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Product datasheet

Human Cardiac Troponin I ELISA Kit, Fluorescent ab229404

Recombinant CatchPoint SimpleStep ELISA

5 Images

Overview

Product name Human Cardiac Troponin I ELISA Kit, Fluorescent

Detection method Fluorescent

Precision

Intra-assay

Sample	n	Mean	SD	CV%
Overall	8			4.51%

Inter-assay

Sample	n	Mean	SD	CV%
Overall	3			13.48%

Sample type Cell culture supernatant, Serum, Cell culture extracts, Tissue Extracts, Hep Plasma, Tissue Homogenate

Assay type Sandwich (quantitative)

Sensitivity 17 pg/ml

Range 0.02 ng/ml - 10 ng/ml

Recovery

Sample specific recovery

Sample type	Average %	Range
Serum	95	93% - 101%
Cell culture media	102	93% - 105%
Hep Plasma	99	96% - 105%
Tissue Homogenate	103	99% - 108%

Assay time 1h 30m

Assay duration	One step assay
Species reactivity	**Reacts with:** Human
Product overview	Cardiac Troponin I *in vitro* CatchPoint SimpleStep ELISA (Enzyme-Linked Immunosorbent Assay) kit is designed for the quantitative measurement of Cardiac Troponin I protein in human serum, plasma, cell culture supernatants, and cell and tissue extracts. This CatchPoint SimpleStep ELISA kit has been **optimized for Molecular Devices Microplate Readers**. Click **here** for a list of recommended Microplate Readers. If using a Molecular Devices' plate reader supported by SoftMax® Pro software, a preconfigured protocol for these CatchPoint SimpleStep ELISA Kits is available with all the protocol and analysis settings at **www.softmaxpro.org**. The CatchPoint SimpleStep ELISA employs an affinity tag labeled capture antibody and a reporter conjugated detector antibody which immunocapture the sample analyte in solution. This entire complex (capture antibody/analyte/detector antibody) is in turn immobilized via immunoaffinity of an anti-tag antibody coating the well. To perform the assay, samples or standards are added to the wells, followed by the antibody mix. After incubation, the wells are washed to remove unbound material. CatchPoint HRP Development Solution containing the Stoplight Red Substrate is added. During incubation, the substrate is catalyzed by HRP generating a fluorescent product. Signal is generated proportionally to the amount of bound analyte and the intensity is measured in a fluorescence plater reader at 530/570/590 nm Excitation/Cutoff/Emission.
Notes	The regulatory troponin complex regulates skeletal and cardiac muscle contraction. This complex, together with tropomyosin, is located on the actin filament and it is composed of three protein subunits: troponin T (the tropomyosin-binding subunit), troponin I (the inhibitory subunit, which inhibits the ATPase activity of acto-myosin), and troponin C (the Ca2+-binding subunit). Troponins T and I have unique cardiac isoforms, whereas cardiac and skeletal muscle share troponin C. Specifically, three human troponin I isoforms have been described: one is expressed in cardiac muscle (Cardiac Troponin I) and the other two are found in slow-twitch and fast-twitch skeletal muscle fibers (slow sTnI and fast sTnI, respectively). The overlap in sequence between Cardiac Troponin I and slow sTnI is approximately 40% and somewhat less for fast sTnI. Cardiac Troponin I is 209 amino acid long with a molecular weight of approximately 24 kDa. Mouse and rat Cardiac Troponin I proteins both show 93% amino acid identity to human Cardiac Troponin I. The presence of human Cardiac Troponin I in serum (together with chest pain and electrocardiographic changes) is now considered as one highly specific biochemical marker of myocardial injury, risk stratification of acute coronary syndrome and myocardial infarction. Mutations of Cardiac Troponin I are associated with hereditary cardiomyopathy. Specifically, defects in Cardiac Troponin I are the cause of cardiomyopathy familial hypertrophic type 7 (CMH7). Familial hypertrophic cardiomyopathy is a hereditary heart disorder characterized by ventricular hypertrophy, which is usually asymmetric and often involves the interventricular septum. The symptoms include dyspnea, syncope, collapse, palpitations, and chest pain. They can be readily provoked by exercise. The disorder has inter- and intra-familial variability ranging from benign to malignant forms with high risk of cardiac failure and sudden cardiac death. Defects in Cardiac Troponin I also cause cardiomyopathy familial restrictive type 1 (RCM1). RCM1 is a heart muscle disorder characterized by impaired filling of the ventricles with reduced diastolic volume, in the presence of normal or near normal wall thickness and systolic function. Furthermore, cardiomyopathy dilated type 2A (CMD2A) and cardiomyopathy dilated type 1FF (CMD1FF), disorders characterized by ventricular dilation and impaired systolic function resulting in congestive heart failure and arrhythmia, are caused by defects in Cardiac Troponin I.

