Microarray - Parental Information

Children's Services

Introduction

The purpose of this document is to provide information about the test so that you can decide whether it is right for your child.

What are Chromosomes?

Chromosomes are **the structures in each cell of human body which carry the genetic information (DNA) that tells the body how to develop and function.** They come in pairs, one from each parent, and are numbered 1 to 22. Each person has another pair of chromosomes, called the sex chromosomes. Girls have two X chromosomes, whereas boys have an X and a Y chromosome

Cytogenetic (chromosome) testing can detect if there **is too much (gain) or too little (loss)** of chromosomes. People with changes in their DNA may have an increased risk of birth defects, developmental delay, behavioural problems and intellectual disability.

What is Karyotyping?

Chromosomes cannot be seen with the naked eye but if they are stained and magnified under a microscope it is possible to see that each one has a distinctive pattern of light and dark bands that look like horizontal stripes. By looking at your child's chromosomes in this way, often referred to as **karyotyping**, it is possible, if the change is **large enough,** to see if there is a chromosome imbalance (loss or gain of chromosome material) or if the chromosome is rearranged in any way. However, if **the amount of material gained (duplicated) or lost (deleted) is too small, it may not be detected by the above test.**

What is Microarray (CGH)?

Array CGH is a significant advance in technology that allows detection of chromosome imbalances that are **too small to be detected by karyotyping.** The Array CGH compares your child's DNA with a control DNA sample and identifies differences between the two sets of DNA. This determines **any missing (deletions) or extra copies (duplications) in your child's DNA.** Recent studies have shown that around 20 per cent of children with unexplained learning and/or developmental disability will have chromosome changes that could not be detected by conventional chromosome analysis but can be detected through microarray.

The prevention of infection is a major priority in all healthcare and everyone has a part to play.

- **Please decontaminate your hands frequently for 20 seconds using soap and water or alcohol gel if available**
- **If you have symptoms of diarrhoea and/or vomiting, cough or other respiratory symptoms, a temperature or any loss of taste or smell please do not visit the hospital or any other care facility and seek advice from 111**
- **Keep the environment clean and tidy**
- **Let's work together to keep infections out of our hospitals and care homes.**

What samples are needed for array CGH testing?

Array CGH can be performed on a blood sample from your child, or from stored DNA from previous tests.

How long do the results take?

Results are usually available in **6-8 weeks.** Depending on the results we may refer you to a clinical geneticist.

What are the advantages of array CGH?

- All 46 chromosomes can be examined in a **single test**
- **More sensitive and accurate** than conventional karyotyping
- A diagnosis from array CGH may avoid your child having to undergo many other tests
- It can reveal which specific genes are included in the deletion or duplication

What are the benefits to my child of array CGH testing?

- It may help you and your doctor **monitor and watch for common health problems** associated with your child's chromosome imbalance
- It may help to **predict what to expect** as your child gets older
- It may show which specific genes are included in your child's deletion or duplication. If the gene(s) has been associated with a particular feature or health problem it may help **to guide management or treatment for your child**
- It can help you to **obtain specialist services** for your child
- You can choose to **join a support group** to meet other parents facing similar challenges
- Parents and other **family members can be tested** to see if they are carriers of changes in their DNA that put them at risk of having more children with a chromosome change

Are there any alternatives?

What are the limitations of array CGH?

- **Some chromosome or DNA changes cannot be detected by array CGH** (for example very tiny changes to the DNA or balanced rearrangements that do not result in any loss or gain of DNA material or changes in the genetic code of single genes)
- It may identify chromosome changes known as c**opy number variants** (CNVs). These changes are common in the general population and are often completely harmless. But sometimes a CNV can affect health or development. CNVs can make interpreting a microarray CGH difficult **so the parents may need to be tested to help interpret the results**
- Sometimes a CNV can be unrelated to your child's problems at the time of testing, but may have **implications for his/her future health or the health of other family members**. This will be discussed by your local paediatrician or geneticist

Will array CGH change my child's treatment?

Array CGH **offers a genetic explanation** of the learning or developmental difficulties that affect your child but does not necessarily lead directly to immediate improved treatment. However, if a gene or a region of a chromosome that is associated with a specific clinical feature has been shown to be either duplicated or deleted in your child, this may have an **impact on your child's care** or it may give you **an indication of health problems to watch out for** that may occur with your child's chromosome disorder.

What if an array CGH test does not detect a chromosome imbalance in my child?

An array CGH test will only detect a chromosome change in 25 per cent of those children who are tested (compared with 5 per cent who have a chromosome change that would have been detected using conventional chromosome analysis). So for every hundred children who have an array CGH test, 75 children will receive a 'normal' test result - a chromosome imbalance will not have been detected. Your doctor will be able to discuss this outcome and advise whether other tests may be appropriate for your child. In this case, the geneticist would discuss if any additional screening might be recommended for your child.

This leaflet has been adapted from Unique-for further information about microarray, please refer www.rarechromo.org

Contact details or further information/links

English

If you need information in another way like easy read or a different language please let us know.

If you need an interpreter or assistance please let us know.

Lithuanian

Jeigu norėtumėte, kad informacija jums būtų pateikta kitu būdu, pavyzdžiui, supaprastinta forma ar kita kalba, prašome mums apie tai pranešti.

Jeigu jums reikia vertėjo ar kitos pagalbos, prašome mums apie tai pranešti.

Polish

Jeżeli chcieliby Państwo otrzymać te informacje w innej postaci, na przykład w wersji łatwej do czytania lub w innym języku, prosimy powiedzieć nam o tym.

Prosimy poinformować nas również, jeżeli potrzebowaliby Państwo usługi tłumaczenia ustnego lub innej pomocy.

Punjabi

ਜੇ ਤੁਹਾਨੂੰ ਇਹ ਜਾਣਕਾਰੀ ਕਿਸੇ ਹੋਰ ਰੂਪ ਵਿਚ, ਜਿਵੇਂ ਪੜ੍ਹਨ ਵਿਚ ਆਸਾਨ ਰੂਪ ਜਾਂ ਕਿਸੇ ਦੂਜੀ ਭਾਸ਼ਾ ਵਿਚ, ਚਾਹੀਦੀ ਹੈ ਤਾਂ ਕਿਰਪਾ ਕਰਕੇ ਸਾਨੂੰ ਦੱਸੋ।

ਜੇ ਤੁਹਾਨੂੰ ਦੁਭਾਸ਼ੀਏ ਦੀ ਜਾਂ ਸਹਾਇਤਾ ਦੀ ਲੋੜ ਹੈ ਤਾਂ ਕਿਰਪਾ ਕਰਕੇ ਸਾਨੂੰ ਦੱਸੋ।

Romanian

Dacă aveți nevoie de informații în alt format, ca de exemplu caractere ușor de citit sau altă limbă, vă rugăm să ne informați.

Dacă aveți nevoie de un interpret sau de asistență, vă rugăm să ne informați.

Traditional Chinese

如果您需要以其他方式了解信息，如易读或其他语种，请告诉我们。

如果您需要口译人员或帮助，请告诉我们。

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