EGL Genetics | Eurofins Clinical Diagnostics

2460 Mountain Industrial Boulevard •Tucker, GA 30084
Tel 470.378.2200 • Toll Free 1.855.831.7447 • Fax: 470.378.2250

NY Informed Consent – Fragile X Syndrome Analysis

NOTE: Please obtain patient signature on consent form and provide a signed copy to EGL Genetics to permit testing and processing.

I, (name)_____, voluntarily request of EGL Genetics to perform DNA-based testing for Fragile X in myself/my child (child's name _____) in an attempt to determine whether I/my child am a carrier of a disease gene or at increased risk to be affected by a genetic condition. The following points were explained and I understand that:

- The purpose of this analysis is to test for Fragile X syndrome, a hereditary (X-linked) form of intellectual disability. This test can identify affected individuals, female premutation carriers and females at risk for Premature Ovarian Insufficiency, and individuals at risk for Fragile X-associated tremor/ataxia syndrome.
- This is a genetic (DNA-based) test performed by PCR and Southern Blotting. These methods are used to quantify the size of the CGG repeats in the 5' untranslated region of the *FMR1* gene.
- DNA testing requires a blood sample, cheek or mouth swab, muscle or skin biopsy, all of which have risks associated with obtaining the sample. Additional samples may be needed if the sample is damaged in shipment or inaccurately submitted. In order to perform accurate prenatal testing, samples from the affected individual, parents, or additional family members may be required.
- DNA-based studies performed are specific to the condition indicated above. The accuracy of genetic testing is limited by the methods employed, the clinical diagnosis, and the nature of the specific condition for which testing is requested. In some cases, the test will detect an abnormality, called a mutation, in the gene. In other cases the test is unable to identify an abnormality although an abnormality may still exist. This event may be due to the current lack of knowledge of the complete gene structure or an inability of the current technology to identify certain types of changes (mutations) in a gene. These tests are currently available for clinical laboratory testing; however, improvements will be made as scientific knowledge advances. As with any complex genetic test, there is always a small possibility of a failure or error in sample analysis. Extensive measures are taken to try to avoid these errors. The methods are not 100% accurate due to the possibility of rare genetic variations in the DNA of an individual or due to the complexity of the testing itself. A low error rate, approximately 1 in 1000 samples, is generally estimated to exist in a laboratory.
- Possible diagnostic errors include sample mix-ups, genotyping errors, rare genetic variants that interfere with analysis, and other sources. These analyses may not detect pathogenic variants in the promoter or other regulatory regions. Sequence analysis will not detect large deletions and duplications. Deletion/duplication analysis will not detect point mutations or some intronic mutations.
- It is the responsibility of the referring physician or health care provider to understand the specific use and limitations of the testing ordered, and to educate the patient regarding these limitations. Additional information describing indications, methodology and detection can be found on the EGL website at: https://www.egl-eurofins.com/
- Accurate interpretation of test results is dependent upon the patient's clinical diagnosis or family medical history and upon reported family relationships being true biological relationships. An erroneous clinical diagnosis in the patient or family member can lead to an incorrect interpretation in the laboratory result. Genetic testing in family members can sometimes reveal that true biological relationships are not consistent with the reported biological relationships. For example, non-paternity may be detected, which means that the stated or assumed father of an individual is not the true biological father.
- This analysis can have the following outcomes:
  - Positive:
    - When a full mutation (>200 repeats) is found in a woman, there is a 50% chance of her having an affected male offspring.
    - When a full mutation is found in a male, there is an almost 100% chance of Fragile X syndrome.
    - A woman with an allele with 55-200 repeats ("premutation") has an increased risk for having affected male children with greater than 200 repeats.
    - Women with "premutation" alleles have a higher risk for premature ovarian insufficiency.
  - Negative:
    - A woman with an allele in the intermediate region (45-54 repeats), has an increased risk for having children with a premutation allele. These children are not at risk for Fragile X syndrome.
    - A female or male with <45 repeats is considered to not be at risk and is negative for the disease.

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- Approximately 1% of cases of *FMR1*-associated intellectual disability are due to mutations that cannot be detected by this test. Other testing such as sequencing and deletion/duplication of the *FMR1* gene might be warranted.
- Due to the complexity of DNA testing and potential implications of test results, results will be reported directly to the patient's ordering provider, who will then review and discuss the test results with me. Patient-identifying results and information at EGL will remain confidential and may only be released to other parties with my expressed written consent or as permitted or required by applicable law.
- Samples received from the State of New York for genetic testing will not be stored indefinitely or used for research purposes unless otherwise specified. Extracted DNA for NY samples and other clients with opt out policies will be discarded according to laboratory policy. Please contact EGL Genetics for details.
- I can request that remaining DNA be retained and used for research purposes by initialing here: _____
  - EGL is not a DNA banking facility and does not guarantee the future availability of isolated DNA. Requests for additional studies must be ordered by the referring provider, and charges will be incurred. Once the test is complete, identifying information may be removed as permitted by the Health Insurance Portability and Accountability Act ("HIPAA"). Remaining DNA samples may also be used for EGL's laboratory/internal purposes as permitted by HIPAA; these samples will not be available for future clinical studies.
  - Scientific knowledge is continuing to advance in this area. I request and authorize EGL to notify the ordering provider if there is a research study or clinical trial studying the abovementioned condition or a drug, treatment or device which might assist in the patient's care. I understand EGL may receive remuneration for those activities. The ordering provider will discuss the information that he/she receives with me, and it is my voluntary decision whether to participate. My decision will not affect the testing or results in any way.

My signature below acknowledges my voluntary participation in this test and I state that I have been appropriately counseled about the testing process and the different possible outcomes.

_____ _____ _____

Patient/Guardian Signature Printed Name Date

Physician/Counselor/Clinician Statement:

I have explained DNA testing to the patient/parent/guardian. The consent form and limitations of genetic testing were reviewed with the patient/parent/guardian. I accept responsibility for pre- and post-test genetic counseling. I will use my independent professional judgment and the patient's best interests in advising the patient/parent/guardian regarding DNA test results, the use and limitations of same, and any research study, clinical trial, drug, treatment or device brought to my attention by EGL or others.

_____ _____ _____

Healthcare Provider Signature Printed Name Date