Genomic Diagnostics

LEADING THE WAY TO IMPROVE HEALTH

Your Parentage DNA Test Results Explained

FACT SHEET

Overview

Parentage DNA testing can be performed to determine if a father/child relationship exists. It determines the amount of DNA shared between the people tested and how common or rare these genetic markers are in the general population. Testing looks for matches between the DNA profiles to determine how likely a man is to be the father of a particular child, or if paternity is excluded.

After your cheek swab samples have been received at our laboratory, DNA testing is performed, which includes the extraction of DNA contained in the sample followed by the analysis of specific areas on the DNA called genetic test markers. The genetic test markers are listed in the results table on the report under the heading "Genetic Test Marker". At each of these genetic test markers, a person will have two numbers in the results table which indicate the sizes of the two DNA fragments measured during testing. Each person will have two sets of DNA fragments at each genetic test marker, one is inherited from a person's biological mother and the other is inherited from their biological father.

When determining paternity we look at whether or not the child is sharing one of their DNA fragments with their biological mother and the other with the tested father.

Example Results

In Table 1 at the genetic test marker D8S1179, you can see that the child has inherited the 14 from their mother and the 15 from the tested father. When a child shares a DNA fragment with a parent then the parent is "included" at that genetic marker.

Similarly in Table 2 when only a child and father is tested you can see that the child has inherited the 18 from the tested father, so the father is "included" at that genetic marker.

In Table 3, you can see that the child has inherited the 14 from their mother but the child also has a 15 which is not shared with the tested father so the tested father would be "excluded" at the genetic test marker D21S11.

In Table 4, when only a child and father are tested you can see that the child has a 14 and 18 but the tested father has a 15 and 16, therefore the child and tested father do not share any DNA fragments and the tested father would be "excluded" at that genetic test marker D21S11.

Table 1. **Inclusion (Mother, Child, Father)**

Genetic Test Marker	Mother	Child	Tested Father
D8S1179	13, 14	14, 15	15, 18

Table 2. **Inclusion (Child, Father)**

Genetic Test Marker	Child	Tested Father
D8S1179	13, 18	18, 19

Table 3. **Exclusion (Mother, Child, Father)**

Genetic Test Marker	Mother	Child	Tested Father
D21S11	13, 14	14, 15	13, 17

Table 4. **Exclusion (Child, Father)**

Genetic Test Marker	Child	Tested Father
D21S11	14, 18	15, 16

Results

The two possible result outcomes in a DNA Parentage test report are:

Inclusion of Paternity – The tested man is accepted as the biological father. A man is "included" as the biological father of a child when he shares a DNA fragment with the child at **all** of the genetic markers tested (see examples in Tables 1 and 2).

A statistical calculation is then performed to show how likely it is that the tested man is the biological father of the child compared to a man chosen at random from the population. This calculation is called the Paternity Index and is based on how common or rare the shared DNA fragment is in the population. Since each child will inherit a different combination of DNA fragments from their biological parents the Paternity Index will be different for each child. The Paternity Index on the report will be at least 1000 but is often much higher than this. For example, if the Paternity Index is 100,000, this means that the tested man is 100,000 times more likely to be the biological father of the child than any man chosen at random from the population.

The Paternity Index is also expressed as a percentage on the report (called the Relative Chance of Paternity), this is the probability of paternity and will be at least 99.9%. The Relative Chance of Paternity can never be 100% as we have not tested every man in the population.

Exclusion of Paternity – The tested man is NOT the biological father of a child. A report that states that a man is not the biological father will show **at least** 3 genetic test markers that do not match between the father and child (see examples in Tables 3 and 4).

The certainty of a paternity exclusion result is 100%. Please note that men who are not the biological father of a child may match at some (but not all) of the genetic test markers due to chance, in the same way that two people might share the same eye or hair colour and not be related.

Why Genomic Diagnostics?

- One all-inclusive testing price with no hidden extras
- Experienced Australian testing laboratory operating since 1998
- Highly skilled Customer Care Team who take the time to listen and determine the best solution for you
- Team of qualified scientists providing accurate and credible results
- Accredited to international standard ISO 17025 by NATA (National Association of Testing Authorities, Australia) ensuring high quality services
- Wide range of testing performed from re-uniting disconnected biological relatives to providing evidence for legal requirements
- Authorised by the Federal Attorney General to issue reports accepted by the Family Court of Australia
- Wide range of clientele including the legal profession, such as state Legal Aid services, immigration lawyers and child safety agencies, as well as the general public
- Nationally co-ordinated service

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For more information, contact us at

1800 822 999 genomicdiagnostics.com.au PO Box 250, Heidelberg West, VIC 3081

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