



INVESTIGATING MUTATIONAL SIGNATURES IN CANCER AND OTHER INHERITED DISORDERS

SUMMARY INFORMATION SHEET

Almost all the cells in your body contain a copy of the human genetic code (called DNA). The DNA in your cells can become damaged due to wear and tear from within your cells and be damaged by your environment, for example ultraviolet-radiation from the sun. However, your cells have a DNA repair toolkit that they can use to repair the damage. If the damage to your DNA is not repaired properly or your DNA repair toolkit is faulty, the damage can build up and lead to permanent changes to your DNA code. These changes are called mutations. We want to study patterns of mutations that build up in cells to understand how and why they cause health problems like cancer, brain diseases and aging. We call these patterns of mutations **signatures**.

To do this, we would like to recruit people who have a **known or suspected problem in DNA repair** or who have been **exposed to chemicals that damage DNA**. Patients may have symptoms such as cancer at a young age, faster aging or learning problems. We would also like to study people who **do not have these defects**, and who have **not been exposed** to DNA damaging chemicals. It is important that we include both groups of people so that we can compare the patterns of mutations between them. This will help us to see whether specific faults in the DNA repair methods or specific chemicals can be linked to particular signatures.

You will be asked to supply 2 **blood samples**. Sometimes, but rarely, we may ask for other **samples** such as saliva or skin.

From the blood samples, we will:

- make cells that can be grown forever, called **induced pluripotent stem cells** (iPSCs)
- look for patterns of DNA mutations in the DNA of the cells that we make

The **stem cells** that are made will be investigated using many different research methods, including a method called sequencing. Sequencing is a way in which we can read the genetic code and look for changes to the DNA. We will only be looking at changes that have built up in the cells (called acquired changes), not the genetic changes that you were born with.

The samples taken from you will be given a number or code that protects you from being identified. No one will know that the samples came from you. The stem cells and all the results from the study will never be linked to your name or other personal details. The cells will be kept in a special cell storage facility. In the future, the cells and the data from this study may be shared with other scientists for approved research, but your personal details will never be shared.

IF YOU WOULD LIKE TO PARTICIPATE OR HAVE ANY ADDITIONAL QUESTIONS, PLEASE TALK TO YOUR GENETICIST OR GENETIC COUNSELLOR.

FURTHER INFORMATION CAN ALSO BE FOUND AT: <http://www.mutationsignatures.org>