MEDEX
LABORATORIES

# CARDIOVASCULAR

## WHY CHOOSE MEDEX LABORATORIES

- TARGETED TREATMENTS
- ACCURATE OUTCOMES
- EMR INTEGRATIONS
- ACCEPTS MOST INSURANCES
- PHLEBOTOMIST AVAILABLE
- QUICK TURN AROUND TIME

The reports and content within should be considered referenced suggestions. Ultimately, final medical decisions are made by your respective healthcare provider

www.medexdiagnosticservices.com

**TARGET PHYSICIANS**

*Primary Care Physician | Cardiologists | Pediatricians*

# INHERITED CARDIOVASCULAR DISEASES AND SUDDEN CARDIAC DEATH

**Cardiovascular Testing detects mutations associated with inherited cardiovascular diseases and sudden cardiac death to provide an exhaustive study of genes.**

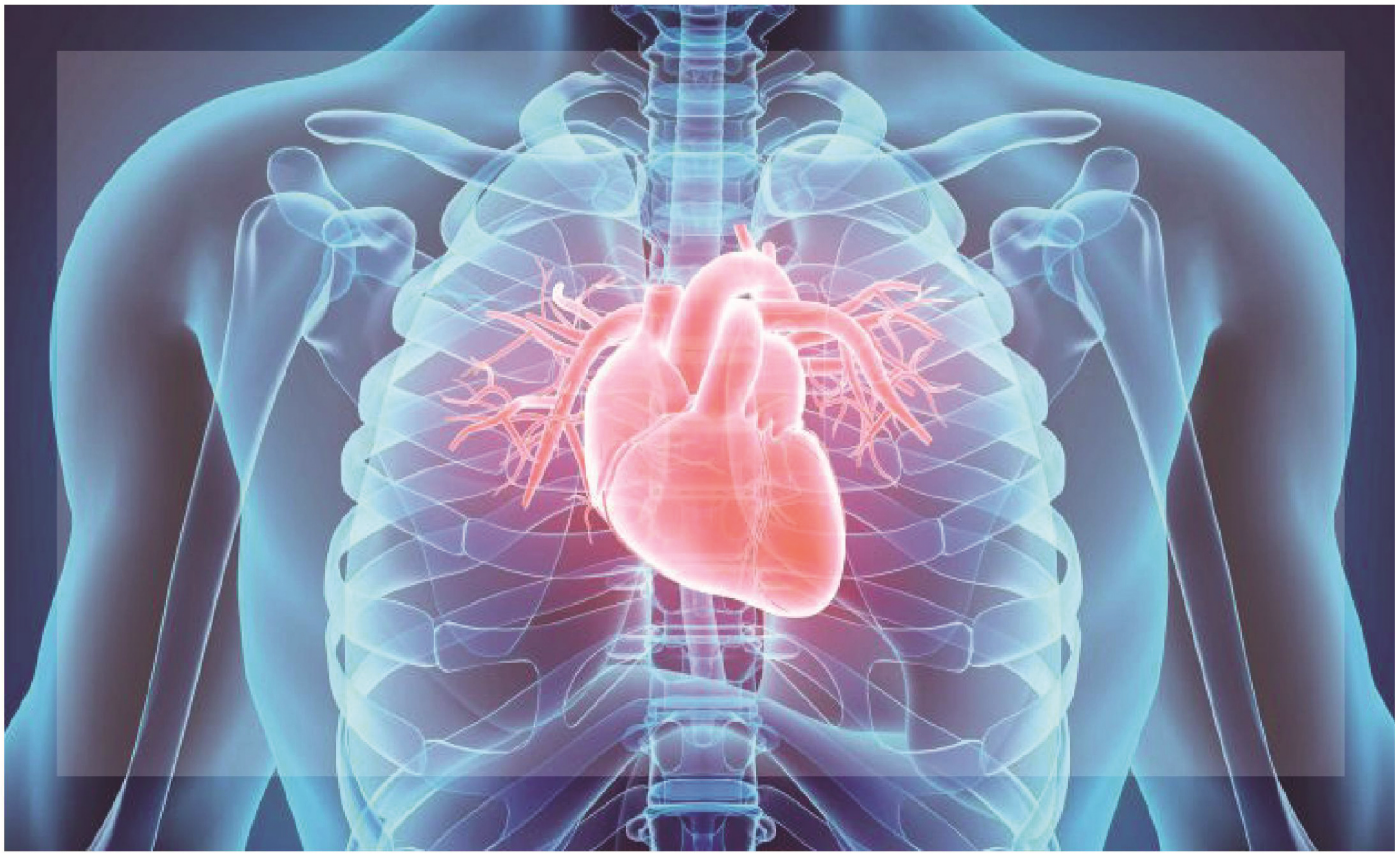
- Panel includes all genes currently known to be associated with the development of inherited cardiovascular diseases that can present as sudden death or other major adverse events.
- Clinical interpretation integrates genetic and clinical data from a proprietary knowledge base curated by expert cardiologists.
- Results may aid definitive diagnosis when clinical information is incomplete or the diagnosis is unclear.
- Genetic study can complement and complete familial evaluations.

