Molecular Genetics Service Profile
Kniest dysplasia

Introduction

◊ Kniest dysplasia (MIM 156550) is an autosomal dominant skeletal dysplasia. It presents at birth with shortening of the trunk and limbs. As in spondyloepiphyseal dysplasia congenita (SEDC), myopia, cleft palate and kyphoscoliosis are common clinical features. In contrast to SEDC, the face is more flat with depressed nasal bridge and prominent eyes and the joints are often large. Progressive and painful joint enlargement is often accompanied by flexion contractures.

◊ Radiographically, Kniest dysplasia is a spondyloepiphyseal dysplasia with severe flattening and anterior wedging of the vertebral bodies. In infancy coronal clefts, especially of the lumbar vertebrae, may be observed. The tubular bones are short with widening of the metaphyses (dumbbell appearance) and small, fragmented epiphyses. The pelvis is characterized by small iliac wings, flat acetabular roofs and often coxa vara.

◊ Kniest dysplasia is caused by dominant mutations in the type II collagen gene (*COL2A1*) on 12q13 (Kuivaniemi H *et al*, 1997).

Contact details for the laboratory carrying out the genetic test for Kniest dysplasia
Center for Medical Genetics Ghent (CMGG) Ghent University Hospital Medical Research Building (MRB),
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Reasons for referral

◊ Mutation analysis in patients for confirmation of a clinically/radiographically suspected diagnosis of Kniest dysplasia. 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

◊ Kuivaniemi H *et al* (1997). *Hum Mutat.* **9**: 300-315.

ESDN Administrator contact details

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

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