

PATIENT INFORMATION

First name	MI	Last name	Date of birth (MM/DD/YYYY)	If patient is deceased Date of death:	
Sex assigned at birth <input type="radio"/> Female <input type="radio"/> Male	Gender (if differs from sex assigned at birth) <input type="radio"/> Man <input type="radio"/> Non-binary <input type="radio"/> Woman <input type="radio"/> Self-described: _____		Race/Ethnicity (select all that apply): <input type="radio"/> Ashkenazi Jewish <input type="radio"/> Asian <input type="radio"/> Black <input type="radio"/> French Canadian <input type="radio"/> Hispanic <input type="radio"/> Native American <input type="radio"/> Pacific Islander <input type="radio"/> Sephardic Jewish <input type="radio"/> White <input type="radio"/> Other: _____		
Patient ID (MRN)	Email address (billing and report access after clinician releases)		Mobile Phone (patient consents to receive texts from the laboratory)		
Address		City	State/Prov	Zip/Postal code	Country
Ship a saliva kit to this patient (optional) Ship to: <input type="radio"/> Address above <input type="radio"/> Alternate address: _____					
INSURANCE INFORMATION (Provide only if applicable. Attach front and back of insurance card, clinical notes and medical records. Insurance is not accepted for patients outside the US.)					
Policyholder name		Primary insurance company name	Primary member ID #	Primary insurance phone	Prior-authorization #
Patient relationship to policyholder <input type="radio"/> Self <input type="radio"/> Spouse <input type="radio"/> Child <input type="radio"/> Other: _____		Secondary insurance company name	Secondary member ID #	Secondary insurance phone	Prior-authorization #
Medicare insurance billing only (select one): <input type="radio"/> Patient was treated as a hospital inpatient (more than a 24 hour stay) in the last 14 days <input type="radio"/> Not a hospital patient					

PROVIDER INFORMATION

Organization name			Phone		Fax		
Address		City	State/Prov	Zip/Postal code	Country		
Primary clinical contact name (if different from ordering provider)		NPI	Email address (for report access)				
Ordering provider (Pre-populate your provider list below. For each order, indicate one ordering provider by marking the checkbox before the name)							
<input type="checkbox"/>	Name	NPI	Email address (for report access)	<input type="checkbox"/>	Name	NPI	Email address (for report access)
<input type="checkbox"/>	_____	_____	_____	<input type="checkbox"/>	_____	_____	_____
Additional clinical or laboratory contacts (optional) <input type="checkbox"/> Share this order with the primary clinical contact's default clinical team (manage team online at invitae.com/signin)							
<input type="checkbox"/>	Name	Email address (for report access)		<input type="checkbox"/>	Name	Email address (for report access)	
<input type="checkbox"/>	_____	_____		<input type="checkbox"/>	_____	_____	

BILLING SELECTION

Billing selection (select one): <input type="radio"/> Self-pay (patient email required) <input type="radio"/> Institutional <input type="radio"/> Insurance, ICD-10 code(s) required: _____	PARTNERSHIP PROGRAMS Invitae partner code (if applicable): _____
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SPECIMEN INFORMATION

Specimen type: Blood **-OR-** Saliva **-OR-** DNA - source: _____ We cannot accept blood or oral specimens from patients with active hematologic malignancy, recent leukocyte transfusion, or history of bone marrow/stem cell/liver transplants. DNA must be extracted in a CLIA or other suitably certified lab and cannot be from prenatal or tumor sources. Details at: invitae.com/specimen-requirements

Specimen collection date (MM/DD/YYYY): / / For DNA, provide date retrieved from archive.

Specimen ID (IB on tube): _____

TEST SELECTION

<p>OPTION 1: SELECT AN INVITAE PANEL FROM OUR TEST CATALOG</p> <p>Select your desired tests (s) from the attached test catalog and discard any pages without a selection. -OR- Indicate test IDs below. If test IDs contain add-on codes, the original panel will also be included.</p> <table> <tr> <td>Test code</td> <td>Add-on code (optional)</td> <td>Test code</td> <td>Add-on code (optional)</td> </tr> <tr> <td><input type="text"/></td> <td><input type="text"/></td> <td><input type="text"/></td> <td><input type="text"/></td> </tr> </table> <p>AUTOMATIC REFLEX: One re-requisition is offered at no additional charge for tests within the same clinical area. Preschedule below or online. Learn more at invitae.com/re-requisition.</p> <p>Conditions for reflex: <input type="radio"/> Regardless of initial results <input type="radio"/> Only if negative (no pathogenic/likely pathogenic results)</p> <table> <tr> <td>Test code</td> <td>Add-on code (optional)</td> </tr> <tr> <td><input type="text"/></td> <td><input type="text"/></td> </tr> </table>	Test code	Add-on code (optional)	Test code	Add-on code (optional)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Test code	Add-on code (optional)	<input type="text"/>	<input type="text"/>	<p>OPTION 2: FAMILY FOLLOW-UP TESTING</p> <p>Invitae family follow-up testing is available at no additional charge for blood relatives of patients who receive pathogenic or likely pathogenic results (or approved VUS). Learn more at invitae.com/family.</p> <p>Invitae proband RQ# _____</p> <p>Relationship to proband _____</p> <p>Gene(s) _____</p> <p>Variant(s) _____</p> <p>NOTE: Invitae's family follow-up testing analyzes the variant(s) indicated above. <input type="radio"/> This report should include any variants of uncertain significance and be eligible for re-requisition. Billing information must be included above.</p>
Test code	Add-on code (optional)	Test code	Add-on code (optional)										
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>										
Test code	Add-on code (optional)												
<input type="text"/>	<input type="text"/>												

