

## INFORMED CONSENT FOR WHOLE EXOME SEQUENCING (WES)

The purpose of this form is to guide the consent process and to supplement the pre-test counseling discussion. This test is voluntary; it is your choice to have this test or not. You are encouraged to ask any questions about this test, including questions about alternative testing.

### PURPOSE OF WES

- To identify genetic cause(s) of the patient's health issues.

### DESCRIPTION OF THE TEST PROCESS

- This genetic test examines most of the genes in the body at one time. This test is different from most genetic tests that analyze only one gene at a time.
- This test requires a small sample of blood from the patient. The laboratory will isolate DNA from this sample(s). The DNA that determines the composition of most of the proteins that the body makes will be isolated and analyzed.
- The laboratory will compare the patient's DNA sequence and that of other family members if applicable, to the expected DNA sequence.
- The laboratory will use clinical information and family history to decide which of the hundreds of genetic changes identified are likely to be responsible for the patient's signs and symptoms.
- The laboratory will report the genetic changes likely to be associated with the patient's signs and symptoms to the referring physician.
- All variants included in the written report will be confirmed by a second test methodology.

### LIMITATIONS OF WES TECHNOLOGY

- This test does not sequence every exon. Approximately 85-92% of the exons are sequenced by this test.
- This test does not sequence every exon well enough to find all mutations in each exon.
- WES detects only single base pair changes or small additions or deletions of DNA. This test does not detect other types of mutations.
- It is important to have reliable clinical information and an accurate family history in order to interpret results from WES correctly. WES testing is more likely to find a genetic cause of a patient's disease when several family members are analyzed at the same time.
- Approximately 25% of patients receive a diagnosis or suspected diagnosis from this test.
- WES results typically do not predict severity or age of onset of a particular condition.

### POTENTIAL RISKS OF WES

- No laboratory test, including WES, is 100% accurate.
  - A suggested genetic diagnosis may be incorrect.
  - The patient's true diagnosis may not be discovered by this test.
  - The patient may receive uncertain results.
- This test may reveal that the biological relationships in a family are not what they seem.

### WHAT IS REPORTED

- Genetic changes that may have caused the patient's signs and symptoms.
- Genetic changes found in genes unrelated to the patient's condition, but which may have an important impact on health, unless you decide that you do not want this information. Please see the section on secondary findings for further discussion.
- Genetic changes identified in family members and related to the patient's signs and symptoms will be included in the patient's report. Family members will not receive separate written reports.

### WHAT IS NOT REPORTED

- Variants in genes that are not thought to affect one's health.
- Variants identified in research studies and whose relationship with disease is unclear.
- Variants that predict an increased risk of a disease, but do not cause a disease by themselves.

## SECONDARY FINDINGS

WES may find some genetic changes that are not related to the patient's current signs and symptoms (secondary findings). However, these findings may have important health implications for patients and their family members. For example, the American College of Medical Genetics and Genomics recommends that all labs that perform WES report mutations in 59 genes that cause certain inherited disorders. These disorders may lead to serious health problems that can be monitored or effectively treated. These disorders include some cancer syndromes, connective tissue disorders associated with sudden cardiac events, certain types of heart disease, high cholesterol and susceptibility to complications from anesthesia. On the other hand, some types of genetic disorders do not have any effective treatment and may lead to death or lifelong disability. Secondary findings can be included in the patient's report. We will not seek or report these findings if you tell us that you do not want these types of results. If you choose to receive these results, the patient's report will include this information on mutations that are found in the proband for all family members who submit blood samples. Please initial one of the following options (Adult patient or parent/ guardian of minor child must initial):

\_\_\_\_\_ Option I: I choose to receive results about any genetic disorders that may affect my/my child's health now or in the future.

\_\_\_\_\_ Option II: I choose not to receive results about any genetic disorders that are likely unrelated to my or my child's current signs and symptoms. I understand that I will not have access to these results later.

## CONFIDENTIALITY

- The laboratory will report test results to the physician or health care provider who ordered the test.
- The laboratory will not give test results to other individuals without your written permission.
- The written report is expected to become part of the patient's medical record. The patient's health insurance provider or other parties may have legal access to this information.

## FUTURE OF THE DATA

- The laboratory will store any remaining sample(s) for two years, and may discard those samples after two years.
- The laboratory will store the test report for 20 years.
- The laboratory will store the information on a secured computer that can only be accessed by specified personnel.
- The laboratory may contact your physician should new information become available about the findings of this test that could affect the patient's medical care.

## POST-TEST COUNSELING AND INTERPRETATION

It is recommended that patients seek genetic counseling before signing this consent and at the time final results are available. If you would like to find a genetic counselor near you, please ask your doctor to refer you to a genetic counselor or visit [www.nsgc.org](http://www.nsgc.org). Signing this document indicates that the test and its limitations have been explained to you.

I acknowledge that I have discussed the benefits, risks, and limitations of this genetic test with my physician or genetic counselor. I consent to whole exome sequencing. I will receive a copy of this consent form for my records.

Signature: \_\_\_\_\_

(Adult patient or parent(s) or guardian of minor child)

Witnessed by: \_\_\_\_\_

Date: \_\_\_\_\_

Note: Both parents must sign above if they, in addition to their child, are submitting specimens for analysis. Only one parent or guardian must sign if child's sample is submitted without parental samples.

Physician's/Genetic Counselor's statement: I have explained whole exome sequencing to this individual. I have addressed the limitations of the test and have answered all stated questions. I understand that interpretation of these results within a clinical context is ultimately my responsibility.

Signature: \_\_\_\_\_