

Lymphedema-Distichiasis Testing via *FOXC2* Gene Sequencing

Brief Description: Lymphedema-distichiasis (LD) Syndrome presents with Lymphedema of the lower extremities, a double row of eyelashes and a variable age of onset. Patients may present with cleft palate, extradural cysts, cardiac defects, or photophobia. Other ocular findings may include: exotropia, ptosis as well as congenital ectropion and cataracts. Additional cases of Lymphedema type II and Lymphedema with ptosis have also been linked to mutations in the *FOXC2* gene.

Genetics: LD is inherited in an autosomal dominant manner. Researchers in the laboratory of Dr. Thomas Glover at the University of Michigan (Fang et al., Am J Hum Genet. 67:1382-1388, 2000) identified mutations in the *FOXC2* (Forkhead Box C2) gene as a cause of LD Syndrome. The single exon, 1.5 kb *FOXC2* gene is a member of the 'forkhead' (or winged helix) gene family, originally identified in *Drosophila*, which encode transcription factors with a conserved 100-amino acid DNA binding motif. Dozens of different mutations have been identified in the *FOXC2* gene. This particular test involves DNA sequencing of the single *FOXC2* exon in 4 overlapping amplicons along with ~100 bases of non coding flanking DNA.

Indications for Test: Candidates for this test are patients with symptoms consistent with LD and the family members of patients with known mutations. In addition to this full gene test, PreventionGenetics also offers targeted sequencing of known familial *FOXC2* mutations.

Sensitivity of Test: In a patient with clearly clinically delineated Lymphedema-distichiasis, we estimate that the sensitivity of this test to be 90%.

SPECIMEN REQUIREMENTS

Collect 2-5 ml of whole blood in EDTA (purple top tube) or ACD (yellow top tube). 5 ml is the preferred volume.

Whole blood collected in Na Heparin is acceptable but not preferred.

Ship whole blood specimens at ambient temperature. Do not freeze blood tube.

During hot summer months, include a frozen ice pack in the shipping container. Do not allow the ice pack to come in direct contact with the specimen tubes. In winter, include an unfrozen ice pack to help moderate extremes in temperature. The DNA in whole blood is stable for at least 48 hours at 21°C, 5-7 days at 4°C.

Sequential exon sequencing of the <i>FOXC2</i> gene	\$390.00
Molec Diag, Ascertainment	83890
Molec Diag, Isolation	83891
Molecular Diag, Amplif x 4	83898
Mutat Id By Seq, Single Seg x 4	83904
Molecular Diag, Separation	83894
Interpretation And Report	83912

Single exon sequencing for the presence of previously identified mutations in the *FOXC2* gene is also available for \$230.

Accreditation Info. CLIA ID #: 52D1027685 (expires 1/18/07) (CAP#: 7185561, AU ID: 1407125 expires 12/20/06)

Ship to:

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