Invitae is now part of Labcorp. By signing this form, I acknowledge that the patient (or the individual authorized to make decisions for the patient) has been supplied information regarding and consented to undergo genetic testing, as set forth in Labcorp Genetics' Informed Consent for Genetic Testing (invitae.com/forms). I acknowledge that the patient has agreed that (1) for orders originating outside the US, the patient's personal information and specimen will be transferred to and processed in the US (2) Labcorp Genetics may notify the patient of clinical updates related to genetic test results (in consultation with the ordering provider) (3) Labcorp Genetics and its designees may release information concerning testing to the patient's insurer (if billing to insurance) (4) the patient is responsible for any amount the insurer does not pay or pays directly to the patient and the patient has agreed to make or pass through such payment for services rendered. I attest that I am authorized under applicable law to order this test. If required by the patient's insurer, I attest that I offered pre-test genetic counseling to the patient or authorized Labcorp Genetics to assist the patient in obtaining pre-test genetic counseling from a third party. I agree to the transfer of information from this TRF to a letter of medical necessity and/or other documentation using my name as the signature. For US ordering providers only: I consent and direct Labcorp Genetics to share my contact information with third parties who may contact me directly in connection with patient results (opt out via online portal). I have the right to opt-out of certain uses of my data, and additional rights as detailed in Labcorp Genetics' privacy policy (invitae.com/privacy/privacy-policy). If I am a delegate, I confirm I have authorization to (1) agree to all of the above and (2) sign this form and any supporting documents on behalf of the ordering provider.

Medical professional or delegate signature (required)	Date (MM/DD/YYYY)
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CONTINUE TO NEXT PAGE TO COMPLETE REASONS FOR TESTING

REASONS FOR TESTING

PERSONAL HISTORY

Is/was this patient affected or symptomatic[†]? Yes No If yes, describe briefly. Complete checklist below and attach clinical notes.
Age at diagnosis: _____

[†]Symptomatic means the patient has features or signs known or suspected to be related to the genetic testing being ordered and could include findings on physical examination, laboratory tests, or imaging.

Is there a hematological malignancy in this patient (current or history of)? Yes No

Has this patient had genetic testing before? Yes No If yes, write test results and attach the report.

PRIMARY INDICATION

Aortopathy Arrhythmia Cardiomyopathy
 Neurology Other: _____

FAMILY HISTORY

Is there a family history of disease for which the patient is being tested? Yes No
If yes, describe below and attach pedigree and/or clinical notes.

Relative's relationship to this patient	Maternal or paternal	Diagnosed condition	Age at diagnosis

REQUESTED VARIANTS (attach proband's report)

To have the presence or absence of specific variants commented on in this patient's report, provide details below (optional). For Invitae family follow-up testing see the **NOTE** below that section.

This patient's relationship to proband: Sibling Child Other: _____

Gene(s)/Variant(s): _____

CLINICAL INFORMATION CHECKLIST

Complete this **required** clinical information checklist and/or attach a clinic note if patient is/was affected or symptomatic.

IMPORTANT: Clinical information is essential for insurance billing and variant interpretation.

Clinical diagnosis

- Yes No Unknown
- Arrhythmogenic right ventricular cardiomyopathy (ARVC) / Arrhythmogenic cardiomyopathy (ACM)
 - Brugada syndrome (BrS)
 - Capillary malformation-arteriovenous malformations (CM-AVMs)
 - Catecholaminergic Polymorphic Ventricular Tachycardia (CPVT)
 - Congenital heart defect
 - Dilated cardiomyopathy (DCM)
 - Early-onset atrial fibrillation (AF)
 - Ehlers-Danlos syndrome (EDS)
 - Familial hypercholesterolemia (FH)
 - Hereditary hemorrhagic telangiectasia (HHT)
 - Hypertrophic cardiomyopathy (HCM)
 - Left ventricular noncompaction cardiomyopathy (LVNC)
 - Loeys-Dietz syndrome (LDS)
 - Long QT syndrome (LQTS)
 - Marfan syndrome
 - Progressive cardiac conduction disease (PCCD)
 - Pulmonary arterial hypertension (PAH)
 - Restrictive cardiomyopathy (RCM)
 - Short QT syndrome (SQTS)
 - Sudden cardiac arrest / Sudden unexplained death
 - Thoracic aortic aneurysm / dissection (TAAD): _____
 - Transthyretin-mediated amyloidosis (ATTR)
 - Other: _____

Aortopathy/Connective tissue disorder

- Yes No Unknown
- Aortic/Arterial aneurysm
 - Aortic/Arterial dissection – age of onset: _____
 - Aortic root dilation – age of onset: _____
 - Arachnodactyly
 - Arterial tortuosity/ectasia

- Beighton score: _____
- Bifid uvula
- Chest deformity (select all that apply):
 - Pectus carinatum Pectus excavatum
- Congenital hip dislocation
- Craniosynostosis
- Dental crowding
- Dural ectasia
- High palate
- Hollow organ rupture (select all that apply):
 - Unexplained intestinal perforation
 - Uterine rupture
 - Other: _____
- Hypertelorism
- Joint contractures:
 - Proximal? Yes No
- Joint dislocations
- Joint hypermobility (select one):
 - Generalized Severe Distal
- Mandibular defect (select all that apply):
 - Micrognathia Retrognathia
- Meets Ghent criteria
- Midface retrusion
- Mitral valve prolapse: Severe? Yes No
- Myopia
- Ocular findings (select all that apply):
 - Blue sclerae Brittle cornea
 - Ectopia lentis Retinal detachment
 - Thin cornea
- Orofacial cleft (select all that apply):
 - Cleft palate Cleft lip
- Osteoarthritis
- Pes planus
- Skin findings (select all that apply):
 - Atrophic scarring Cutis laxa
 - Skin fragility Velvety skin
 - Easy bruising Severe bruising
 - Skin hyperflexibility
 - Increased palmar wrinkling
- Spine curvature (select one):
 - Scoliosis Kyphoscoliosis Kyphosis
- Spontaneous pneumothorax
- Recurrent fractures

- Tall stature
- Other: _____

Arrhythmia/Cardiomyopathy

- Yes No Unknown
- Bradycardia
 - Conduction system disease
 - Fatty replacement of ventricular myocardial tissue
 - Heart transplant
 - Syncope
 - Torsades de pointes
 - Ventricular tachycardia
 - Other: _____

