Feedback
We appreciate and encourage feedback. If you need advice or are concerned about any aspect of care or treatment please speak to a member of staff or contact the Patient Advice and Liaison Service (PALS):

Freephone: 0800 183 0204
From a mobile or abroad: 0115 924 9924 ext 65412 or 62301
E-mail: pals@nuh.nhs.uk
Letter: NUH NHS Trust, c/o PALS, Freepost NEA 14614, Nottingham NG7 1BR

www.nuh.nhs.uk

Microarray Comparative Genomic Hybridisation (array CGH)
Information for patients

Clinical Genetics

This document can be provided in different languages and formats. For more information please contact:

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If you require a full list of references for this leaflet please email patientinformation@nuh.nhs.uk or phone 0115 924 9924 ext. 67184.

The Trust endeavours to ensure that the information given here is accurate and impartial.

Written by Dr Jacqueline Eason using some information from a similar leaflet produced by the Genetic Medicine Department at Saint Mary’s Hospital in Manchester.

Dr Jacqueline Eason, Clinical Genetics © October 2018. All rights reserved Nottingham University Hospitals NHS Trust. Review October 2020. Ref: 1434/v4/1018/AH.
What is an array CGH test?
An array CGH test looks for small changes in a person’s chromosomes, which might account for the problems they have been experiencing. For example if a child has delayed development an array CGH test may be suggested to try and find out the reason why.

What are chromosomes?
Chromosomes are the structures into which we package our genetic information, or DNA. Our genes are a bit like our instructions. In a developing baby it is important for all the genes to be present and working for the baby to develop as expected. Our genes are stored in the centre of our cells in the chromosomes.
A picture of chromosomes is shown overleaf. We have 23 pairs of chromosomes, numbered 1-22 and the last pair are the sex chromosomes. A girl has two X chromosomes and a boy has an X and a Y chromosome.

Genetic conditions happen either because of changes to our genes or chromosomes. They can either be due to a single change in one particular gene (like a spelling mistake) or because of a difference in the chromosomes. Sometimes the scientists can look down the microscope and see a difference in the chromosomes. For example having an extra copy of chromosome 21 causes Down Syndrome.

**What is array CGH?**

Array CGH allows us to detect differences in the chromosomes that can’t be seen down the microscope. Some people are found to have a small piece of a chromosome missing or extra which has caused their problems. A missing piece would be called a deletion and an extra piece would be called a duplication. For example, a child with learning difficulties may be found to have a deletion which includes some genes known to be associated with brain development. As they are missing those genes this has caused their development to be delayed.

**What does the test involve?**

To do an array CGH test the laboratory needs a blood sample from the patient to be tested. Sometimes we can do the testing on samples already stored in the laboratory. In some instances the laboratory asks us for repeat samples or for samples from parents to complete the analysis.
Possible results

1) The results of the test may be normal – no missing or extra pieces of DNA have been found. If this is the case your doctor will consider other possible reasons for that person’s health problems such as a spelling mistake in a single gene for example.

2) The test finds some extra or missing material which is thought to be the cause of the problems. Many of the changes found on the array CGH test are seen fairly often and so we may be familiar with the sort of medical problems they can cause. If the pattern of missing or extra material has been seen in other individuals, who have had similar problems, the laboratory can be quite confident that this genetic change has caused the problems.

3) The test finds some extra or missing material, but it is not the cause of the problems. Our genes and chromosomes vary in a similar way to hair and eye colour. We call this natural variation and it means that the change found is not connected with the person’s problems. It may be that we have found the same change in a healthy parent. We all have a few harmless genetic changes – this is part of what makes us all unique.

4) The test has found something but we are not sure what the result means. Sometimes when extra or missing material has been found in a patient, this particular change has never been seen before and the scientists need to do further tests to try and work out what this means. It may be that we have to say at present we don’t know whether or not the result is connected with the problems the patient has. More information may become available in the future as we test more people. It may be more difficult to interpret a result if parental samples are not available.

Unexpected findings

Occasionally when we do this kind of testing we find things that we were not expecting. For example, we could find out that a person is missing an important gene which protects against cancer later in life. It wouldn’t necessarily mean that person would get cancer but it would be important to be aware of.

These types of things could also be found on testing parental samples. In the unlikely event that an unexpected result is found your doctor will explain and discuss this with you.

When will I receive the result?

The results take somewhere between 8 to 12 weeks to become available although in some cases results may take longer for technical reasons. The time varies depending on the amount of interpretation required by the laboratory and whether further samples are required to complete the analysis.

Who will give me the result?

If the test was arranged by a genetics doctor then they will arrange to give you the results either by phone, letter or in a clinic appointment.

If the test was arranged by a children’s doctor (paediatrician) then they will give you the initial results. If a change is identified or the results are difficult to interpret they may refer you to a genetics doctor at that stage.

For more information

If the test was arranged by a children’s doctor please contact them with any queries in the first instance. If the test was arranged by the clinical genetics department please contact us using the details on the front of this leaflet.