MRI lab – General Information Form

Greetings and thank you for your interest. This document will provide you with some information about MRI and the research conducted at our centre.

### What are MRI and functional MRI?

MRI techniques help us to examine brain structures and their functioning. They are unique tools for research because they allow us to study the functioning of the brain in terms of metabolic activity of its different regions. MRI is based on the combined use of magnetic field and radio frequencies that produce a map of the concentration of water in the blood.



In the centre of the scanner, there is a strong, uniform magnetic field. The person being tested is introduced into the scanner lying on a crib, with a kind of helmet around their head (the radio-frequency coil). Once the person has their head in the centre of the magnet, the radio-frequency pulses and magnetic field gradients are turned off and on very rapidly to generate the signal that in turn generates the MRI images. This process produces a rather loud sound inside the scanner.

### How does MRI contribute to brain research?

Functional fMRI is shedding light on some of the fundamental principles of how the human brain works. Studies in healthy volunteers are the basis of this research and form the vital part of our research program. Through these studies, we are gaining important new information about the normal functioning of the brain, and in particular about some aspects of language, vision, attention, movement, memory, decisions and emotions.

### Brain Research & Imaging Centre (BRIC)

The study will be conducted at **The Brain Research & Imaging Centre (BRIC)**, the most advanced multi-modal brain imaging facility in the South West. The centre provides the sea change to enhance the quality of our research in human neuroscience. With seven cutting-edge human research laboratories, BRIC includes an MRI suite with the most advanced scanner available (3-Tesla ) which will undoubtedly advance our enquiry toward the most advanced brain research, improved radiological diagnostics and better patient care. The partnership of University of Plymouth, University Hospitals Plymouth NHS Trust and DDRC Healthcare is central to our wider aims of delivering rapid improvements to health and wellbeing in the region and beyond, supporting commercial development and integrating research into education at the highest levels.

### Who cannot undergo an MRI scan?

Due to the strong magnetic field, people who have implants such as cardiac pacemakers, metal clips in the brain, cochlear implants, permanent tattoos on the face, or metal chips in the body will not be able to participate in the MRI study. This is due both to the attraction of the magnetic force to which they would be subjected, and to the overheating that metal objects subjected to frequent changes in radiofrequencies would generate. In addition, as a matter of prudence, pregnant women will not be allowed to participate in the study either.

### What will the scan consist of?

Each study carried out at the Laboratory is part of a specific project involving language, vision, attention, movement, memory or emotions. The researcher in charge of the study will explain in detail what you will be required to do while you undergo a functional MRI session. Most of the tasks you will be asked to perform are very simple, and consist of looking at pictures or reading words presented to you on a screen. Each experiment can consist of up to 5 sessions, during which you will have to be in a resting state. The experiment can last from five to forty minutes. During the scan, a radiographer and the researcher in charge will be present and will constantly monitor you to ensure your comfort and safety.

### How long will the experiment last?

The whole experimental procedure lasts approximately one or two hours. During the first twenty minutes the necessary equipment will be set up (monitor, microphone) and you will be placed on the scanner bed making sure that you are in a comfortable position. After that, the scan session itself lasts approximately one hour. You will find more in the information form of the specific study you are participating in.

### Are there any risks?

Before the participation, you will be asked to complete a Safety form, and one of the professionals will go through the process and answer any questions you may have.

The only risks are those mentioned above and concern the incorrect evaluation of the exclusion criteria. There are no side effects from the scan.

As the scanner can be noisy, we will give you earplugs. Some people may experience a mild dizzy sensation as they are moved into the MRI scanner. This is normal and the sensation will fade as soon as you are in the scanner. Some people who do not like small spaces (“claustrophobia”) might dislike having an MRI scan. If you think you might be claustrophobic, please discuss this in advance with us.

It is important to note that ***we do not carry out scans for diagnostic purposes*,** only for research. Our scans are not routinely looked at by a doctor and are therefore not a substitute for a doctor’s appointment. Occasionally, however, we may see something in a scan that we think is worthy of further investigation by a qualified professional. In this case, we will contact your GP. No information other than your name will be conveyed unless you specifically request it.