Congenital heart defect

- Yes No Unknown
- Aortic valve disease (select all that apply):
 - Bicuspid Coarctation
 - Severe disease
 - Atrial septal defect
 - Heterotaxy
 - Hypoplastic left heart
 - Patent ductus arteriosus
 - Patent foramen ovale
 - Tetralogy of Fallot
 - Ventricular septal defect
 - Other: _____

Dyslipidemias

- Yes No Unknown
- Atherosclerosis
 - Corneal arcus
 - LDL-C levels: _____
 - Stroke
 - Triglycerides: _____
 - Xanthomatosis
 - Other: _____

ECG

- Yes No Unknown
- QTc interval: _____
 - Other: _____

Echocardiogram or MRI

- Yes No Unknown
- Aortic diameter Z-score ≥ 2 – age of onset: _____
 - EF%: _____
 - LVEDD: _____
 - Max LV wall thickness: _____
 - Other: _____

HHT

- Yes No Unknown
- Arteriovenous malformation
 - Epistaxis
 - Telangiectasia
 - Other: _____

Other

- Yes No Unknown
- Angiokeratomas
 - Anhydrosis
 - Café-au-lait macules
 - Cystic hygroma
 - Downsplayed palpebral fissures
 - Elevated creatine phosphokinase (CPK/CK)
 - Hearing impairment (select all that apply):
 - Sensorineural Conductive
 - Hypotonia
 - Increased nuchal translucency
 - Intellectual disability
 - Keratoconus
 - Muscle weakness
 - Myopathy
 - Renal insufficiency
 - Short neck
 - Thromboembolism

Attach pedigree and/or include additional clinical information, known genetic variants in family

CARDIOLOGY TEST CATALOG

All tests on this form are organized by clinical area. If your order contains tests from multiple clinical areas, you will need to send a separate specimen for each clinical area. Each clinical area represents an individual billable event and report. Contact Client Services with any questions. For the full test menu, please visit [invitae.com](https://www.invitae.com).

CLINICAL AREA: CARDIOLOGY AND NEUROLOGY

Test code	Test name	# gene(s)	Gene list
Hereditary Hemorrhagic Telangiectasia and Vascular Malformations			
<input type="radio"/> 02352	Invitae Hereditary Hemorrhagic Telangiectasia and Vascular Malformations Panel	6	ACVRL1, ENG, EPHB4, GDF2, RASA1, SMAD4
Arrhythmia and Cardiomyopathy			
<input type="radio"/> 02101	Invitae Arrhythmia and Cardiomyopathy Comprehensive Panel	100	ABCC9, ACADVL, ACTC1, ACTN2, AGL, ALMS1, ALPK3, BAG3, BRAF, CACNA1C, CACNA1D, CALM1, CALM2, CALM3, CASQ2, CBL, CDH2, CPT2, CRYAB, CSRP3, DES, DMD, DNAJC19, DOLK, DSC2, DSG2, DSP, ELAC2, EMD, EYA4, FHL1, FKRP, FKTN, FLNC, GAA, GATA4, GATA5, GJA5, GLA, HCN4, HRAS, JUP, KCNE1, KCNH2, KCNJ2, KCNQ1, KRAS, LAMP2, LMNA, LZTR1, MAP2K1, MAP2K2, MRAS, MTO1, MYBPC3, MYH7, MYL2, MYL3, MYL4, MYLK3, NF1, NKX2-5, NRAS, PCCA, PCCB, PKP2, PLN, PPA2, PPCS, PPP1CB, PRKAG2, PTPN11, RAF1, RASA1, RBM20, RIT1, RYR2, SCN5A, SDHA, SGCD, SHOC2, SLC22A5, SOS1, SOS2, SPRED1, TAFAZZIN, TBX20, TCAP, TMEM43, TMEM70, TNNC1, TNNI3, TNNI3K, TNNT2, TPM1, TRDN, TRPM4, TTN, TTR, VCL