**It detects gene mutations associated with inherited cardiovascular diseases and sudden cardiac death to provide an exhaustive study of genes. Results may aid definitive diagnosis when clinical information is incomplete or the diagnosis is unclear.**

**62 GENES**

## GENES

AGL, ACTA1, ACTN2, RYR2, TNNT2, LMNA, RBM20, VCL, COX15, BAG3, CSRP3, MYBPC3, CRYAB, CBL, APOA1, PKP2, MYL2, CACNA1C, ABCC9, MYH7, TPM1, ACTC1, HCN4, JUP, ACADVL, ELAC2, GAA, TCAP, DSG2, TTR, EPG5, DSC2, TNNI3, FKRP, DES, TTN, RAF1, SCN5A, TMEM43, MYL3, ACAD9, TNNC1, CAV3, SLC25A4, SGCD, SLC22A5, NDUFAF2, PLN, DSP, EYA4, AGK, PRKAG2, FLNC, FKTN, FXN, DOLK, GLA, LAMP2, DMD, FHL1, EMD, TAZ



**Genetic testing provides useful information for your patient's cardiac health:**

- Identifies patient's risk
- Identifies risk for close relatives
- Make informed healthcare decisions and lifestyle modifications

# Medex Laboratories Cardio Sequencing Panel

- At least 25% of sudden cardiac arrests have a component of inheritance
  The sequencing panel may help Identify changes in hereditary cardiac genes. Knowing these specific mutations may create better outcomes for patients by: Helping to monitor disease progression closely; creating therapies that work best for the patient; giving patients the ability to make informed healthcare decisions regarding their health.

- This comprehensive genetic test is affordable, accurate, and may help future generations by outlining hereditary mutations.

- Medex Laboratories cardiac sequencing panel covers 23 different inherited cardiac disorders including the following:

  - Aortopathy Panel
  - Arrhythmia Panel
  - Arrhythmogenic Right Ventricular Cardiomyopathy (ARVC) Panel
  - Atrial Fibrillation Panel
  - Brugada Syndrome Panel
  - Cardiomyopathy Panel
  - Catecholaminergic Polymorphic Ventricular
  - Tachycardia (CPVT) Panel
  - Comprehensive Cardiology Panel
  - Congenital Structural Heart Disease Panel
  - Dilated Cardiomyopathy (DCM) Panel
  - Ehlers-Danlos Syndrome Panel
  - Hereditary Hemorrhagic Telangiectasia (HHT) Panel
  - Heterotaxy and Situs Inversus Panel
  - Hyperlipidemia Core Panel
  - Hyperlipidemia Panel
  - Hypertrophic Cardiomyopathy (HCM) Panel
  - Le-Ventricular Non-Compaction
  - Cardiomyopathy (LVNC) Panel
  - Liddle Syndrome Panel
  - long QT Syndrome (LQTS) Panel
  - Marian Syndrome
  - Noonan Syndrome
  - Pulmonary Artery Hypertension (PAH) Panel
  - Short QT Syndrome (SQTS) Panel

Cardiovascular Genetics

**Aortic Valve Disease** has two main categories: aortic stenosis is the most common valvular heart disease in developed countries and elderly populations; aortic valve regurgitation is only prevalent in less than 1% of the general United States population.

