People of the *British Isles*

Newsletter Issue 4 - February 2011

Welcome

It has been a while since the last newsletter of the "People of the British Isles". In that time we have been very busy preparing our first scientific publication and getting the next phase of the project up and running. 2010 was a hectic year, which means that results from the first phase are now being analysed and we are also busy collecting 3D photographs.

Sir Walter Bodmer

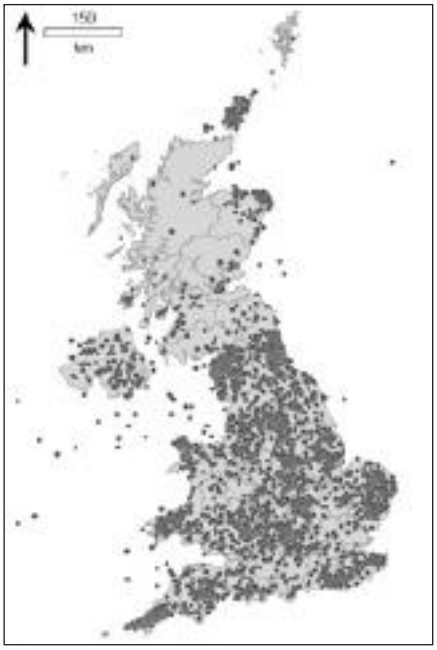
We are pleased to tell you that we have just submitted our first scientific paper about the project. The main function of this paper is to announce PoBI to the scientific world and in it we show that, even with a relatively small number of samples and a few genetic markers, the samples we collected should be sufficient to detect genetic differences across the UK. When the paper is accepted in it's final form, we will make it available on the website.

The monochrome surface produced by the 3D camera. This is used for our analyses.

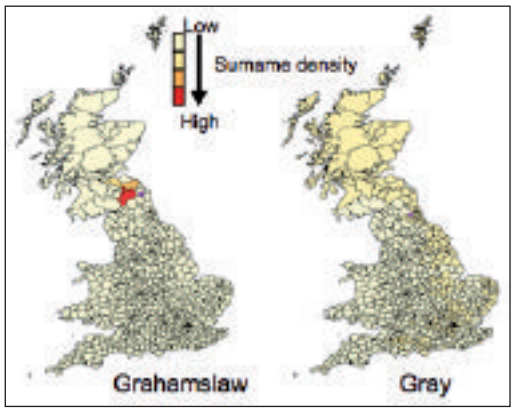
Something from our first paper...

In the meantime, here are a few snippets that might interest you:

So far, we have collected and geocoded (ie. given map coordinates to places of birth) data from 3,865 people and can use these to calculate the average position of the places of birth of all four grandparents. These can then be plotted as in the figure on the right, and show that we have quite a comprehensive coverage of the UK, although we could do with more samples from Scotland. Those dots in the sea mean that one grandparent was from outside the UK or grandparents were born either side of the Irish Sea! Eighty percent of our volunteers had all four grandparents born within 60km of each other and, depending how you define rural, about 70% of volunteers' grandparents were born in rural areas. All this suggests that our sampling strategy has worked very well.



Plot of average position of grandparental places of birth



Distribution of two surnames. Grahamslaw is local to Galashiels (red) and Gray is more widespread (yellow)

Using surnames

One aspect that is of particular interest is the surnames we collected and we have spent some time with our collaborators at UCL (Professor Paul Longley and his group) dividing them into local and non-local surnames. The figure on the left shows a couple of examples. The idea is that individuals whose surname is local to an area are more likely to have family in that area for many generations than individuals whose surnames are found all over the country. This is obviously a generalisation, but it does seem that there are some genetic differences between sets of volunteers with local surnames and sets with non-local surnames and we are really looking forward to analysing all the data rather than just the small subset we have been studying so far.

What next?

Our next priority is to analyse the 1.3 million genetic markers that have been typed on 3,000 of our volunteers as normal controls as part of the Wellcome Trust Case Control Consortium (www.wtccc.org.uk), a large-scale effort to find genes involved in diseases. The data we analyse from these samples should shed light on the genetic impact of the different historical incursions into Britain. It is an extremely large data set and so it will take a while to analyse and write up. As mentioned in our last newsletter, 100 of our samples are having their complete DNA sequenced by the 1,000 Genomes Project (www.1000genomes.org) and it should not be too long before that very valuable information becomes available to us.

3D photographs and more field work

As you will know from the last newsletter, the Wellcome Trust has given us funding for a further five years to look for genes involved in normal traits. The main focus is on facial features, but other traits include handedness, taste perception and skin colour. We have been going back to our volunteers to collect these data. We take 3D photographs of each volunteer's face in order to identify genes involved in the control of particular facial features. Over the last 18 months, we have collected 475 such photographs and are beginning to analyse them with our collaborators in Surrey (Professor Josef Kittler and his group). We are re-visiting our volunteers because we have so much genetic data from the first phase of PoBI and so this is a good way to make the most of the data we already have. So far we have returned to Cornwall, Northamptonshire, the Forest of Dean, Norfolk, Lincolnshire and Oxfordshire. We have plans to cover as much ground as possible over the coming year and have trips planned for Cheltenham, Orkney and Canterbury (see website for dates). We will certainly return to as many parts of the country as we can (including North Wales, Pembrokeshire, Cumbria, the North East and Yorkshire). We are also collaborating with Professor Tim Spector and his group at St Thomas's Hospital, London, to collect 3D photographs of some of their large collection of twins, which they have been studying for many years.

Our new 3D camera…

In use…

A 3D image of Prof. Kittler

Finally

The Wellcome Trust sent their film maker on our recent collection trip to Islay. The edited film is on their YouTube website (http://www.youtube.com/wellcometrust#p/u/3/PCwHCMfyW88). It is only 5 minutes long and well worth a look.

Taking photos of hands

A busy session in Lincoln

Can you taste these bits of paper?

And if you are keen to be part of the second phase of the project please do get in contact with our event organiser, Tammy Day: **tammy.day@clinpharm.ox.ac.uk Tel: 01865 863819**

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