<input type="radio"/> 02101.1	Add-on preliminary-evidence genes	57	A2ML1, AKAP9, ANK2, ANKRD1, CACNA2D1, CACNB2, CALR3, CAV3, CHRM2, CTF1, CTNNA3, DTNA, FHL2, GATA6, GATAD1, GPD1L, HAND1, ILK, JPH2, KCNA5, KCND3, KCNE2, KCNE3, KCNE5, KCNJ5, KCNJ8, KCNK3, KIF20A, KLF10, LAMA4, LDB3, LRRC10, MAP3K8, MED12, MYH6, MYLK2, MYOM1, MYOZ2, MYPN, NEBL, NEXN, NPPA, PDLIM3, PLEKHM2, PRDM16, RANGRF, RASA2, RRAS, SCN10A, SCN1B, SCN2B, SCN3B, SCN4B, SLMAP, SNTA1, TMPO, TXNRD2
<input type="radio"/> 02101.4	Add-on sudden unexpected death in epilepsy (SUDEP) genes for arrhythmia and cardiomyopathy	11	DEPDC5, KCNA1, KCNQ2, KCNQ3, KCNT1, PCDH19, PRRT2, SCN1A, SCN8A, SCN9A, SLC2A1
Arrhythmia			
<input type="radio"/> 02211	Invitae Long QT Syndrome Panel	10	CACNA1C, CALM1, CALM2, CALM3, KCNE1, KCNH2, KCNJ2, KCNQ1, SCN5A, TRDN
<input type="radio"/> 02211.1	Add-on preliminary-evidence genes	7	AKAP9, ANK2, CAV3, KCNE2, KCNJ5, SCN4B, SNTA1
<input type="radio"/> 02213	Invitae Catecholaminergic Polymorphic Ventricular Tachycardia Panel	7	CALM1, CALM2, CALM3, CASQ2, KCNJ2, RYR2, TRDN
<input type="radio"/> 02214	Invitae Short QT Syndrome Panel	3	KCNH2, KCNJ2, KCNQ1
<input type="radio"/> 02214.1	Add-on preliminary-evidence gene	3	CACNA1C, CACNA2D1, CACNB2
<input type="radio"/> 02201	Invitae Arrhythmia Comprehensive Panel	41	ABCC9, ACTN2, BAG3, CACNA1C, CACNA1D, CALM1, CALM2, CALM3, CASQ2, CDH2, DES, DSC2, DSG2, DSP, EMD, FLNC, GATA4, GATA5, GJA5, HCN4, JUP, KCNE1, KCNH2, KCNJ2, KCNQ1, LMNA, MYL4, NKX2-5, PKP2, PLN, PPA2, PRKAG2, RBM20, RYR2, SCN5A, TMEM43, TNNI3, TNNT2, TRDN, TRPM4, TTN
<input type="radio"/> 02201.1	Add-on preliminary-evidence genes	28	AKAP9, ANK2, ANKRD1, CACNA2D1, CACNB2, CAV3, CTNNA3, GATA6, GPD1L, KCNA5, KCND3, KCNE2, KCNE3, KCNE5, KCNJ5, KCNJ8, KCNK3, LDB3, NPPA, PDLIM3, RANGRF, SCN10A, SCN1B, SCN2B, SCN3B, SCN4B, SLMAP, SNTA1
<input type="radio"/> 02201.2	Add-on sudden unexpected death in epilepsy (SUDEP) genes for arrhythmia	11	DEPDC5, KCNA1, KCNQ2, KCNQ3, KCNT1, PCDH19, PRRT2, SCN1A, SCN8A, SCN9A, SLC2A1
<input type="radio"/> 02212	Invitae Brugada Syndrome Test	1	SCN5A
<input type="radio"/> 02212.1	Add-on preliminary-evidence genes	19	ABCC9, CACNA1C, CACNA2D1, CACNB2, GPD1L, HCN4, KCND3, KCNH2, KCNE3, KCNE5, KCNJ8, PKP2, RANGRF, SCN10A, SCN1B, SCN2B, SCN3B, SLMAP, TRPM4
Cardiomyopathy			
<input type="radio"/> 02261	Invitae Hypertrophic Cardiomyopathy Panel	30	ACADVL, ACTC1, ACTN2, AGL, ALPK3, BAG3, CACNA1C, CPT2, CSRP3, DES, ELAC2, FHL1, FLNC, GAA, GLA, LAMP2, MTO1, MYBPC3, MYH7, MYL2, MYL3, PLN, PRKAG2, TCAP, TNNC1, TNNI3, TNNT2, TPM1, TTR, VCL
<input type="radio"/> 02261.1	Add-on preliminary-evidence genes	14	ANKRD1, CALR3, CAV3, GATA4, JPH2, KLF10, LDB3, MYH6, MYLK2, MYOM1, MYOZ2, MYPN, NEXN, PDLIM3
<input type="radio"/> 02265	Invitae Hereditary Transthyretin-mediated amyloidosis (hATTR amyloidosis) Test	1	TTR

