FACTOR IX (F9) SEQUENCE ANALYSIS

BloodCenter of Wisconsin offers
direct DNA sequencing for the entire Factor IX (F9) coding sequence.

BACKGROUND:
Hemophilia B is an X-linked inherited bleeding disorder caused by mutation of the F9 gene that encodes for coagulation factor IX. The degree of plasma factor IX deficiency correlates with both the clinical severity of disease and genetic findings. Severe hemophilia B is characterized by plasma factor IX levels of under 1 IU/dl. Moderate and mild hemophilia B is characterized by factor IX levels of 1-5 IU/dL or 6 – 40 IU/dL, respectively. Approximately 97% of cases are attributable to point mutations and 3% to deletions and duplications. Sequence analysis of the F9 gene is useful for identification of the underlying genetic defect in males with hemophilia B and for determination of carrier status in the female individuals within their families.

REASONS FOR REFERRAL:
- Diagnosis of Affected Individuals
- Female Carrier Detection
- Prenatal Diagnosis

METHOD:
PCR-direct DNA sequencing.

REFERENCE INTERVAL:
Normal - None Detected
Abnormal - Presence of mutation or sequence variation.

LIMITATIONS:
Analytical sensitivity is >99% for mutations within the coding sequence and intron/exon borders. Mutations that are outside the regions sequenced will not be detected. Rare polymorphisms within primer or probe regions may interfere with detection of gene variants. Clinical sensitivity for hemophilia B is > 99% for males and 97% for females. Deletions will be detected in males by lack of amplification of exons; deletions will not be detected in carrier females. Duplications are not detected.

SPECIMEN REQUIREMENTS:
5 ml EDTA (lavender top) whole blood, 2 ml minimum, shipped at room temperature. A sample from an affected family member is highly recommended. Testing can also be performed on 7-15 ml amniotic fluid or 2 x 10^6 cultured amniocytes. Please inquire about specific requirements for the analysis of prenatal samples by calling 1-800-245-3117, ext. 6250.

PO Box 2178
Milwaukee, WI 53201-2178
Location/Sample Deliveries:
638 N. 18th St. Milwaukee, WI 53233-2121
p800-245-3117 | f414-937-6202 | www.bcw.edu

SHIPPING REQUIREMENTS:

Place the specimen and the completed test requisition in plastic bags, seal and insert in a Styrofoam container. Seal the container and place in a sturdy cardboard box and tape securely. Ship the package in compliance with your overnight carrier guidelines. Notify the laboratory prior to shipping by calling 800-245-3117, ext. 6250. Address package to:

Client Services/Molecular Diagnostics Laboratory
BloodCenter of Wisconsin
638 N. 18th Street
Milwaukee, WI 53233
800-245-3117, ext. 6250

TURNAROUND TIME: 21 days

CPT CODES: 81238

REFERENCES:

1. Bajaj SP, Thompson AR. Molecular and structural biology of factor IX. In: Colman RW, Hirsh J, Marder VJ, Clowes AW, George JN, eds. Hemostasis and Thrombosis: Basic Principles and Clinical Practice. 5 ed. Philadelphia: Lippincott-Raven; 2006:131-50.

2. Ludlam CA, Pasi KJ, Bolton-Maggs P, Collins PW, Cumming AM, Dolan G, Fryer A, Harrington C, Hill FG, Peake IR, Perry DJ, Skirton H, Smith M. A framework for genetic service provision for haemophilia and other inherited bleeding disorders. Haemophilia. 2005;11:145–63.

3 Sommer SS, Scaringe WA, Hill KA. Human germline mutation in the factor IX gene. Mutat Res. 2001;487:1–17.

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