**Arrhythmogenic Right Ventricular Cardiomyopathy (ARVC)** is an important cause of sudden cardiac death in young adults, accounting for 11% of all cases and 22% of cases among athletes.

**Brugada syndrome** is most common in Asian populations and is the most common cause of natural death in men younger than 50 years old.

**Catecholaminergic Polymorphic Ventricular Tachycardia (CPVT)** is estimated to affect about 1 in 10,000 people. The age of onset is between 7 and 9 years old and is triggered by acute emotional or physical stress.

**Dilated Cardiomyopathy** is the third most common cause of heart failure and the most frequent reason for heart transplantation. 400,000-550,000 cases are reported each year.

**Familial Aortic Aneurysm** accounts for at least 20% of thoracic aortic aneurysms and dissections, which are estimated to cause almost 30,000 deaths in the United States each year.

**Familial Atrial Fibrillation** is the most common type of sustained arrhythmia, affecting more than 3 million people in the United States.

**Familial Hypercholesterolemia** follows an autosomal dominant inheritance pattern and affects 1 in every 500 people

**Hypertrophic Cardiomyopathy** affects one in every 500 people, or 600,000 to 1.5 million Americans Leti Ventricular Non-compaction (LVNC) or Non-compaction Cardiomyopathy patients have a 20-40% chance of genetic abnormalities causing the disease

**Loeys-Dietz syndrome** is a rare genetic disorder where no two patients show the same medical characteristics

**Long QT syndrome** occurs in 1 in every 2,000 individuals and typically presents with problems regarding the electrical activity of the heart

**Marfan Syndrome** is a rare genetic disorder that patients are born with, but may not be diagnosed until later in life

**Noonan syndrome** patients have a heart defect, typically pulmonary valve stenosis

**Restrictive Cardiomyopathy** is the rarest form of cardiomyopathy exhibiting inflexible ventricles

**Short QT syndrome** is a rare cardiac condition seen in 70 cases worldwide as of 2000

**Congenital heart disease** can present at birth or develop over me with wear on the heart valves and vessels and affects around 40,000 newborns per year in the United States

## Differential diagnosis and risk assessment of over thirty disease categories, including:

**Cardiomyopathies**
- Hypertrophic Cardiomyopathy (HCM)
- Dilated Cardiomyopathy (DCM)
- Arrhythmogenic Cardiomyopathy (ARVC/D)
- Left Ventricular Noncompaction (LVNC)
- Restrictive Cardiomyopathy (RCM)

**Arrhythmias and Channelopathies**
- Long/Short QT Syndrome
- Bnigada/J-Wave Syndrome
- Catecholaminergic Polymorphic
- Ventricular Tachycardia (CPVT)
- Congenital Heart Diseases

**Aortic Vascular Diseases**
- Marfan syndrome
- Loeys-Dietz Syndrome
- Ehlers-Danlos Syndrome
- Thoracic Aortic Aneurysms/Dissections (TAAD)
- Arterial Tortuosity Syndrome

