

Noonan Syndrome Testing via *PTPN11* Gene Sequencing

Noonan syndrome (NS) is a dysmorphic syndrome with a number of distinctive characteristics. Noonan syndrome patients can present with short stature; congenital cardiac anomalies; broad or webbed neck; epicanthic folds, deafness, and characteristic facies. Also seen are an unusual chest shape with superior pectus carinatum, inferior pectus excavatum, apparently low-set nipples; a variable developmental delay, and cryptorchidism. Varied coagulation defects and lymphatic dysplasias are frequently observed. Congenital heart disease occurs in greater than 50% of NS individuals. Final adult height approaches the lower limit of normal. Mild mental retardation is seen in up to one third of NS patients however most do well in a normal educational setting, with perhaps 10-15% requiring special education. Clinical diagnosis of NS is made by observation of the key features outlined above.

NS is inherited in an autosomal dominant manner. Children with a Noonan syndrome parent have a 50% chance of inheriting the syndrome. Mutations in the gene *PTPN11* have been identified in ~50% of patients. Sequencing for all 15 *PTPN11* exons is available and is done at PreventionGenetics in a cost effective, sequential manner, with exons 3 and 8 sequenced first. Approximately 75% of the *PTPN11* mutations associated with Noonan's Syndrome are seen in these 2 exons. If exons 3 and 8 are negative, we go on to sequence the remaining exons again using a logical approach, next screening exons 2, 4, 7, 13 bringing the detection rate up to ~90%, followed by the remaining exons if needed. Our mission is to deliver reliable results as rapidly as possible while keeping costs down. In addition we offer exon specific screening to confirm known familial mutations in additional family members.

A positive report listing a documented causative *PTPN11* mutation indicates only the potential for the development of NS. In addition, a negative report does not rule out other causative mutations in unscreened / non-coding regions of the *PTPN11* gene, in other known NS susceptibility genes, or in other as yet undefined genes that may contribute to NS Susceptibility.

PreventionGenetics is working closely with the Noonan Syndrome Support Group, Inc. on making this test more accessible to the NS patient population. There is a 10% price discount for Support group members. People interested in this test are encouraged to contact the Noonan Syndrome Support Group for more information (www.noonansyndrome.org) phone: 888-686-2224.

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.
- Only one blood tube is required for multiple tests.
- Ship whole blood specimens at room temperature.
- Do not freeze blood.
- During hot weather, include a frozen ice pack in the shipping container. Do not allow the ice pack to come in direct contact with the specimen tube.
- In cold weather, 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.

Sequence analysis of the *PTPN11* gene exons 3 and 8 **\$350.00**

If negative then:

Sequence analysis of the *PTPN11* gene exons 2, 4, 7, and 13 **an additional \$300.00**

If negative then: **(for a total of \$650.00)**

Sequence analysis of the remaining nine *PTPN11* gene exons **an additional \$300.00**
(for a total of \$950.00)

Molec Diag, Ascertainment **83890**

Molec Diag, Isolation **83891**

Molecular Diag, Amplif **83898**

Mutat Id By Seq, Single Seg **83904**

Molecular Diag, Separation **83894**

Interpretation and Report **83912**

Turnaround time is ~2- 4 weeks

Single exon screening for the presence previously identified mutations in the *PTPN11* gene will also be provided for **\$210.00**.

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

Ship to:

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