About the Tests

FoundationOne®Germline and FoundationOne®Germline More are next-generation sequencing (NGS)-based laboratory-developed tests designed to identify inherited genetic variants associated with hereditary cancer syndromes. These tests help guide risk assessment, clinical management, and potential targeted therapy selection for individuals with a personal and/or family history suggestive of hereditary cancer.

FoundationOne Germline: A 50-gene panel targeting clinically actionable hereditary cancer risk genes.

FoundationOne Germline More: A 154-gene expanded panel that includes clinically actionable and emerging cancer risk genes for patients requiring a broader risk assessment.

These tests are intended for use by qualified healthcare professionals to assess hereditary cancer predisposition based on clinical and family history. Results should be interpreted in conjunction with clinical findings.

Analytical Performance

CHARACTERISTIC	ANALYSIS
Methodology	Hybrid-capture next generation sequencing (NGS)
Coverage	≥99% of targeted exonic regions at ≥50x depth
	Intronic coverage +/- 20 base pairs
	Deletion/Duplication detection as low as single exon resolution
Specificity and Sensitivity	Single Nucleotide Variants (SNVs): Sensitivity 99%, Specificity 99%
	Copy Number Variants (SNVs): Sensitivity >97%, Specificity >99%
	Insertions/Deletions (Indels): Sensitivity >97%, Specificity >99%
Reported Variants	Pathogenic, likely pathogenic, and variants of unknown significance (VUS)
Orthogonal Confirmation *(if required)*	Sanger sequencing and long-range PCR for selected variants, MLPA/qPCR for CNVs*
Reference Genome	GRCh37

* Orthogonal confirmation includes MLPA (Multiplex Ligation-dependent Probe Amplification), qPCR (Quantitative Polymerase Chain Reaction) and long-range PCR

Both offerings also include analysis for the following regions/alterations of interest:

- *BRCA2* Portuguese founder mutation
- *MSH2* Boland inversion
- *PMS2* pseudogene resolution when applicable
- *CDKN2A*: p14ARF and p16 protein products
- Interrogation of promoter regions in select genes, such as: *GREM1, PTEN, TERT, TP53*

Gene Lists →

FoundationOne Germline Gene List (50 genes)

APC	*BRIP1*	*GREM1*	*MSH2*	*POLD1*	*SDHB*	*TSC2*
ATM	*CDH1*	*HOXB13*	*MSH3*	*POLE*	*SDHC*	*VHL*
AXIN2	*CDKN1B*	*MAX*	*MSH6*	*PTEN*	*SDHD*	
BAP1	*CDKN2A*	*MBD4*	*MUTYH*	*RAD51C*	*SMAD4*	
BARD1	*CHEK2*	*MEN1*	*NF1*	*RAD51D*	*STK11*	
BMPR1A	*EPCAM*	*MET*	*NTHL1*	*RET*	*TMEM127*	
BRCA1	*FH*	*MLH1*	*PALB2*	*RNF43*	*TP53*	
BRCA2	*FLCN*	*MLH3*	*PMS2*	*SDHA*	*TSC1*	

FoundationOne Germline More Gene List (154 genes)

ABRAXAS1	*CDKN2A*	*EXO1*	*HRAS*	*PALB2*	*RET*	*TERT*
AIP	*CEBPA*	*EXT1*	*IKZF1*	*PALLD*	*RHBDF2*	*TGFBR1*
AKT1	*CEP57*	*EXT2*	*KIF1B*	*PAX5*	*RNF43*	*TINF2*
ALK	*CHEK2*	*EZH2*	*KIT*	*PDGFRA*	*RPS20*	*TMEM127*
ANKRD26	*CTC1*	*FAN1*	*LZTR1*	*PHOX2B*	*RUNX1*	*TP53*
APC	*CTNNA1*	*FANCA*	*MAX*	*PIK3CA*	*SAMD9L*	*TRIP13*
ATM	*CTRC*	*FANCB*	*MBD4*	*PMS2*	*SBDS*	*TSC1*
ATR	*CYLD*	*FANCC*	*MEN1*	*POLD1*	*SDHA*	*TSC2*
AXIN2	*DDB2*	*FANCD2*	*MET*	*POLE*	*SDHAF2*	*TYR*
BAP1	*DDX41*	*FANCE*	*MITF*	*POLH*	*SDHB*	*VHL*
BARD1	*DICER1*	*FANCF*	*MLH1*	*POT1*	*SDHC*	*WRAP53*
BLM	*DIS3L2*	*FANCG*	*MLH3*	*PRKAR1A*	*SDHD*	*WRN*
BMPR1A	*DKC1*	*FANCI*	*MRE11*	*PRSS1*	*SLC45A2*	*WT1*
BRCA1	*EGFR*	*FANCL*	*MSH2*	*PTCH1*	*SLX4*	*XPA*
BRCA2	*EGLN1*	*FANCM*	*MSH3*	*PTCH2*	*SMAD4*	*XPC*
BRIP1	*ELANE*	*FH*	*MSH6*	*PTEN*	*SMARCA4*	*XRCC2*
BUB1B	*ENG*	*FLCN*	*MUTYH*	*RAD50*	*SMARCB1*	
CASR	*EPCAM*	*GALNT12*	*NBN*	*RAD51C*	*SMARCE1*	
CDC73	*ERCC1*	*GATA2*	*NF1*	*RAD51D*	*SPINK1*	
CDH1	*ERCC2*	*GEN1*	*NF2*	*RB1*	*SRP72*	
CDK4	*ERCC3*	*GPC3*	*NHP2*	*RECQL*	*STK11*	
CDKN1B	*ERCC4*	*GREM1*	*NOP10*	*RECQL4*	*SUFU*	
CDKN1C	*ERCC5*	*HOXB13*	*NTHL1*	*REST*	*TERC*	

Limitations

This test detects germline (inherited) variants but does not assess for somatic alterations. Variants outside targeted exonic regions and deep intronic variants (>20bp from exon) may not be detected. Copy-neutral structural rearrangements (e.g., translocations) are not detected. Some variants, such as those in pseudogene regions, may require additional orthogonal confirmation. A negative result does not exclude hereditary cancer predisposition, as there may be undetected variants in genes not included in the panel or detectable by the test.

For more details, visit: www.foundationmedicine.com/test/germline-testing

Regulatory Disclaimer

FoundationOne®Germline and FoundationOne®Germline More are laboratory developed tests that were developed, and their performance characteristics determined by Fulgent Genetics. FoundationOne Germline and FoundationOne Germline More have not been cleared or approved by the U.S. Food and Drug Administration.

For clinical and technical support, contact: 1-877-204-4319 or FMISupport@fulgentgenetics.com

FoundationOne®Germline and FoundationOne®Germline More are laboratory developed tests that were developed, and their performance characteristics determined by Fulgent Genetics. FoundationOne Germline and FoundationOne Germline More have not been cleared or approved by the U.S. Food and Drug Administration. Specimen specifications are provided by Fulgent and are subject to change.

FOUNDATION MEDICINE®

www.foundationmedicine.com | Tel 888.988.3639 | Fax 617.418.2290 | US-F1G-2500012