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CARDIOLOGY TEST CATALOG

CLINICAL AREA: CARDIOLOGY AND NEUROLOGY

Test code	Test name	# gene(s)	Gene list
Cardiomyopathy (continued)			
<input type="radio"/> 04151	Invitae RASopathies and Noonan Spectrum Disorders Panel	28	A2ML1, ACTB, ACTG1, BRAF, CBL, HRAS, KAT6B, KRAS, LZTR1, MAP2K1, MAP2K2, MRAS, NF1, NRAS, NSUN2, PPP1CB, PTPN11, RAF1, RASA1, RASA2, RIT1, RRAS, RRAS2, SHOC2, SOS1, SOS2, SPRED1, YWHAZ
<input type="radio"/> 02262	Invitae Dilated Cardiomyopathy and Left Ventricular Noncompaction Panel	54	ABCC9, ACADVL, ACTC1, ACTN2, ALMS1, ALPK3, BAG3, CPT2, CRYAB, CSRP3, DES, DMD, DNAJC19, DOLK, DSC2, DSG2, DSP, EMD, EYA4, FKR, FKTN, FLNC, HCN4, JUP, LAMP2, LMNA, MYBPC3, MYH7, MYLK3, PCCA, PCCB, PKP2, PLN, PPCS, RAF1, RBM20, RYR2, SCN5A, SDHA, SGCD, SLC22A5, TFAZZIN, TBX20, TCAP, TMEM43, TMEM70, TNNC1, TNNI3, TNNI3K, TNNT2, TPM1, TTN, TTR, VCL
<input type="radio"/> 02262.1	Add-on preliminary-evidence genes	26	ANKRD1, CAV3, CHRM2, CTF1, DTNA, FHL2, GATA4, GATA6, GATAD1, HAND1, ILK, LAMA4, LDB3, LRRC10, MED12, MYH6, MYPN, NEBL, NEXN, NKX2-5, NPPA, PDLIM3, PLEKHM2, PRDM16, TMPO, TXNRD2
<input type="radio"/> 02251	Invitae Cardiomyopathy Comprehensive Panel	82	ABCC9, ACADVL, ACTC1, ACTN2, AGL, ALMS1, ALPK3, BAG3, BRAF, CACNA1C, CBL, CPT2, CRYAB, CSRP3, DES, DMD, DNAJC19, DOLK, DSC2, DSG2, DSP, ELAC2, EMD, EYA4, FHL1, FKR, FKTN, FLNC, GAA, GLA, HCN4, HRAS, JUP, KRAS, LAMP2, LMNA, LZTR1, MAP2K1, MAP2K2, MRAS, MTO1, MYBPC3, MYH7, MYL2, MYL3, MYLK3, NF1, NRAS, PCCA, PCCB, PKP2, PLN, PPCS, PPP1CB, PRKAG2, PTPN11, RAF1, RASA1, RBM20, RIT1, RYR2, SCN5A, SDHA, SGCD, SHOC2, SLC22A5, SOS1, SOS2, SPRED1, TFAZZIN, TBX20, TCAP, TMEM43, TMEM70, TNNC1, TNNI3, TN-NI3K, TNNT2, TPM1, TTN, TTR, VCL
<input type="radio"/> 02251.1	Add-on preliminary-evidence genes	39	A2ML1, ANKRD1, CALR3, CAV3, CDH2, CHRM2, CTF1, CTNNA3, DTNA, FHL2, GATA4, GATA6, GATAD1, HAND1, ILK, JPH2, KIF20A, KLF10, LAMA4, LDB3, LRRC10, MAP3K8, MED12, MYH6, MYLK2, MYOM1, MYOZ2, MYPN, NEBL, NEXN, NKX2-5, NPPA, PDLIM3, PLEKHM2, PRDM16, RASA2, RRAS, TMPO, TXNRD2
<input type="radio"/> 02263	Invitae Arrhythmogenic Cardiomyopathy Panel	22	ACTN2, BAG3, CDH2, DES, DSC2, DSG2, DSP, EMD, FLNC, JUP, LMNA, PKP2, PLN, PPA2, PRKAG2, RBM20, RYR2, SCN5A, TMEM43, TNNI3, TNNT2, TTN
<input type="radio"/> 02263.1	Add-on preliminary-evidence genes	5	ANKRD1, CTNNA3, LDB3, NKX2-5, PDLIM3
<input type="radio"/> 05201	Invitae Hereditary Hemochromatosis Panel	6	FTH1, HAMP, HFE, HJV, SLC40A1, TFR2
Aortopathy			
<input type="radio"/> 02301	Invitae Aortopathy Comprehensive Panel	29	ACTA2, ADAMTS10, BGN, CBS, COL3A1, COL5A1, COL5A2, EFEMP2, FBN1, FBN2, FLNA, FOXE3, LOX, MED12, MFAP5, MYH11, MYLK, NOTCH1, PLOD1, PRKG1, SKI, SLC2A10, SMAD2, SMAD3, SMAD4, TGFB2, TGFB3, TGFB3, TGFB3, TGFB3
<input type="radio"/> 02301.1	Add-on preliminary-evidence genes	6	ARIH1, HCN4, LTBP3, MAT2A, PLOD3, SMAD6
<input type="radio"/> 02311	Invitae Loews-Dietz Syndrome Panel	7	FBN1, SMAD2, SMAD3, TGFB2, TGFB3, TGFB3, TGFB3
<input type="radio"/> 02313	Invitae Ehlers-Danlos Syndrome Panel	17	ADAMTS2, ATP7A, B3GALT6, B4GALT7, CHST14, COL12A1, COL1A1, COL1A2, COL3A1, COL5A1, COL5A2, CRTAP, FKBP14, FLNA, P3H1, PLOD1, SLC39A13
<input type="radio"/> 02312	Invitae Marfan Syndrome Test	1	FBN1
Lipid Disorders			
<input type="radio"/> 02401	Invitae Familial Hypercholesterolemia Panel	4	APOB, LDLR, LDLRAP1, PCSK9
<input type="radio"/> 53698	Invitae Comprehensive Lipidemia Panel	25	ABCA1, ABCG5, ABCG8, ANGPTL3, APOA1, APOA5, APOB, APOC2, CETP, CREB3L3, CYP27A1, GPD1, GPIIBP1, LCAT, LDLR, LDLRAP1, LIPA, LIPG, LMF1, LPL, LRP6, MTP, PCSK9, PNPLA2, SAR1B
<input type="radio"/> 53698.1	Add-on preliminary-evidence genes	11	APOA4, APOC3, CYP7A1, GALNT2, GCKR, LIPC, LIPI, MYLIP, PLTP, SCARB1, ZHX3
Pulmonary Hypertension			
<input type="radio"/> 02351	Invitae Pulmonary Arterial Hypertension Panel	12	ACVRL1, AQP1, ATP13A3, BMPR2, CAV1, EIF2AK4, ENG, GDF2, KCNK3, SMAD9, SOX17, TBX4
<input type="radio"/> 02351.1	Add-on preliminary-evidence genes	2	BMPR1B, KCNA5

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CARDIOLOGY TEST CATALOG

CLINICAL AREA: CARDIOLOGY AND NEUROLOGY

Test code	Test name	# gene(s)	Gene list
Congenital Heart Disease			
<input type="radio"/> 04151	Invitae RASopathies and Noonan Spectrum Disorders Panel	28	A2ML1, ACTB, ACTG1, BRAF, CBL, HRAS, KAT6B, KRAS, LZTR1, MAP2K1, MAP2K2, MRAS, NF1, NRAS, NSUN2, PPP1CB, PTPN11, RAF1, RASA1, RASA2, RIT1, RRAS, RRAS2, SHOC2, SOS1, SOS2, SPRED1, YWHAZ
<input type="radio"/> 04204	Invitae Congenital Heart Disease Panel	55	ACTC1, ACVR2B, ALMS1, BCOR, BRAF, CASZ1, CBL, CHD7, CRELD1, ELN, FOXH1, GATA4, GATA5, GATA6, GDF1, GJA1, GPC3, HAND1, HAND2, HRAS, JAG1, KDM6A, KMT2D, KRAS, LEFTY2, MAP2K1, MAP2K2, MED13L, MEIS2, MESP1, MYH6, NFATC1, NKX2-5, NKX2-6, NODAL, NOTCH1, NR2F2, NRAS, NSD1, PLD1, PTPN11, RAF1, RBFOX2, RIT1, ROBO1, SHOC2, SMAD6, SOS1, TAB2, TBX1, TBX20, TBX5, TFAP2B, ZFPM2, ZIC3

