An Update From Dr Geoff Woods

This follows on from the research article Dr Woods sent to us for the Spring 2007 newsletter. The original article is still available on the MSG website.

Dear MSG

Here is some more news from our research study.

Firstly, we have just completed a large study of ASPM as a cause of primary microcephaly. The conclusions are
1. Of consanguineous families and non-consanguineous families with Primary Microcephaly, we find ASPM mutations in 40% of cases.
2. We looked in a group of children with microcephaly and almost any other neurological or brain scan findings - we only found ASPM mutations in those children who fulfilled the strict primary microcephaly criteria. So ASPM doesn't cause other conditions as far as we can tell. And unless a person fulfils the strict criteria it is not worth testing them for ASPM mutations.
3. ASPM mutations are spread through the gene and all (bar one) cause the protein production directed by the gene to be substantially reduced.
4. ASPM cause primary microcephaly in all ethnic groups.

So ASPM should be offered as an NHS service. **And** it will be. We wrote a Gene Dossier last year, had it approved and the Cambridge NHS DNA Laboratory will offer ASPM testing starting in the next few months.

Secondly, we have set up a collaboration to find out how MCPH genes cause primary microcephaly, and does each gene cause microcephaly by the same route, or does each have a separate mechanism. The teams are: Professor Susan Lindsay in Newcastle upon Tyne, who specialises with my team in Cambridge; Professor Weiland Huttner at the Max Plank Institute in Dresden who works on brain development in mouse; De Fanni Gergely at CRUK, Cambridge who is a centrosome biology expert (all MCPH proteins appear to be concentrated at the centrosome, a small part of the cell usually at the centre of the cell); and us in Cambridge, who find MCPH genes.

We also have gained a grant form Action Research to investigate the cause of Autosomal Dominant Microcephaly, that is families where people have microcephaly (often with little effect on intelligence) and it is passed down from parent to child through the family. The microcephaly sometimes doesn't become apparent for a year or so.. In some families there are also eye anomalies - but these don't cause any visual problems, and in some families effected people are shorter than expected as well. This is in contrast to the usual form of microcephaly we study, autosomal recessive primary microcephaly (MCPH), where parents have normal head sizes and 1 in 4 of their children (on average) have microcephaly, and the microcephaly is present at birth.
Hope that keeps you going!
Websites are always hard, have a look at Susan Lindsay's **www.dgemap.org/people/profiles/4** and ours maybe? **www.cimr.cam.ac.uk/investigators/woods/profile.html**

Best Wishes

Geoff

ASPM – a microcephaly gene
MCPH – the autosomal recessive primary form of microcephaly