HENRY FORD HEALTH
CENTER FOR PRECISION DIAGNOSTICS

Hereditary Multi-Cancer Risk Assessment Panel (55 genes)

This panel is a comprehensive 55-gene analysis that identifies inherited risks for hereditary cancers across several major organ systems including cancers of the breast, ovary, uterus, prostate, and gastrointestinal systems.

Testing Method and Background

This test utilizes **Next Generation Sequencing (NGS) technology,** which provides coverage of all coding exons and noncoding DNA in exon flanking regions (on average 50 bp) enriched using hybrid capture methodology. This assay can detect >99% of described mutations in the included genes, when present, including single nucleotide variants (point mutations), small insertions/deletions (1-25 bp), larger deletions and duplication (<100 bp), complex insertions/deletions, splice site mutations, whole-gene deletions/duplications and exon-level intragenic deletions/insertions in each gene targeted for analysis. All reportable copy number variants are confirmed by independent methodology.

Inherited genetic mutations in BRCA1 and BRCA2 account for about 20 to 25% of hereditary breast cancers and about 5 to 10% of all breast cancers. In addition, mutations in BRCA1 and BRCA2 genes cause around 15% of ovarian cancers. This panel also includes genes responsible for very rare hereditary cancer syndromes, such as Lynch syndrome (MLH1, MSH2, MSH6, PMS2, or EPCAM), familial adenomatous polyposis (APC, MUTYH), Juvenile polyposis syndrome (BMPR1A, SMAD4), Li-Fraumeni syndrome (TP53), Cowden syndrome (PTEN), hereditary diffuse gastric cancer (CDH1), Peutz-Jeghers syndrome (STK11), neurofibromatosis type I (NF1), Tuberous sclerosis complex (TSC1, TSC2), Von Hippel-Lindau syndrome (VHL), multiple endocrine neoplasia (MEN1, RET), and hereditary paraganglioma-pheochromocytoma syndromes (MAX, SDHAF2, SDHB, SDHC, SDHD, TMEM127). These syndromes have been associated with increased lifetime risk for multiple cancer types, including breast, ovarian, pancreatic, neuroendocrine, and colorectal cancer, and are also characterized by other clinical features specific for each syndrome. In addition, this panel includes several other genes associated with hereditary predisposition to breast, colorectal, neuroendocrine, renal and/or pancreatic cancer (ATM, BRIP1, CHEK2, CDK4, CDKN2A, DICER1, FH, KIT, NBN, PALB2, RAD51C, RAD51D).

Highlights of the Hereditary Multi-Cancer Risk Assessment Panel

Targeted Region

Genes: *APC, ATM, AXIN2, BAP1, BARD1, BMPR1A, BRCA1, BRCA2, BRIP1, CDH1, CDK4, CDKN2A, CHEK2, DICER1, EPCAM, FH, FLCN, GREM1, HOXB13, KIT, MAX, MEN1, MET, MITF, MLH1, MLH3, MSH2, MSH3, MSH6, MUTYH, NF1, NTHL1, PALB2, PDGFRA, PMS2, POLD1, POT1, PTEN, RAD51C, RAD51D, RB1, RET, SDHA, SDHAF2, SDHB, SDHC, SDHD, SMAD4, SMARCA4, STK11, TMEM127, TP53, TSC1, TSC2, VHL.*

- **Wide-ranging Coverage of Variants**
  Detects and provides coverage of all coding exons and noncoding DNA in exon flanking regions.
- **Accurate Results Using Clinically Validated Computational Data Analysis**
  A variety of mutation types (point, indels and duplications) are confirmed using computational data analysis for sequence variant calling, filtering and annotation.

Ordering Information

Get started (non-HFHS): Print a Hereditary Cancer Panels requisition form online at www.HenryFord.com/HFCPD

Get started (HFHS): Order through Epic using test " Hereditary Multi-Cancer Risk Assessment Panel (55 genes)" (DNA2100026)

Specimen requirements:

- Peripheral Blood - 1-3ml in lavender top tube (EDTA) **Specimen stability: Ambient - 72 hours; Refrigerated - 1 week**
- Extracted DNA - from a CLIA-certified Laboratory

Cause for Rejection: Clotted, hemolyzed, or frozen specimens, improper anticoagulant, tubes not labeled with dual patient identification, non-dedicated tubes.

TAT: 10-14 business days (after Prior Authorization obtained)

Mail test material to:
Henry Ford Center for Precision Diagnostics
Pathology and Laboratory Medicine
Clinic Building, K6, Core Lab, E-655
2799 W. Grand Blvd., Detroit, MI 48202

CPT Codes: 81432, 81433, 81435, 81436, 81437, 81438, G0452

Contact us: Client Services, Account and Billing Set-up, and connect with a Molecular Pathologist at (313) 916-4DNA (4362)

For more information on Comprehensive Molecular Services, visit our website www.HenryFord.com/HFCPD

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