## PATIENTS AT RISK

**Patients with a Family history of cardiovascular, Obesity, Long term, Hyperchromatosis**

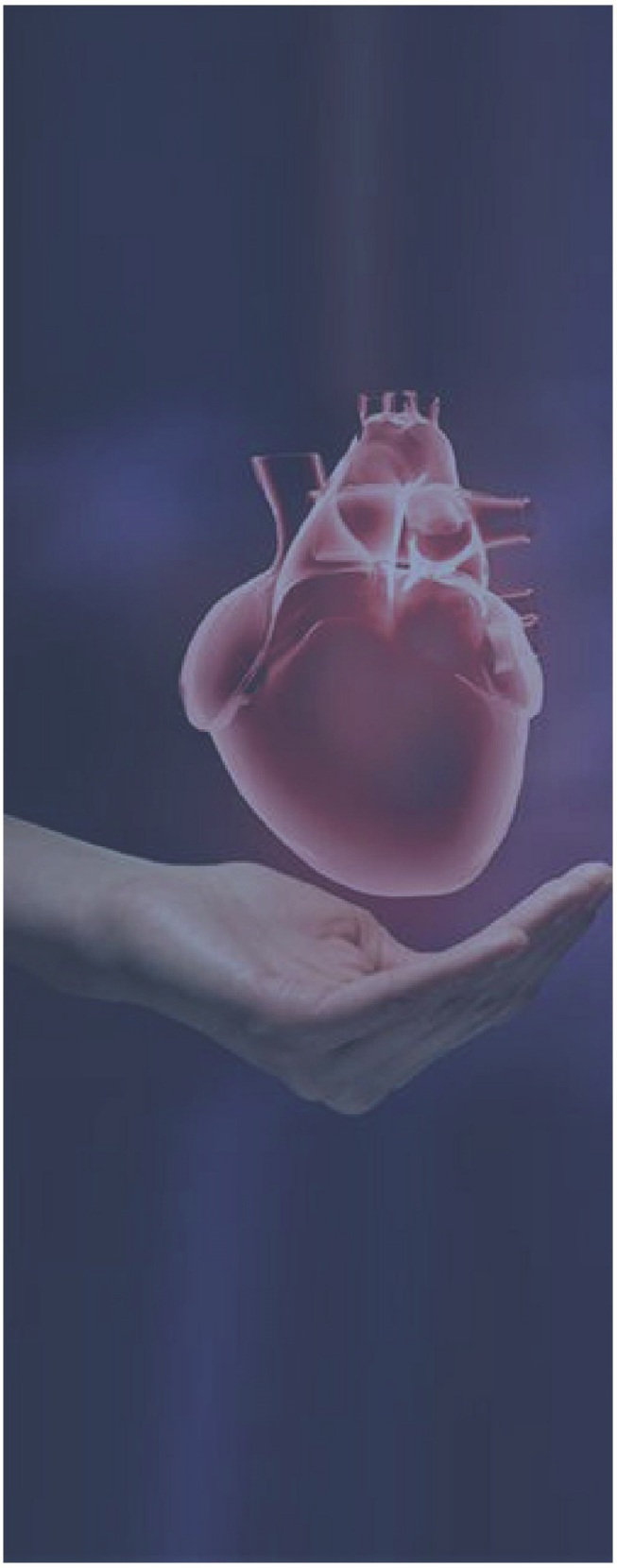
Identification of pathogenic or likely pathogenic variants in dominant disorders or their combinations in different alleles in recessive disorders are considered a molecular confirmation of the clinical diagnosis. In these cases, family member testing can be used for risk stratification. We do not recommend using variants of uncertain significance (VUS) for family member risk stratification or patient management. Genetic counseling is recommended.

## COMMON SYMPTOMS

Enlarging or enlarged left ventricle in case of dilated cardiomyopathy, thickening or thickened heart muscle especially left ventricular septum leading poor flow of blood in case of Hypertrophic CM. The above conditions will lead to breathlessness, swelling of legs, ankles, cough while lying down, dinginess, rapid heartbeats.

## ADVANTAGES OF THIS TEST

1. To verify whether the disease is caused by a genetic mutation
2. To verify the risk of developing cardiovascular due to family history and preliminary symptoms
3. To verify whether an individual has inherited a condition from one of their parents (despite them not showing any symptoms).
4. To see if an individual is likely to pass cardiovascular to his/her children.
5. Helps in early detection or likelihood of getting cardiovascular and aids in future disease management.



