Patient Informed Consent for Genetic Testing – International – Hereditary Cancer

Effective Date —**September 29, 2016**

IMPORTANT – HEALTHCARE PROFESSIONALS: The U.S. Testing Laboratory will only accept ANONYMIZED samples and test requisitions using the following anonymization technique to protect patient identity and comply with certain cross border transfer rules.

- The ordering healthcare professional must: a) anonymize all samples and test requisitions USING AN ALPHANUMERIC PATIENT IDENTIFIER before transfer to the U.S. testing laboratory; b) retain a signed copy of this Consent and NOT provide a copy to the testing laboratory; and c) NOT use the patient's name, address, email or other contact information when communicating with the laboratory.
- Sample collection kits containing non-anonymized information will be rejected and destroyed in 60 days from date of collection by the testing laboratory.
- The ordering health care provider must also represent the patient using only the anonymized patient identifier to the U.S. lab's client Services department should the patient want to revoke consent or exercise any other patient right in the below genetic testing consent or the lab's Notice of Privacy Practices at www.pathway.com.

Consent for Cross Border Data Transfer of Limited Personal Data: **I understand that use of this genetic testing service requires the following consent prior to the transfer of any personal information to servers located in the U.S. This consent is voluntary and the alternative is to not choose to participate in this genetic testing.**

When a healthcare provider orders genetic testing, I CONSENT TO THE SAMPLE AND LIMITED PERSONAL INFORMATION BEING SENT TO A UNITED STATES ("U.S.") BASED LABORATORY, Pathway Genomics Corporation ("Pathway"), FOR HEALTH CARE TESTING AND ANALYSIS. I understand:

- The limited personal information collected on my test requisition may include gender, date of birth, ethnicity, and current medicines, but will not include name, address, phone number, email address or other contact information. I understand I can request to review the test requisition and review the limited personal data collected that is associated with an anonymized patient identifier and required for accurate analysis and due to lab regulations.
- I understand I should verify that my healthcare provider uses an anonymized patient identifier on the sample and test requisition before transfer to Pathway's U.S. laboratory. I also understand that sample collection kits that do not comply with the above HEALTH CARE PROVIDER INSTRUCTIONS will be rejected and destroyed within 60 days from date of collection by the lab, which will notify my health care provider to resubmit another sample. This anonymization technique is used to protect the personal data collected to comply with cross-border data transfer rules.
- This anonymization technique is used because certain countries in which I may be a resident consider the U.S. data protection laws as not being equivalent to their laws in protecting the personal information of, and providing certain rights, including judicial redress for, their residents compared to their laws.
- I understand I can request to see my test requisition in order to review the limited personal data collected that is only associated with an anonymized patient identifier and required for accurate analysis or due to lab regulations. Although Pathway is subject to strict confidentiality and security controls, I understand the ordering provider will not be "accountable" for the information, once transferred. I understand this specific consent expires in one year.
- As indicated in the laboratory consent below, I may revoke this consent by notifying the ordering health care professional and providing instructions to stop the processing of my sample and personal data prior to receipt by the laboratory, or stop the issuance of my results report after receipt by the lab and prior to report issuance, and/or opt-out from medical research if I did not choose so when I originally consented.

_____ _____

Signature of Patient or Legally Authorized Representative | Signature Date

The accuracy of the genetic testing and reporting methods have been determined and verified to meet required regulatory performance standards by the testing laboratory, a fully licensed, CAP certified, and CLIA (U.S. government) accredited laboratory.

I understand the following information regarding the general purpose, meaning and benefits of testing

- I understand my specimen is being tested for genetic variations. Depending upon the specific genetic testing ordered by the healthcare professional on the testing laboratory's requisition form, I understand my specimen is being tested for my genetic makeup related only to my inherited cancer risk related to the tested genes. Many cancers are not inherited but occur during a person's lifetime which is why continuing regular prevention activities is important. I understand what Pathway includes in its reports is determined at Pathway's discretion.

