Cystic Fibrosis

Contact details

Molecular Genetics Service
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Samples required

- 5ml venous blood in plastic EDTA bottles (>1ml from neonates)
- Prenatal testing must be arranged in advance, through a Clinical Genetics department if possible.
- Amniotic fluid or CV samples should be sent to Cytogenetics for dissecting and culturing, with instructions to forward the sample to the Regional Molecular Genetics laboratory for analysis
- A completed DNA request card should accompany all samples

Patient details

To facilitate accurate testing and reporting please provide patient demographic details (full name, date of birth, address and ethnic origin), details of any relevant family history and full contact details for the referring clinician

Introduction

Cystic fibrosis (MIM 219700) is an autosomal recessive condition caused by mutations in the cystic fibrosis transmembrane regulator (CFTR) gene. To date over 1000 mutations with varying frequency have been identified in this gene. The ethnic origin of the patient influences the incidence of CF in the population and the mutations most commonly identified.

Referrals

- Confirmation of diagnosis in individuals clinically suspected of having CF. A sweat test should be undertaken prior to molecular genetic analysis wherever possible.
- Testing in individuals who may have a mild variant form of CF, e.g. congenital bilateral absence of the vas deferens (CBAVD), bronchiectasis and pancreatitis.
- Carrier testing in pregnant couples with fetal echogenic bowel
- Carrier testing in individuals at increased risk (above the population risk) of having an affected pregnancy, for example a family history of CF, a partner shown to be a carrier or first cousin partnerships. Accurate carrier testing in CF families ideally requires either a sample from an affected family member or information regarding the mutations carried in the family. Without this information the extent to which we can reduce an individual's carrier risk is less than if information on family mutations is available.
- In accordance with UK genetic testing guidelines carrier testing is only exceptionally undertaken in minors.

Prenatal testing

Prenatal testing is available for couples in whom specific mutations have been identified - please contact the laboratory to discuss.

Service offered

32 mutation screen and the partially penetrant intron 8 polyT mutation in cases referred for CFTR-related disease such as confirmed CBAVD, bronchiectasis and pancreatitis as well as CF referrals where the p.Arg117His mutation has been detected. Linked marker analysis is available in families where we are unable to identify a mutation in a clinically affected individual; this relies on the clinical diagnosis and sample availability from the affected individual and appropriate family members.

Technical

The mutation detection system in use in this laboratory is a kit based oligonucleotide ligation assay (OLA). As only 32 of the most commonly identified mutations are covered by this analysis failure to identify a mutation cannot exclude affected/carrier status, a residual risk to the individual is therefore calculated and reported wherever possible. In the North European population this system detects approximately 90% of cystic fibrosis mutations. Information regarding the ethnic origin of the patient is important for calculation of residual risk as the mutation spectrum, and hence the detection rate of the assay used, varies in different populations.

Target reporting time

2 weeks for routine analysis of the 32 mutations. Please contact the laboratory if urgent or prenatal testing is required.