CARDIOLOGY AND NEUROLOGY INDIVIDUAL GENES

<input type="radio"/> A2ML1	<input type="radio"/> AP5Z1	<input type="radio"/> CALR3	<input type="radio"/> COL6A2	<input type="radio"/> DPM3	<input type="radio"/> FKTN	<input type="radio"/> HAMP	<input type="radio"/> KCNH2	<input type="radio"/> LRP4
<input type="radio"/> AARS1	<input type="radio"/> APOB	<input type="radio"/> CAPN3	<input type="radio"/> COL6A3	<input type="radio"/> DRD2	<input type="radio"/> FLNA	<input type="radio"/> HAND1	<input type="radio"/> KCNJ2	<input type="radio"/> LRRC10
<input type="radio"/> ABCC9	<input type="radio"/> APP	<input type="radio"/> CASQ2	<input type="radio"/> COLQ	<input type="radio"/> DSC2	<input type="radio"/> FLNC	<input type="radio"/> HARS1	<input type="radio"/> KCNJ5	<input type="radio"/> LRRK2
<input type="radio"/> ABCD1	<input type="radio"/> ARL6IP1	<input type="radio"/> CAV1	<input type="radio"/> CPT1C	<input type="radio"/> DSG2	<input type="radio"/> FLRT1	<input type="radio"/> HCN4	<input type="radio"/> KCNJ8	<input type="radio"/> LRSAM1
<input type="radio"/> ABCG5	<input type="radio"/> ARSI	<input type="radio"/> CAV3	<input type="radio"/> CPT2	<input type="radio"/> DSP	<input type="radio"/> FOXE3	<input type="radio"/> HEXA	<input type="radio"/> KCNK3	<input type="radio"/> MAG
<input type="radio"/> ABCG8	<input type="radio"/> ATL1	<input type="radio"/> CBL	<input type="radio"/> CRELD1	<input type="radio"/> DST	<input type="radio"/> FOXH1	<input type="radio"/> HFE	<input type="radio"/> KCNQ1	<input type="radio"/> MAP2K1
<input type="radio"/> ACADVL	<input type="radio"/> ATL3	<input type="radio"/> CBS	<input type="radio"/> CRPPA	<input type="radio"/> DTNA	<input type="radio"/> FUS	<input type="radio"/> HINT1	<input type="radio"/> KCNQ2	<input type="radio"/> MAP2K2
<input type="radio"/> ACTA1	<input type="radio"/> ATP13A2	<input type="radio"/> CCDC78	<input type="radio"/> CRTAP	<input type="radio"/> DYNC1H1	<input type="radio"/> GAA	<input type="radio"/> HJV	<input type="radio"/> KCNQ3	<input type="radio"/> MAPT
<input type="radio"/> ACTA2	<input type="radio"/> ATP1A3	<input type="radio"/> CCT5	<input type="radio"/> CRYAB	<input type="radio"/> DYSF	<input type="radio"/> GAN	<input type="radio"/> HNRNPA2B1	<input type="radio"/> KCNT1	<input type="radio"/> MARS1
<input type="radio"/> ACTC1	<input type="radio"/> ATP2A1	<input type="radio"/> CFL2	<input type="radio"/> CSRP3	<input type="radio"/> EFEMP2	<input type="radio"/> GARS1	<input type="radio"/> HNRNPDL	<input type="radio"/> KCTD17	<input type="radio"/> MAT2A
<input type="radio"/> ACTN2	<input type="radio"/> ATP7A	<input type="radio"/> CHAT	<input type="radio"/> CTF1	<input type="radio"/> EGR2	<input type="radio"/> GATA4	<input type="radio"/> HPCA	<input type="radio"/> KDM5C	<input type="radio"/> MATR3
<input type="radio"/> ACVR2B	<input type="radio"/> ATP7B	<input type="radio"/> CHCHD10	<input type="radio"/> CTNNA3	<input type="radio"/> ELAC2	<input type="radio"/> GATA6	<input type="radio"/> HRAS	<input type="radio"/> KIF1A	<input type="radio"/> MED12
<input type="radio"/> ACVRL1	<input type="radio"/> B3GALNT2	<input type="radio"/> CHCHD2	<input type="radio"/> CYP2U1	<input type="radio"/> ELN	<input type="radio"/> GATAD1	<input type="radio"/> HSPB1	<input type="radio"/> KIF1C	<input type="radio"/> MED13L
<input type="radio"/> ADAMTS2	<input type="radio"/> B4GALNT1	<input type="radio"/> CHD7	<input type="radio"/> CYP7B1	<input type="radio"/> ELP1	<input type="radio"/> GBA2	<input type="radio"/> HSPB3	<input type="radio"/> KIF5A	<input type="radio"/> MED25
<input type="radio"/> AGL	<input type="radio"/> B4GAT1	<input type="radio"/> CHKB	<input type="radio"/> DAG1	<input type="radio"/> EMD	<input type="radio"/> GCH1	<input type="radio"/> HSPB8	<input type="radio"/> KLHL40	<input type="radio"/> MEGF10
<input type="radio"/> AGRN	<input type="radio"/> BAG3	<input type="radio"/> CHMP2B	<input type="radio"/> DCTN1	<input type="radio"/> ENG	<input type="radio"/> GDAP1	<input type="radio"/> HSPD1	<input type="radio"/> KLHL41	<input type="radio"/> MEIS2