## HOW MEDEX LABORATORIES CAN HELP

Our extensive insurance network includes most major payers, so testing is typically covered for patients who meet current guidelines

Our online portal provides results instantaneously

Our LIS Integration with EMRs simplifies result availability and frees up time for your clinic

# COLLECTION GUIDE

## Collection Procedure for Genotek ORACOLLECT Dx (REF: OCD-100) Swabs

- First, read and follow the guidelines pictured on the packaging.
- Before opening the packaging, make sure the patient has not had any food for at least 30 mins before collection.
- Have the patient rinse their mouth by swishing water and spiting out any excess.
- Remove the swab from the packaging and place the swab in the patient's mouth between the lower gum-line and cheek. Move the swab in a slow circular motion about 10 times and then switch to the same region on the other cheek.
- Once swabbing is complete, flip the swab cap so the swab is inside the tube and tighten the cap.
- Invert the tube 10 times to saturate the swab with the blue transport media.
- Label with the required information on the swab container. Patient name and date of birth are minimum requirements.
- The swab can be shipped and/or stored at room temperature (15 — 25°C). Ensure the specimen is labeled and transported to the laboratory with the completed requisition.

## COLLECTION PROCEDURE FOR BUCCAL SWABS

- These swabs are used for the retrieval of buccal cells. Single use only.
- Store at room temperature. Use only if swab wrapper and breathable paper at base of swab holder are intact.
- Follow the correct sampling procedure to avoid risk of the swab head detaching in the mouth. If swab head does become detached from the swab stick whilst in the mouth, remove it immediately.

1. Remove swab from packaging and place label with required information on swab. Patient name and date of birth are minimum requirements.
2. Collect two swabs from both cheeks per patient.
3. Pull the swab from it's sheath and take care not to touch the white swab head with fingers.
4. Insert the swab into the mouth and rub firmly against the inside of the cheek or underneath lower or upper lip.
5. For standard DNA collection, rub for 1 minute and in all cases rub for a minimum of 20 seconds.
6. Air dry the swab for 30 seconds and place back into the sheath.
7. The swab can be shipped and/or stored at room temperature (15 — 25°C). Ensure the specimen is labeled and transported to the laboratory with completed requisition.

# TEST INFORMATION

| | |
|---|---|
| Description | Hereditary Cardiac Disease Panel |
| Method | Next Generation Sequencing |
| Specimen Requirements | Buccal swab shipped at room temperature |
| Turnaround Time | 3 to 4 Weeks |
| Shipping | Pickup/FedEx Service Available Monday - Friday |
| Testing Performed | Monday - Saturday |

Medex Laboratories is a full service, national diagnostic testing laboratory headquartered in Houston, Texas with concentrations in clinical diagnostics, toxicology, genetic sequencing and molecular testing. Medex Laboratories is devoted to redefining diagnostic services by providing medical practitioners and their patients with exceptional customer service paired with the most advanced and informative medical analytics to assist them in making effective treatment decisions.

Medex Laboratories fully automated laboratory utilizes state-of-the-art technologies to deliver high quality test results and service while exceeding the turnaround time requirements and demands of our physician clients. Medex Laboratories currently analyzes samples for hundreds of thousands of patients per year from providers and healthcare facilities all across the nation.

As our clients have trusted our laboratory with being an analytical and integral part of their patients' diagnosis and treatment process, we believe in respecting that trust with continuous dedication to customer satisfaction and support. We join our clients and physicians in their belief that patient care is and always will be the number one priority. Medex Laboratories' personalized support and professional service continue to exceed the expectations of our valued clients, providers and facilities. More healthcare facilities and providers, in private practices, in hospitals and in long term care facilities, are placing their trust in Medex Laboratories; and, together we are transforming advanced diagnostic information into knowledge and superior treatment options for more and more patients every day.

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www.medexdiagnosticservices.com
CLIA # 45D2222222 | NPI # 1740886449 | Lab Director : Dr. Rodolfo J. Nudelman
Lab Address : 9525 Bissonnet Street, Suite # 250, Houston TX 77036
Tel : 844 963 1574 | Fax : 832 345 1629
Email : contact@medexdiagnosticservices.com