myome | atlas™ PLUS
CURATED SCREEN™

Technical Overview: Atlas Curated Screen*

A proactive risk screening tool that uses whole-genome sequencing (WGS) to detect a range of variant types underlying 40+ health conditions. This test produces a genomic dataset that MyOme can re-query as healthcare needs change.

Clinical Use

This test is intended for a wellness screening of germline heritable conditions in individuals from an asymptomatic population. MyOme annotates and interprets variants according to American College of Medical Genetics (ACMG) guidelines,[1] and reports pathogenic or likely pathogenic variants. Results may assist with risk assessment, support a clinical diagnosis, and inform a personalized management strategy in conjunction with standard clinical assessment.

Sample Types

- Blood (2 EDTA tubes)
- Buccal (2 swabs)

Turnaround Times

- Most results are delivered **5–6 weeks** from the day all samples are received.**
- Follow-up testing or re-requisitions are typically completed in under **1 week**.

**Turnaround times are provided as estimates and begin once sample(s) are processed at MyOme. Turnaround times may be extended in cases outside of MyOme's control, including delays related to confirmation testing or other unforeseen circumstances.

Methods

Genomic DNA obtained from submitted samples is sequenced using Illumina technology and reads are aligned to the human genome reference assembly GRCh38.p14. A high-coverage (mean 30X) PCR-free whole-genome library is constructed and sequenced with 2x150 bp paired-end reads. In-house pipeline analysis identifies single-nucleotide variants (SNVs), small insertions and deletions (indels), and copy number variants (CNVs). Variant interpretation is conducted by qualified scientists based on ACMG guidelines.

151 Genes Analyzed

PLUS (PR21037)

Gene Inclusion Criteria

Genes included in this test were chosen using MyOme's rigorous framework that prioritizes variants based on clinical validity, actionability, penetrance/prevalence and feasibility.

Gene List

ABCD1, ACTA2, ACTC1, ACTN2, ACVRL1, APC, APOB, ATM, ATP7B, BAG3, BAP1, BARD1, BMPR1A, BMPR2, BRCA1, BRCA2, BRIP1, BTD, CACNA1C, CACNA1S, CALM1, CALM2, CALM3, CASQ2, CAV1, CDH1, CDK4, CDKN1B, CDKN2A, CHEK2, COL3A1, COL5A1, COL5A2, CRYAB, CSRP3, DES, DICER1, DMD, DSC2, DSG2, DSP, EGFR, EMD, ENG, EPCAM, F2, F5, F9, FBN1, FH, FHL1, FLCN, FLNC, G6PD, GAA, GCH1, GDF2, GLA, GREM1, HAMP, HFE, HJV, HMBS, HNF1A, HNF1B, HOXB13, JUP, KCNE1, KCNH2, KCNJ2, KCNQ1, KIT, LAMP2, LDLR, LDLRAP1, LMNA, LZTR1, MAX, MEFV, MEN1, MET, MITF, MLH1, MSH2, MSH3, MSH6, MUTYH, MYBPC3, MYH11, MYH7, MYL2, MYL3, MYLK, NF1, NF2, NTHL1, OTC, PALB2, PCSK9, PDGFRA, PKP2, PLN, PMS2, POLD1, POLE, POT1, PRKAG2, PRKG1, PROC, PROS1, PTEN, RAD51C, RAD51D, RB1, RBM20, RET, RPE65, RYR1, RYR2, SCN5A, SDHAF2, SDHB, SDHC, SDHD, SERPINA1, SERPINC1, SLC40A1, SMAD3, SMAD4, SMAD9, STK11, TFR2, TGFB2, TGFB3, TGFBR1, TGFBR2, TMEM127, TMEM43, TNNC1, TNNI3, TNNT2, TP53, TPM1, TRDN, TSC1, TSC2, TTN, TTR, VCL, VHL, WT1

Condition-Gene Relationship Table

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Test Performance[2]

- 30x average genome-wide coverage
- >99.5% of exonic regions at ≥10x depth
- >99.5% ClinVar P/LP variants covered at ≥10x
- >99% sensitivity for SNVs and indels
- 98% sensitivity for benchmark CNVs >1 kb

Included in Report

- Analysis of SNVs, indels and CNVs (deletions and duplications)
- Orthogonal confirmation of P/LP variants (e.g., by Sanger sequencing)
- Actionable recommendations

*This test was previously offered as "Single-Gene Risk" under MyOme Proactive Health.

1. American College of Medical Genetics and Genomics. ACMG SF v3.2 list for reporting of secondary findings. *Genet Med.* 2023;25(8):100866. doi:10.1016/j.gim.2023.100866. 2. MyOme Inc. Data on file.

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Condition-Gene Relationship Table

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Cancer

CONDITION	GENE
BAP1-related tumor predisposition syndrome	*BAP1*
Birt-Hogg-Dube syndrome	*FLCN*
CDH1-related diffuse gastric and lobular breast cancer syndrome	*CDH1*
DICER1-related tumor predisposition	*DICER1*
Familial adenomatous polyposis	*APC, MSH3*
Familial ovarian cancer	*BRIP1, PALB2, RAD51C, RAD51D*
Gastrointestinal stromal tumor	*KIT, PDGFRA*
Hereditary breast cancer	*ATM, BARD1, CHEK2, PALB2*
Hereditary breast and ovarian cancer	*BRCA1, BRCA2*
Hereditary leiomyomatosis and renal cell cancer	*FH*
Hereditary mixed polyposis syndrome (HMPS)	*GREM1*
Hereditary nonpolyposis colon cancer	*ATM*
Hereditary paraganglioma-pheochromocytoma syndrome	*MAX, SDHAF2, SDHB, SDHC, SDHD, TMEM127*
Juvenile polyposis syndrome	*BMPR1A*
Juvenile polyposis with hereditary hemorrhagic telangiectasia	*SMAD4*
Li-Fraumeni syndrome	*TP53*
Lynch syndrome	*EPCAM, MLH1, MSH2, MSH6, PMS2*
Melanoma	*CDK4, MITF*
Melanoma-pancreatic cancer syndrome	*CDKN2A*
Multiple endocrine neoplasia	*CDKN1B, MEN1, RET*
MUTYH-associated polyposis	*MUTYH*
Neurofibromatosis type 1	*NF1*
Neurofibromatosis type 2	*NF2*
Non-small cell lung carcinoma	*EGFR*
NTHL1-deficiency tumor predisposition syndrome	*NTHL1*
Papillary renal cell carcinoma	*MET*
Peutz-Jeghers syndrome	*STK11*
Polyposis and colorectal cancer	*POLD1, POLE*
POT1 tumor predisposition	*POT1*
Prostate cancer	*HOXB13*
PTEN hamartoma tumor syndrome	*PTEN*
Retinoblastoma	*RB1*
Schwannomatosis	*LZTR1*
Tuberous sclerosis complex	*TSC1, TSC2*
Von Hippel-Lindau syndrome	*VHL*
WT1-related Wilms tumor	*WT1*

Cardiovascular Conditions

CONDITION	GENE
Arrhythmogenic right ventricular cardiomyopathy	*DES, DSC2, DSG2, DSP, JUP, PKP2, PLN, TMEM43*
Brugada syndrome	*SCN5A*
CACNA1C-related disorders	*CACNA1C*
Catecholaminergic polymorphic ventricular tachycardia	*CALM1, CALM2, CALM3, CASQ2, RYR2, TRDN*
Danon disease	*LAMP2*
Dilated cardiomyopathy	*ACTC1, BAG3, DES, FLNC, LMNA, MYH7, RBM20, SCN5A, TNNC1, TNNI3, TNNT2, TPM1, TTN, VCL*
Ehlers-Danlos syndrome, vascular type	*COL3A1*
Emery-Dreifuss muscular dystrophy	*EMD, FHL1, LMNA*
Fabry disease	*GLA*
Familial hypercholesterolemia	*APOB, LDLR, LDLRAP1, PCSK9*
Familial thoracic aortic aneurysm and dissection	*ACTA2, MYH11, MYLK, PRKG1, SMAD3, TGFB2, TGFB3*
Hereditary transthyretin-related amyloidosis	*TTR*
Hypertrophic cardiomyopathy	*ACTC1, CSRP3, MYBPC3, MYH7, MYL2, MYL3, PRKAG2, TNNC1, TNNI3, TNNT2, TPM1*
Intrinsic cardiomyopathy	*ACTN2, PLN*
Loeys-Dietz syndrome	*SMAD3, TGFB2, TGFB3, TGFBR1, TGFBR2*
Long QT syndrome	*CALM1, CALM2, CALM3, KCNH2, KCNQ1, SCN5A, TRDN*
Long QT syndrome, acquired	*KCNE1*
Marfan syndrome	*FBN1*
Myofibrillar myopathy	*BAG3, CRYAB, DES, FLNC*
Progressive muscular dystrophy	*DMD*
Short QT syndrome	*KCNH2, KCNJ2, KCNQ1*

Other

CONDITION	GENE
Acute intermittent porphyria	*HMBS*
Adrenoleukodystrophy	*ABCD1*
Alpha-1 antitrypsin deficiency	*SERPINA1*
Biotinidase deficiency	*BTD*
Ehlers-Danlos syndrome, classic type	*COL5A1, COL5A2*
Familial Mediterranean fever	*MEFV*
G6PD deficiency	*G6PD*
GTP cyclohydrolase I deficiency	*GCH1*
Hemophilia B	*F9*
Hereditary antithrombin deficiency	*SERPINC1*
Hereditary hemochromatosis	*HAMP, HFE, HJV, SLC40A1, TFR2*
Hereditary hemorrhagic telangiectasia	*ACVRL1, ENG, GDF2, SMAD4*
Hereditary thrombophilia, protein C deficiency	*PROC*
Hereditary thrombophilia, protein S deficiency	*PROS1*
Malignant hyperthermia	*CACNA1S, RYR1*
Monogenic diabetes	*HNF1A, HNF1B*
Ornithine transcarbamylase deficiency	*OTC*
Pompe disease	*GAA*
Pulmonary arterial hypertension	*BMPR2, CAV1, GDF2, SMAD9*
RPE65-related retinopathy	*RPE65*
Thrombophilia	*F2, F5*
Wilson disease	*ATP7B*