<input type="radio"/> AIFM1	<input type="radio"/> BCOR	<input type="radio"/> CHRM2	<input type="radio"/> DDHD1	<input type="radio"/> ENTPD1	<input type="radio"/> GDF1	<input type="radio"/> IBA57	<input type="radio"/> KRAS	<input type="radio"/> MFN2
<input type="radio"/> AKAP9	<input type="radio"/> BICD2	<input type="radio"/> CHRNA1	<input type="radio"/> DDHD2	<input type="radio"/> ERLIN1	<input type="radio"/> GDF2	<input type="radio"/> IGHMBP2	<input type="radio"/> L1CAM	<input type="radio"/> MORC2
<input type="radio"/> ALDH18A1	<input type="radio"/> BIN1	<input type="radio"/> CHRNB1	<input type="radio"/> DEPDC5	<input type="radio"/> ERLIN2	<input type="radio"/> GFPT1	<input type="radio"/> ILK	<input type="radio"/> LAMA2	<input type="radio"/> MPZ
<input type="radio"/> ALG14	<input type="radio"/> BMPR1B	<input type="radio"/> CHRND	<input type="radio"/> DES	<input type="radio"/> EXOSC3	<input type="radio"/> GJA1	<input type="radio"/> INF2	<input type="radio"/> LAMA4	<input type="radio"/> MTM1
<input type="radio"/> ALG2	<input type="radio"/> BMPR2	<input type="radio"/> CHRNE	<input type="radio"/> DMD	<input type="radio"/> EYA4	<input type="radio"/> GJA5	<input type="radio"/> ITGA7	<input type="radio"/> LAMB2	<input type="radio"/> MTMR2
<input type="radio"/> ALMS1	<input type="radio"/> BRAF	<input type="radio"/> CHST14	<input type="radio"/> DNAJB2	<input type="radio"/> FA2H	<input type="radio"/> GJB1	<input type="radio"/> JAG1	<input type="radio"/> LAMP2	<input type="radio"/> MTO1
<input type="radio"/> ALS2	<input type="radio"/> BSCL2	<input type="radio"/> CIZ1	<input type="radio"/> DNAJB6	<input type="radio"/> FBN1	<input type="radio"/> GJC2	<input type="radio"/> JPH2	<input type="radio"/> LARGE1	<input type="radio"/> MTRFR
<input type="radio"/> AMPD2	<input type="radio"/> C19orf12	<input type="radio"/> CLCN1	<input type="radio"/> DNAJC19	<input type="radio"/> FBN2	<input type="radio"/> GLA	<input type="radio"/> JUP	<input type="radio"/> LAS1L	<input type="radio"/> MUSK
<input type="radio"/> ANK2	<input type="radio"/> C9orf72	<input type="radio"/> CNTN1	<input type="radio"/> DNAJC6	<input type="radio"/> FBXO38	<input type="radio"/> GMPPB	<input type="radio"/> KBTBD13	<input type="radio"/> LDB3	<input type="radio"/> MYBPC3
<input type="radio"/> ANKRD1	<input type="radio"/> CACNA1C	<input type="radio"/> COL12A1	<input type="radio"/> DNMT2	<input type="radio"/> FBXO7	<input type="radio"/> GNAL	<input type="radio"/> KCNA1	<input type="radio"/> LDLR	<input type="radio"/> MYF6
<input type="radio"/> ANO3	<input type="radio"/> CACNA1S	<input type="radio"/> COL1A1	<input type="radio"/> DNMT1	<input type="radio"/> FGD4	<input type="radio"/> GNB4	<input type="radio"/> KCNA5	<input type="radio"/> LDLRAP1	<input type="radio"/> MYH11
<input type="radio"/> ANO5	<input type="radio"/> CACNA2D1	<input type="radio"/> COL1A2	<input type="radio"/> DOK7	<input type="radio"/> FHL1	<input type="radio"/> GNE	<input type="radio"/> KCND3	<input type="radio"/> LEFTY2	<input type="radio"/> MYH2
<input type="radio"/> AP4B1	<input type="radio"/> CACNB2	<input type="radio"/> COL3A1	<input type="radio"/> DOLK	<input type="radio"/> FHL2	<input type="radio"/> GPC3	<input type="radio"/> KCNE1	<input type="radio"/> LIMS2	<input type="radio"/> MYH6
<input type="radio"/> AP4E1	<input type="radio"/> CALM1	<input type="radio"/> COL5A1	<input type="radio"/> DPAGT1	<input type="radio"/> FIG4	<input type="radio"/> GPD1L	<input type="radio"/> KCNE2	<input type="radio"/> LITAF	<input type="radio"/> MYH7
<input type="radio"/> AP4M1	<input type="radio"/> CALM2	<input type="radio"/> COL5A2	<input type="radio"/> DPM1	<input type="radio"/> FKBP14	<input type="radio"/> GRN	<input type="radio"/> KCNE3	<input type="radio"/> LMNA	<input type="radio"/> MYL2
<input type="radio"/> AP4S1	<input type="radio"/> CALM3	<input type="radio"/> COL6A1	<input type="radio"/> DPM2	<input type="radio"/> FKRP	<input type="radio"/> GYS1	<input type="radio"/> KCNE5	<input type="radio"/> LMOD3	<input type="radio"/> MYL3

