker during the blood donation. This therefore might carry with it a risk of becoming infected with COVID-19 from the blood taker. To minimise the risk the blood taker will check their temperature and they have no symptoms of COVID-19 on the day of the experiment. The blood taker will also minimise the risk of transmitting COVID-19 to you by maintaining social distance for as long as possible, washing their hands thoroughly and wearing a face visor, disposable mask, apron and gloves. We will also ask you to sanitise your hands thoroughly before and after your donation to prevent transmission from your hands to your respiratory tract. Whilst these actions will significantly limit the risk of transmission, there is still a small chance that you could become infected with COVID-19. We will contact you if the blood taker test positive to COVID-19 infection with 2 weeks of your appointment, and you will be asked to self-isolate for 14 days from the time of the appointment and follow all current government instructions. If you test positive within two weeks of your appointment, we ask that you contact the research team so we can also self-isolate.

The process of taking blood itself has minimal risk to you. Volunteers may experience, minor discomfort at the onset of venepuncture when the needle is inserted. However any minor pain should be transient. Very occasionally a donor may experience nausea or faint, however this is a rare event. If you do feel faint or unwell, inform the person taking your blood sample who will stop the procedure immediately and will look after you until you are feeling better.

**What will happen to my blood sample?**

The blood we take will be spun to collect platelets contained within it, with the rest of the blood being safely disposed of. These platelet samples will be used to examine the interaction of our magnetic iron particles with the platelets. We will also use a variety of commonly-used laboratory assays to examine if they prevent platelets from forming blood clots, and can be used to break up artificially-created blood clots. None of the experimental tests performed on your blood are used for clinical diagnosis of blood disorders, and as such we will not be able to identify any underlying medical condition from your blood sample. Most blood samples are used and disposed of safely on the day of donation. However in some donations we will extract the plasma (the fluid in which the cells of the blood are bathed) and freeze this for use on another day. This will allow us to minimise the number of blood donors we need to take samples from by allowing us to use blood samples from one donor across multiple days. All stored samples will be held securely in locked freezers and the tissue will be protected by temperature monitoring system. Any remaining samples will be disposed of safely at the end of the project. If you wish any stored blood sample to be removed from the study, you may do so at any point by contacting Dr Harper (email: a.g.s.harper@keele.ac.uk or Tel: 01782-674472). You do not have to state any reason for doing so. We will then safely dispose of your sample immediately upon receipt of the request.

**Who will have access to information about me?**

To help ensure your confidentiality, data collected from the experiments utilising your blood sample will never be marked with anything that can directly identify you. Your consent form will be treated as confidential and kept stored in a locked filing cabinet which only the research team will have access to. To ensure your confidentiality, we will never associate your name or any of your personal details with the research data obtained from your blood sample. Your consent form and all data obtained during our studies will be stored for at least 5 years beyond the time of your final donation, in line with the data storage policies of Keele University. After this time, your consent form and all data obtained from your blood sample during this study will be disposed of securely.

We will look to disseminate the results of our studies through publishing them in scientific journals and present our work at scientific conferences. Results of our studies are normally presented in terms of groups of individuals, such that no data from any individual could be identified. If any individual data were presented, the data would be anonymised so that no-one could identify whose blood was used. If you wish to be kept informed of any publications arising from our research, indicate this on the consent form and we will send you details of any journal articles or conference presentations as they arise.

**What if there is a problem?**

If you have a concern about any aspect of this study, you may wish to speak to the researcher(s) who will do their best to answer your questions. You should contact the chief investigator, Dr Alan Harper(email: a.g.s.harper@keele.ac.uk or Tel: 01782-674472). Alternatively, if you do not wish to contact the researcher(s) you may contact <name redacted> the Director of the Institute for Science and Technology in Medicine. If you remain unhappy about the research and/or wish to raise a complaint about any aspect of the way that you have been approached or treated during the course of the study, please write to <name redacted> the Head of Project Assurance who is Keele University’s contact for complaints regarding research at the following address:-

Head of Project Assurance

David Weatherall Building

Keele University

Keele

Staffordshire

ST5 5BG

E-mail: research.governance@keele.ac.uk

Tel: <Phone number redacted>