I understand that the results from genetic testing for hereditary cancer may help a qualified healthcare professional and me learn more about my susceptibility to certain cancers and how I may reduce my cancer risk through screening and medical management. I understand that there are several types of results that can be generated including:

- Pathogenic variant detected – A pathogenic variant could be identified in my genetic makeup that is associated with an increased risk of hereditary cancer. Knowing this information may help me and my healthcare professional make more informed choices about my healthcare, including screening and a medical management based on what is known about the gene(s) in which a variant was found and the cancer associated with it.
- Likely pathogenic variant detected - A likely pathogenic variant could be identified in my genetic makeup that could be associated with an increased risk of hereditary cancer. Knowing this information may help me and my healthcare professional make more informed choices about my health care, including screening and medical management based on what is known about the gene(s) in which a variant was found and the cancer associated with it.

- No variants detected – No significant variant is identified in my genetic makeup. If no one in my family, including me, has ever had cancer, I still have at least the same risk of cancer as does a person in the general population. I may still be at greater than average risk for hereditary cancer due to a genetic predisposition that cannot be detected by this test, either in the gene(s) I am tested for or in another gene linked to hereditary cancer.
- Variant of uncertain pathogenicity detected – A variant of uncertain pathogenicity could be detected. This type of change may or may not be associated with an increased risk for cancer. I understand I may have at least the same risk of cancer as the general population, and may still be at greater than average risk due to a genetic predisposition that cannot be detected by this test. As clinical or scientific information evolves, I understand that I may receive updated information about the interpretation of my results.

I understand the general risks and limitations of testing.

- Genetic testing should not be used as a substitute for treating and diagnosing conditions, or the provision of health care services by a physician or other qualified healthcare professional.
- Genes are one of many things that may contribute to development of cancer. Other factors, such as exposures to cancer-causing substances, diet, personal and family medical history and lifestyle or behavioral choices, also contribute to risk for the development of cancer.
- The existence of a pathogenic or other significant variant does not mean I will develop cancer. The lack of variants does not mean I will not develop cancer. For some cancers, genetic causes have not been determined. The severity of the symptoms may vary from person to person.
- Cancer can appear to "run in families", even though it may not be caused by a pathogenic variant detectable by this test. This could, for example, be caused by a shared environment or lifestyle, such as tobacco use.
- Familial follow-up testing: I understand that if I have a gene variant associated with an increased risk for cancer, my relatives can be tested to see if they have inherited the same variant as me. Pathway offers such testing.
- Even if a variant is present in a family, it does not mean that everyone in the family inherited this variant. The pattern of inheritance can be explained by a genetic counselor or qualified healthcare professional. Understanding this can help me and my family members prepare for varying and complicated outcomes. I understand that a genetic counselor or other qualified healthcare professional can help me consider the pros and cons of speaking first with family members before being tested to find out if they want to know my results. I understand that sometimes family secrets, such as paternity, adoptions, or other difficult issues may come up.
- This testing may not provide informative results for other reasons, such as: (1) non-genetic factors; (2) individual genetic variation; (3) insufficient scientific information about the relationship of genetic information and health outcomes; and (4) various laboratory and non-laboratory technical reasons, and (5) incomplete gene sequence information.
- Saliva or blood specimens are used for testing. Side effects of having blood drawn are uncommon, but may include dizziness, fainting, soreness, pain, bleeding, bruising, and, rarely, infection.
- Other risks that may be experienced as a result of this testing include: unjustified alarm and/or false reassurance that can discourage preventive measure, related emotional issues, impact on life-changing decisions, potential genetic discrimination (e.g., in employment and insurance areas) and loss of confidentiality. The testing results and information may become part of my permanent medical record and may be available to individuals and organizations with legal access to such records.

I understand that it is strongly recommended that I obtain pre-testing and post-testing counseling from someone professionally trained in cancer genetics to consider the purpose, meaning, risks, benefits, and limitations of, as well as any alternatives to, genetic testing in my particular situation, including my personal and family medical history. Counseling may be provided by a genetic counselor, advanced practice oncology nurse, doctor and other qualified healthcare professional. Pre-test counseling may help me better prepare to receive the test results and allow for advance consideration of medical options and the impact test results may have on myself and my family members. Post-test counseling provides a valuable opportunity to understand the medical interpretations of detected variants, the psychological risks and benefits of learning my genetic test results, how families inherit cancers and the risk of passing an inherited variant on to my children, options for additional independent testing, and the importance of continuing regular cancer surveillance and prevention activities, among other things.

I understand that if testing results are inconclusive that I may be asked for an additional specimen(s). This Consent is effective for any such additional specimen(s).