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CARDIOLOGY TEST CATALOG

CLINICAL AREA: CARDIOLOGY AND NEUROLOGY

CARDIOLOGY AND NEUROLOGY INDIVIDUAL GENES (continued)

<input type="radio"/> MYL4	<input type="radio"/> NTRK1	<input type="radio"/> POMK	<input type="radio"/> REEP1	<input type="radio"/> SEMA3E	<input type="radio"/> SMAD3	<input type="radio"/> SUN1	<input type="radio"/> TNNC1	<input type="radio"/> VAPB
<input type="radio"/> MYLK	<input type="radio"/> OPTN	<input type="radio"/> POMT1	<input type="radio"/> REEP2	<input type="radio"/> SETX	<input type="radio"/> SMAD4	<input type="radio"/> SUN2	<input type="radio"/> TNNI3	<input type="radio"/> VCL
<input type="radio"/> MYLK2	<input type="radio"/> P3H1	<input type="radio"/> POMT2	<input type="radio"/> RETREG1	<input type="radio"/> SGCA	<input type="radio"/> SMAD6	<input type="radio"/> SURF1	<input type="radio"/> TNNT1	<input type="radio"/> VCP
<input type="radio"/> MYOM1	<input type="radio"/> PARK7	<input type="radio"/> PRDM12	<input type="radio"/> RIT1	<input type="radio"/> SGCB	<input type="radio"/> SMAD9	<input type="radio"/> SYNE1	<input type="radio"/> TNNT2	<input type="radio"/> VMA21
<input type="radio"/> MYOT	<input type="radio"/> PCDH19	<input type="radio"/> PRDM16	<input type="radio"/> RRAS	<input type="radio"/> SGCD	<input type="radio"/> SMCHD1	<input type="radio"/> SYNE2	<input type="radio"/> TNPO3	<input type="radio"/> VPS35
<input type="radio"/> MYOZ2	<input type="radio"/> PCSK9	<input type="radio"/> PREPL	<input type="radio"/> RTN2	<input type="radio"/> SGCE	<input type="radio"/> SMN1, SMN2	<input type="radio"/> TARDBP	<input type="radio"/> TOR1A	<input type="radio"/> VPS37A
<input type="radio"/> MYPN	<input type="radio"/> PDK3	<input type="radio"/> PRKAG2	<input type="radio"/> RXYLT1	<input type="radio"/> SGCG	<input type="radio"/> SNAP25	<input type="radio"/> TFAZZIN	<input type="radio"/> TOR1AIP1	<input type="radio"/> VRK1
<input type="radio"/> NDRG1	<input type="radio"/> PDLIM3	<input type="radio"/> PRKG1	<input type="radio"/> RYR1	<input type="radio"/> SH3TC2	<input type="radio"/> SNCA	<input type="radio"/> TBK1	<input type="radio"/> TPM1	<input type="radio"/> WASHC5
<input type="radio"/> NEB	<input type="radio"/> PFN1	<input type="radio"/> PRKN	<input type="radio"/> RYR2	<input type="radio"/> SHOC2	<input type="radio"/> SNTA1	<input type="radio"/> TBX1	<input type="radio"/> TPM2	<input type="radio"/> WNK1
<input type="radio"/> NEBL	<input type="radio"/> PGAP1	<input type="radio"/> PRKRA	<input type="radio"/> SACS	<input type="radio"/> SIGMAR1	<input type="radio"/> SOD1	<input type="radio"/> TBX5	<input type="radio"/> TPM3	<input type="radio"/> YARS1
<input type="radio"/> NEFL	<input type="radio"/> PINK1	<input type="radio"/> PRNP	<input type="radio"/> SBF2	<input type="radio"/> SKI	<input type="radio"/> SOS1	<input type="radio"/> TCAP	<input type="radio"/> TRAPPC11	<input type="radio"/> ZFPM2
<input type="radio"/> NEXN	<input type="radio"/> PKP2	<input type="radio"/> PRPS1	<input type="radio"/> SCN10A	<input type="radio"/> SLC16A2	<input type="radio"/> SOS2	<input type="radio"/> TECPR2	<input type="radio"/> TRDN	<input type="radio"/> ZFR
<input type="radio"/> NF1	<input type="radio"/> PLEC	<input type="radio"/> PRRT2	<input type="radio"/> SCN11A	<input type="radio"/> SLC22A5	<input type="radio"/> SPART	<input type="radio"/> TFG	<input type="radio"/> TRIM2	<input type="radio"/> ZFYVE26
<input type="radio"/> NGF	<input type="radio"/> PLEKHG5	<input type="radio"/> PRX	<input type="radio"/> SCN1A	<input type="radio"/> SLC25A46	<input type="radio"/> SPAST	<input type="radio"/> TFR2	<input type="radio"/> TRIM32	<input type="radio"/> ZFYVE27
<input type="radio"/> NIPA1	<input type="radio"/> PLEKHM2	<input type="radio"/> PSEN1	<input type="radio"/> SCN1B	<input type="radio"/> SLC2A1	<input type="radio"/> SPG11	<input type="radio"/> TGFB2	<input type="radio"/> TRPM4	<input type="radio"/> ZIC3
<input type="radio"/> NKX2-5	<input type="radio"/> PLN	<input type="radio"/> PSEN2	<input type="radio"/> SCN2B	<input type="radio"/> SLC2A10	<input type="radio"/> SPG21	<input type="radio"/> TGFB3	<input type="radio"/> TRPV4	
<input type="radio"/> NKX2-6	<input type="radio"/> PLOD1	<input type="radio"/> PTPN11	<input type="radio"/> SCN3B	<input type="radio"/> SLC33A1	<input type="radio"/> SPG7	<input type="radio"/> TGFBR1	<input type="radio"/> TTN	
<input type="radio"/> NODAL	<input type="radio"/> PLP1	<input type="radio"/> RAB3GAP2	<input type="radio"/> SCN4A	<input type="radio"/> SLC39A13	<input type="radio"/> SPR	<input type="radio"/> TGFBR2	<input type="radio"/> TTR	
<input type="radio"/> NOTCH1	<input type="radio"/> PMP22	<input type="radio"/> RAB7A	<input type="radio"/> SCN4B	<input type="radio"/> SLC40A1	<input type="radio"/> SPRED1	<input type="radio"/> TH	<input type="radio"/> TUBB4A	
<input type="radio"/> NPPA	<input type="radio"/> PNKD	<input type="radio"/> RAF1	<input type="radio"/> SCN5A	<input type="radio"/> SLC52A2	<input type="radio"/> SPTLC1	<input type="radio"/> THAP1	<input type="radio"/> TXNRD2	
<input type="radio"/> NR2F2	<input type="radio"/> PNPLA2	<input type="radio"/> RANGRF	<input type="radio"/> SCN8A	<input type="radio"/> SLC52A3	<input type="radio"/> SPTLC2	<input type="radio"/> TIA1	<input type="radio"/> UBA1	
<input type="radio"/> NRAS	<input type="radio"/> PNPLA6	<input type="radio"/> RAPSIN	<input type="radio"/> SCN9A	<input type="radio"/> SLC5A7	<input type="radio"/> SQSTM1	<input type="radio"/> TMEM43	<input type="radio"/> UBQLN2	
<input type="radio"/> NSD1	<input type="radio"/> POMGNT1	<input type="radio"/> RASA1	<input type="radio"/> SDHA	<input type="radio"/> SLC6A3	<input type="radio"/> STAC3	<input type="radio"/> TMEM70	<input type="radio"/> USP8	
<input type="radio"/> NT5C2	<input type="radio"/> POMGNT2	<input type="radio"/> RBM20	<input type="radio"/> SELENON	<input type="radio"/> SLMAP	<input type="radio"/> STIM1	<input type="radio"/> TMPO	<input type="radio"/> VAMP1	

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