Sanford Chip Medically Actionable Predisposition (MAP) Conditions

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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]	*APC*	digestive system; thyroid
Hereditary Breast and Ovarian Cancer	*BRCA1, BRCA2*	breast, ovary, prostate, pancreas
Hereditary Paraganglioma Pheochromocytoma [pare-a gain glee yo-ma | fee-o krow-mo sy-tow-ma]	*SDHAF2, SDHB, SDHC, SDHD*	endocrine, kidney
Hereditary Retinoblastoma [re ti no blas to ma]	*RB1*	eye (early childhood)
Juvenile Polyposis [pol-ee-poh-sis]	*BMPR1A, SMAD4*	digestive system, abnormal blood vessels
Li-Fraumeni [lee | fro-me-nee]	*TP53*	childhood cancers, sarcoma, breast, brain, leukemia, adrenal gland
Lynch	*MLH1, MSH2, MSH6, PMS2*	digestive system, uterus, ovary, prostate
Multiple Endocrine Neoplasia [en-duh-krin nee-oh-pley-zhuh], **Type 1**	*MEN1*	parathyroid, pituitary, pancreas
Multiple Endocrine Neoplasia [en-duh-krin nee-oh-pley-zhuh], **Type 2**	*RET*	rare thyroid cancer (medullary type), adrenal gland
MYH- Associated Polyposis [pol-ee-poh-sis]	*MUTYH*	digestive system polyps and cancer
Peutz-Jeghers [putz | yay-gers]	*STK11*	digestive system, testes, breast, dark spots on lips
PTEN Hamartoma [ham-ar-to ma] **Tumor**	*PTEN*	breast, uterus, thyroid, digestive system
Tuberous Sclerosis [tu ber-us skle-ro sis] **Complex**	*TSC1, TSC2*	kidney, nervous system, skin
von Hippel Lindau [von | hip-puhl | lin-dow]	*VHL*	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]	*DSC2, DSG2, DSP, PKP2, TMEM43*	normal heart muscle replaced by fibrofatty and/or scar tissue, arrhythmia (irregular heartbeat)
Brugada (brew-GAH-dah)	*SCN5A*	arrhythmia
Cathecolaminergic Polymorphic Ventricular Tachycardia [kat-i-kol-uh-min-er-jik | pol-eemawrf-ik | ven-trik-yuh-ler | tak-i-kahr-dee-uh]	*RYR2*	severe arrhythmia
Ehlers-Danlos [a lerz | dan los], **vascular type**	*COL3A1*	connective tissue abnormality, aortic aneurysm
Fabry (fa-bre)	*GLA*	thickening of the heart muscle and kidney problems
Familial Hypercholesterolemia [hi per-ko-les ter ol-e me-a],	*APOB, LDLR, PCSK9*	high cholesterol (most often LDL)
Hypertrophic and Dilated Cardiomyopathy [kard e-o-mi-op a-the]	*ACTC1, DSG2, GLA, LMNA, MYBPC3, MYH7, MYL2, MYL3, PRKAG2, TNNI3, TNNT2, TPM1*	thickening of the heart muscle and/or enlarged and weakened ventricle
Loeys-Dietz	*SMAD3, TGFBR1, TGFBR2*	connective tissue abnormality, aortic aneurysm
Long QT	*KCNH2, KCNQ1, SCN5A*	rapid and irregular heartbeat
Marfan	*FBN1*	connective tissue abnormality, aortic aneurysm
Thoracic Aortic Aneurysms [tho ra sik | a yor tik | an yor iz ums] **and Dissections** [di sek shuns]	*ACTA2, FBN1, MYH11, SMAD3, TGFBR1, TGFBR2*	aortic aneurysm

Other

Genetic Condition (Syndrome)	Genes	Description
Malignant Hyperthermia Susceptibility	*CACNA1S, RYR1*	severe reaction to anesthesia
Ornithine Transcarbamylase [or ni-then | trans·car·ba·myl·ase] **Deficiency**	*OTC*	high ammonia levels
Wilson Disease	*ATP7B*	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.

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