Molecular Genetics Service Profile
Spondyloepiphyseal dysplasia congenita (SEDC)

Introduction

◊ SEDC (MIM 183900) is an autosomal dominant skeletal dysplasia, presenting at birth with shortening of the trunk and, to a lesser extent, of the extremities. Common clinical features include cleft palate and severe myopia with vitreous degeneration. The neck is short, the chest barrel-shaped with often kyphoscoliosis of the back. The hands and feet are relatively normal.

◊ Radiographically, the condition is characterized by platyspondyly and shortening of the tubular bones with predominant epiphyseal involvement. Typical radiographic features at birth include ovoid or pear-shaped vertebral bodies and absent ossification of pubis, talus, calcaneus and distal femoral epiphyses.

◊ Related skeletal dysplasias are spondyloepimetaphyseal dysplasia (SEMD) Strudwick type and spondyloperipheral dysplasia. Clinically and radiographically indistinguishable from SED congenita during infancy, SEMD Strudwick type differs in childhood by the more pronounced metaphyseal involvement (dappled metaphyses). Distal limb involvement with brachydactyly is characteristic for spondyloperipheral dysplasia.

◊ SEDC, SEMD Strudwick type and spondyloperipheral dysplasia are caused by dominant mutations in the type II collagen gene (*COL2A1*) on 12q13 (Spranger J *et al*, 1994; Tiller GE *et al*, 1995; Zabel B *et al*, 1996).

Contact details for the laboratory carrying out the genetic test for SEDC
Center for Medical Genetics Ghent (CMGG) Ghent University Hospital Medical Research Building (MRB), 2nd floor De Pintelaan 185, B-9000 Ghent, Belgium. ***http://medgen.ugent.be***
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Reasons for referral

◊ Mutation analysis in patients for confirmation of a clinically/radiographically suspected diagnosis of SEDC. Screening for unknown mutations is labour intensive, therefore we cannot accept urgent referrals of this type.

◊ Prenatal diagnosis may be relevant, and can be offered by our laboratory on prior arrangement. However, we strongly recommend that this should only be offered within the context of genetic counselling. The mutation in the parent must be known.

Samples

◊ Minimum 100μg of DNA from peripheral lymphocytes from your local laboratory. Blood samples (minimum of 5mls in EDTA) can also be sent to our laboratory by express mail (FedEx / UPS). Prenatal samples must be sent with a sample from both parents. For prenatal diagnosis: please contact our laboratory in advance.

Technical

◊ Mutation scanning of exons 1-54 of *COL2A1* by dHPLC. Fluorescent bidirectional sequencing of abnormal fragments.

Target turn-round time

◊ Mutation scanning of *COL2A1* – 3 months. Routine, single known mutation test - 4 weeks. Urgent, single known mutation test - 2 weeks. Prenatal diagnosis – 2 weeks. Turn-round times are from the receipt of all required samples and information, including appropriate clinical information and radiographs. Relevant clinical-radiographic expertise is currently offered at no cost through the use of the secure online submission system (the **ESDN Case Manager**). Testing is only performed after clinical and radiographic evidence has been reviewed using the **ESDN Case Manager**. To obtain a username and password for the **ESDN Case Manager** please email info@esdn.org.

Cost

◊ Full mutation screen - €1000.

References

◊ Spranger J *et al.* (1994). *Eur J Pediatr.* **153**: 56-65.

◊ Tiller GE *et al.* (1995). *Nat Genet* **11**: 87-89.

◊ Zabel B *et al*. (1996). *Am J Med Genet* **63**: 123-128.

ESDN Administrator contact details

◊ Email: info@esdn.org Website: www.esdn.org

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