### **Are there any benefits for participants in an MRI scan?**

The main advantage of your participation will be to have the opportunity to observe the activities in a laboratory of neuroscientific research, working for which you will have participated in the progress of knowledge about the functioning of the brain. In addition, you will be able to know in which publications the results of the study have been exposed by contacting the researcher responsible for the research project.

### Where is the Brain Research & Imaging Centre (BRIC) located?

The centre is located close to Derriford Hospital and the full address is:

8 Research Way, Plymouth Science Park, Derriford,
Plymouth, PL6 8BU

##### Telephone (01752) 209999

Note that because the building is brand new, it might not yet be present on satellite images of online maps or navigators.

### **How do I get to BRIC?**

**Bus**: Bus 51, stop at the Research Way (intersection between Miller way and Research way )
**Car park**: if you come by car, you can use one of the two parking place right in front of the building. If none of the places are available, you can park on the side of the building; let us know and we will give you a temporary parking permit.

### When should I arrive at BRIC?

It is important that you arrive at the lab at the time agreed upon with the researcher in charge. If for any reason you cannot be there at that time, PLEASE contact the researcher in charge as soon as possible so that another volunteer can be found in your place.

### What will happen when I get to the Lab?

Ring the MRI lab for the main entrance of the BRIC building. Give your name and the name of the researcher in charge to the receptionist. The researcher in charge will be contacted, come to greet you, and escort you to the scanner rooms.

The researcher in charge will have you read a form that will explain, in more detail, all the information in this document. You will also be asked to read and sign a consent statement. As previously mentioned, to make sure that there are no contraindications to your participation in the study, a radiologist will ask you some questions by filling out a questionnaire that will be countersigned by both of you.

### After that…

1. You will be asked to remove any metal objects you have on you, such as keys, coins, watches, etc., including credit cards and similar items that could be demagnetized in the scanner. Your personal belongings will be placed in a special locker and locked with non-magnetic keys that you can keep with you during the experiment.
2. You will be given detailed explanations of what will happen in the scanner.
3. You will be placed on a crib, positioned with the head, torso and part of the legs inside the magnet (a cylinder about 60 cm in diameter open on both sides). Your head will be placed inside a device (called a coil) capable of transmitting specific radio waves to this part of the body and receiving those that it emits as a response due to the presence of the magnetic field. A system of angled mirrors may be mounted on the coil, allowing you to see through the openings of the cylinder, and a device to record your eye movements. You will be asked to remain motionless with your head. During the examination you will hear a series of intermittent noises and vibrations coming from the cylinder. You will be asked to use earplugs and/or headphones to muffle these noises.
4. During this time, you may be asked to move your hands to press buttons, listen to sounds, noises, or words, watch pictures or movies, receive tactile stimulation, or perform a mental task. You will be instructed with a detailed explanation of the task you will be asked to perform.
5. If you do not feel comfortable continuing for any reason, you can ask to stop the study at any time without explanation.

### A few tips

* Try to minimize your beverage intake before the scan, as you may have to lie in the scanner for about an hour.
* Avoid drinking coffee or alcohol, and do not not take any psychoactive substance on the day of the scan. Inform the researcher if you are taking psychoactive medication such as anxiolytic, anti-epileptic as this may affect the results of the study.
* Check with the researcher in charge of the study about how long the scan will last.
* During part of the scan, you may listen to music. You can bring your favourite playlist if you want.
* Wear comfortable, warm clothes.
* Remember to ask the researcher for permission to take a friend or family member with you.

### What will happen after the participation?

If you come by car, there is no contraindication to resume driving after the exam. If you wish, get the contact information of the researcher in charge of the study in which you participated to request information about the results of the study.

Please be patient. It may take some time before you get this information.

Let your friends and family know!

We want more people to learn about what we do, and the importance of our research work. We rely on volunteers to recruit participants in our experiments. So, if you have friends or family members who you think might be interested in participating in our studies, please provide them with the email address and/or phone number provided below.

The type of people we are looking for are:

People (WOMEN or MEN) over the age of 18.

FOR ANY ADDITIONAL INFORMATION, please CONTACT [name]:

Phone:

Email: