

Sanford Chip Medically Actionable Predisposition (MAP) Conditions



An increased chance to develop a disease can be inherited, or passed down through families. This is called a predisposition. Genetic experts at Sanford can find out if you have certain gene changes that may put you at a higher risk to develop these conditions listed below. This test **does not identify every possible outcome.***

Inherited Cancer Risk		
Genetic Condition (Syndrome)	Genes	Areas of the Body at Increased Risk for Tumors and/or Cancer
Familial Adenomatous Polyposis [ad e-no ma-tus pol-ee-poh-sis]	<i>APC</i>	digestive system; thyroid
Hereditary Breast and Ovarian Cancer	<i>BRCA1, BRCA2</i>	breast, ovary, prostate, pancreas
Hereditary Paraganglioma Pheochromocytoma [pare-a gain glee yo-ma fee-o krow-mo sy-tow-ma]	<i>SDHD, SDHAF2, SDHC, SDHB</i>	endocrine, kidney
Hereditary Retinoblastoma [re ti no blas to ma]	<i>RB1</i>	eye (early childhood)
Juvenile Polyposis [pol-ee-poh-sis]	<i>BMPR1, SMAD4</i>	digestive system, abnormal blood vessels
Li-Fraumeni [lee fro-me-nee]	<i>TP53</i>	childhood cancers, sarcoma, breast, brain, leukemia, adrenal gland
Lynch	<i>MLH1, MSH2, MSH6, PMS2</i>	digestive system, uterus, ovary, prostate
Multiple Endocrine Neoplasia Type 1 [en-duh-krin nee-oh-pley-zhuh], Type 1	<i>MEN1</i>	parathyroid, pituitary, pancreas
Multiple Endocrine Neoplasia Type 2 [en-duh-krin nee-oh-pley-zhuh], Type 2	<i>RET</i>	rare thyroid cancer (medullary type), adrenal gland
MYH- Associated Polyposis [pol-ee-poh-sis]	<i>MUTYH</i>	digestive system polyps and cancer
Peutz-Jeghers [putz yay-gers]	<i>STK11</i>	digestive system, testes, breast, dark spots on lips
PTEN Hamartoma Tumor [ham-ar-to ma]	<i>PTEN</i>	breast, uterus, thyroid, digestive system
Tuberous Sclerosis Complex [tu ber-us skle-ro sis]	<i>TSC1, TSC2</i>	kidney, nervous system, skin
Von Hippel Lindau [von hip-puhl lin-dow]	<i>VHL</i>	kidney, eye, ear, blood vessels, adrenal gland

Inherited Risk For Heart Conditions

Genetic Condition (Syndrome)	Genes	Type of Heart Condition Risk
Arrhythmogenic Right ventricular Cardiomyopathy [ar-rith- mo-jen- ik ryt ven-trick- yoo-ler kard e-o-mi-op a-the]	<i>PKP2, DSP, DSC2, TMEM43, DSG2</i>	normal heart muscle replaced by fibrofatty and/or scar tissue, arrhythmia (irregular heartbeat)
Catecholaminergic Polymorphic Ventricular Tachycardia [kat-i-kol-uh-min-er-jik pol-eemawrf-ik ven-trik-yuh-ler tak-i-kahr-dee-uh]	<i>RYR2</i>	severe arrhythmia
Ehlers-Danlos [a lerz dan los]	<i>COL3A1</i>	connective tissue abnormality, aortic aneurysm
Familial Hypercholesterolemia [hi per-ko-les ter ol-e me-a],	<i>APOB, LDLR, PCSK9</i>	high cholesterol (most often LDL)
Hypertrophic and Dilated Cardiomyopathy [kard e-o-mi-op a-the]	<i>MYBPC3, MYH7, TNNT2, TNNT3, TPM1, MYL3, ACTC1, PRKAG2, GLA, MYL2, LMNA</i>	thickening of the heart muscle and/or enlarged and weakened ventricle
Long QT	<i>KCNQ1, KCNH2, SCN5A</i>	rapid and irregular heartbeat
Thoracic Aortic Aneurysms and Dissections [tho ra sik a yor tik an yor iz ums] [di sek shuns]	<i>FBN1, ACTA2, MYH11, TGFBR1, TGFBR2, SMAD3</i>	aortic aneurysm

Other

Genetic Condition (Syndrome)	Genes	Description
Malignant Hyperthermia Susceptibility	<i>RYR1, CACNA1S</i>	severe reaction to anesthesia
Ornithine Transcarbamylase Deficiency [or ni-then trans-car-ba-myl-ase]	<i>OTC</i>	high ammonia levels
Wilson Disease	<i>ATP7B</i>	excessive buildup of copper

*The Sanford Chip Medically Actionable Predisposition (MAP) genetic test is a **screening test**. It looks for the presence or absence of specific common gene changes (variants). It does **not identify all gene changes** that lead to one of the inherited conditions listed. The test **does not identify every possible outcome**, including a cause for personal or family history of a suspected inherited condition. If no genetic variants are identified, **it does not rule out** having any of the above conditions.

