Early Infantile Epileptic Encephalopathy (EIEE)

Contact details

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Samples required

- 5ml venous blood in plastic EDTA bottles (>1ml from neonates)
- 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

The early infantile epileptic encephalopathies (EIEE) are a group of disorders characterized by early onset seizures and developmental delay. Many are associated with intractable seizures, severe developmental delay and require lifelong care. Early mortality is common amongst severely affected individuals due to seizures and/or respiratory tract infections.

An increasing number of individual genetic disorders are now recognised to cause EIEE. In only a small subset of the disorders is the clinical phenotype sufficiently recognisable or distinctive to allow targeted testing of specific genes.

The annual incidence of EIEE has recently been estimated as approximately 27/100,000.

Referrals

- Patients with EIEE **and** insufficient clinical features to target gene testing to a single gene. **A completed proforma must accompany all referrals** (https://www.labs.gosh.nhs.uk/media/529300/severe_delay_-_seizure_panel_pre-test_proforma_2014.doc).
- Mutation testing can be offered to the relatives of EIEE patients once a disease causing mutation has been identified.

Service offered

Next generation sequencing of 45 genes (see list below) with mutation confirmation by Sanger sequencing.

List of genes included in panel

ADSL; ALG13; ARHGEF9; ARX; ATP1A3; ATRX; CDKL5; CHD2; CHRNA2; CHRNA4; CHRNB2; CNTNAP2; EHMT1; FOXG1; GABRB3; GRIN2A; GRIN2B; KCNQ2; KCNT1; KIAA1279; LGI1; MAGI2; MBD5; MECP2; MEF2C; NRXN1; PCDH19; PLCB1; PNKP; POLG; PRRT2; SCN1A; SCN2A; SCN8A; SIP1 [ZEB2]; SLC16A2; SLC25A22; SLC2A1 [GLUT1]; SLC9A6; SPTAN1; STXBP1; SYNGAP1; TBC1D24; TCF4; UBE2A; UBE3A

Technical

Mutation screening is carried out by next generation sequencing with library preparation using a Sure Select XT custom kit followed by sequencing on the Illumina MiSeq. Data is analysed using an in-house pipeline with all mutations confirmed by Sanger sequencing.

Target reporting time

4 months for a full mutation screen in an index case (next generation sequencing).

2 weeks for familial mutation testing.

Please contact the laboratory for urgent cases.