Neurofibromatosis Type 1 (NF1) – OMIM 162200

Background

Neurofibromatosis is the collective name for a group of genetic conditions in which benign tumours affect the nervous system. Type 1 is caused by a genetic pathogenic variant in the *NF1* gene (OMIM 613113) and symptoms can vary dramatically between individuals, even within the same family. Some people have very mild skin changes, whereas others suffer severe medical complications caused by the symptoms. The condition usually appears in childhood and is diagnosed if two of the following are present: six or more café-au-lait patches larger than a pencil top, neurofibromas (pea-sized growths) on or under the skin, freckles under the arm or in the groin, plexiform neurofibromas (growths around large nerves), Lisch nodules (small pigmented areas in the iris of the eye) or if a close family member has NF1. NF1 affects 1 in 3000 people, irrespective of gender, race or ethnic group. The pattern of inheritance is autosomal dominant so there is a 50% chance of an affected adult having a child with the condition. However, half of all NF1 cases are 'sporadic'; there is no family history.

Recommended Clinical Referral Criteria

- Patient meets the clinical criteria with two or more of the listed symptoms (above) present
- Family history

Molecular Analysis

Variant screen: Next generation sequence (NGS) analysis of *NF1* (any gaps will be filled by Sanger sequencing) and NGS or MLPA dosage analysis of *NF1.* Data from our patient cohort (665 patients) from 2006-2018: 51% pathogenic change detected (with 7%, 46/665, MLPA detectable changes), 13% variant of unknown significance (VUS). If a whole gene deletion is found, further dosage analysis is performed on the "*NF1* area" to determine the type of deletion (type I, type II or atypical) and recurrence risk.
Family follow-up: Testing for known familial pathogenic variants in *NF1* gene

Turnaround Times (TAT)

Prices available on request, please contact the laboratory using details below.

Test	TAT (calendar days)
Test for known familial pathogenic variants in *NF1*	42 - routine 28 - priority 3 - prenatal
Dosage analysis only (*NF1*)	42
Variant screen and dosage analysis (*NF1*)	42

Contact Details

All Wales Genomics Laboratory,
Institute of Medical Genetics,
University Hospital of Wales,
Heath Park,
Cardiff CF14 4XW
Tel: 029 2074 2641
Fax: 029 2074 4043
lab.genetics@wales.nhs.uk
http://www.wales.nhs.uk/AWMGS/

Sample Requirements

Blood: 5ml in EDTA (1ml neonates/infants).
Please contact lab prior to sending a prenatal sample.

Please label samples with three identifiers and date of collection.
All samples must be accompanied by request form.
Consent for testing and DNA storage is assumed when request for test received.

Links

Orphanet
http://www.orpha.net/
OMIM
http://www.omim.org/
Genetic Test Registry
http://www.ncbi.nlm.nih.gov/gtr/
Support
www.nfauk.org
http://www.ctf.org/