Informed Consent Acknowledgement

My consent below also indicates:

- I understand written English sufficiently well enough, I have read and understood the front and back of this Consent, all of my questions have been answered to my satisfaction, and I agree to have the testing completed.
- I have reached 18 years of age or older AND/OR otherwise have the legal authority to provide this Consent and authorization for genetic testing, under all applicable laws.
- I understand that I can receive a copy of this Consent.

- I understand the testing laboratory may use my anonymized DNA and clinical information in medical research studies and for publication, if appropriate, unless I opt-out by initialing below. I understand that my name or other personally identifiable information will not be used in or linked by the testing laboratory to the results of any studies and publications.

_____ (**initial to opt-out) I do NOT consent** to the use of my extracted DNA sample and clinical information for anonymous medical research purposes. I understand this is deemed useful by Pathway Genomics and explained in this Consent.

_____ _____

Signature of Patient or Legally Authorized Representative Signature Date

Check one:	☐ Self	☐ Parent	☐ Legal Guardian	☐ Durable Power of Attorney for Health Care

I understand the following information about confidentiality and disclosure of my personal information:

- My personal information and test results are anonymized and confidential. While there can be no guarantee of privacy, reasonable safeguards have been established to protect it. This information and the test results will be released by the ordering healthcare professional who may release the testing results to me and anyone else I may authorize. This information and the results may also be disclosed if required by law, such as in response to a subpoena.
- The information and the results may also be disclosed if required by law, such as in response to a subpoena.
- I understand that I share this information with anyone, I am responsible for any compromise of confidentiality that may result from such sharing.
- The original sample may be securely stored for sixty (60) days from the date of collection and any remaining isolated DNA may be securely stored in accordance with applicable laws, regulations and standards. After such storage, the specimen(s) and the isolated DNA will be properly destroyed in accordance with applicable laws and regulations and the testing laboratory's standard operating procedures.

I understand the following regarding specimens for Medical Research Purposes: I understand that, unless I opt-out, as checked above, that I am authorizing that my DNA extracted from my original specimen may be retained up to 10 years by Pathway Genomics as deemed useful for medical research purposes to develop new genetic tests. I understand that to protect my identity: all resulting research data will be recorded, handled, and stored using the unique identifier. My name will be unavailable to any member of the research team and my identity will not be released or disclosed to others outside of Pathway Genomics. No compensation will be given me nor will I be owed any funds due to any invention(s) resulting from research and development using my specimen(s). I may refuse to submit my specimen for use in this way and this will not affect my results. Unless I indicate in the front page that I do not consent to anonymous medical research, I understand that my specimen(s) may be used in this manner.

I understand I may withdraw my consent: Under CLIA regulations, Pathway Genomics cannot destroy medical records. However, at my request to the ordering health care professional and providing instructions through such healthcare professional to Pathway Genomics, Pathway Genomics can: a) destroy my DNA specimen(s) at the next regularly scheduled destruction cycle, b) delete my account, and c) move all medical information, including results report(s), into a into a secure, offline storage area with limited access. This means my account and results report(s) will not be searchable in Pathway Genomics systems by regular means and I, and my healthcare professional, will not be able to obtain a copy of my account information and results report(s) from Pathway Genomics. A request to withdraw my consent must be made through the ordering healthcare professional to Pathway Genomics' Client Services (see phone number under "Questions" below).

I understand that if testing is inconclusive that I may be asked by my health care professional for an additional saliva specimen(s). This Consent is effective for any such additional specimen(s).

I understand that I may discuss alternatives to undergoing genetic testing, such as regular laboratory testing and physical examination, with a healthcare professional or a genetic counselor.

I understand the importance of discussing the purpose, meaning, benefits, risks and limitations of this testing, as well as any alternatives, with a genetic counselor or other qualified healthcare professional and of having my pre-testing questions answered.

If a minor will be tested, I understand the following: While genetic report information may be similar for adults and minors, the consequences of genetic testing of minors are relatively new and less well understood. Genetic experts recommend that the psychological and social risks and benefits of early identification of genetic issues from the perspective of the parent/guardian and minor be carefully considered and include genetic counseling when discussing adult-onset disorders.

Questions: If I have further questions about this testing, I understand that I can either contact a genetic counselor, other qualified healthcare professional, or my provider of the laboratory's genetic testing services.