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It is the responsibility of our customers to check the necessity of application of REACH Authorisation, and any other relevant authorisations, for their intended uses.

Platform Pre-coated microplate (12 x 8 well strips)

Properties

Storage instructions Store at +4°C. Please refer to protocols.

Components	1 x 96 tests
100X Stoplight Red Substrate	1 x 120µl
10X Human Cardiac Troponin I Capture Antibody	1 x 600µl
10X Human Cardiac Troponin I Detector Antibody	1 x 600µl
10X Wash Buffer PT (ab206977)	1 x 20ml
500X Hydrogen Peroxide (H_2O_2, 3%)	1 x 50µl
50X Cell Extraction Enhancer Solution (ab193971)	1 x 1ml
5X Cell Extraction Buffer PTR (ab193970)	1 x 10ml
Antibody Diluent CPI - HAMA Blocker (ab193969)	1 x 6ml
Human Cardiac Troponin I Lyophilized Recombinant Protein	2 vials
Plate Seals	1 unit
Sample Diluent NS (ab193972)	1 x 50ml
SimpleStep Pre-Coated Black 96-Well Microplate	1 unit
Stoplight Red Substrate Buffer	1 x 12ml

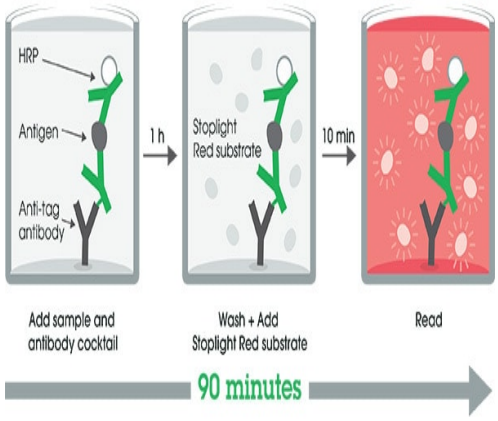
Function Troponin I is the inhibitory subunit of troponin, the thin filament regulatory complex which confers calcium-sensitivity to striated muscle actomyosin ATPase activity.

Involvement in disease Defects in TNNI3 are the cause of cardiomyopathy familial hypertrophic type 7 (CMH7) [MIM:613690]. Familial hypertrophic cardiomyopathy is a hereditary heart disorder characterized by ventricular hypertrophy, which is usually asymmetric and often involves the interventricular septum. The symptoms include dyspnea, syncope, collapse, palpitations, and chest pain. They can be readily provoked by exercise. The disorder has inter- and intrafamilial variability ranging from benign to malignant forms with high risk of cardiac failure and sudden cardiac death.
Defects in TNNI3 are the cause of cardiomyopathy familial restrictive type 1 (RCM1) [MIM:115210]. RCM1 is an heart muscle disorder characterized by impaired filling of the ventricles with reduced diastolic volume, in the presence of normal or near normal wall thickness and systolic function.
Defects in TNNI3 are the cause of cardiomyopathy dilated type 2A (CMD2A) [MIM:611880].

Dilated cardiomyopathy is a disorder characterized by ventricular dilation and impaired systolic function, resulting in congestive heart failure and arrhythmia. Patients are at risk of premature death.
Defects in TNNI3 are the cause of cardiomyopathy dilated type 1FF (CMD1FF) [MIM:613286].
Dilated cardiomyopathy is a disorder characterized by ventricular dilation and impaired systolic function, resulting in congestive heart failure and arrhythmia. Patients are at risk of premature death.

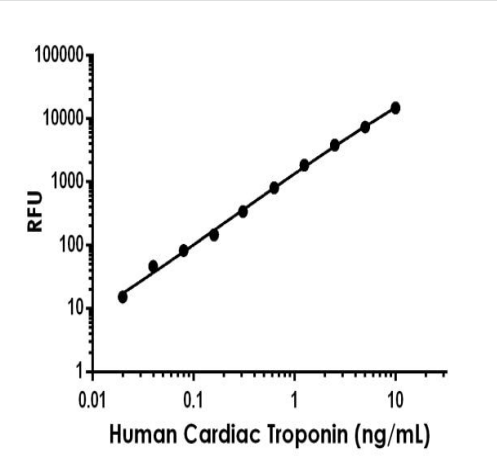
Sequence similarities Belongs to the troponin I family.

Images



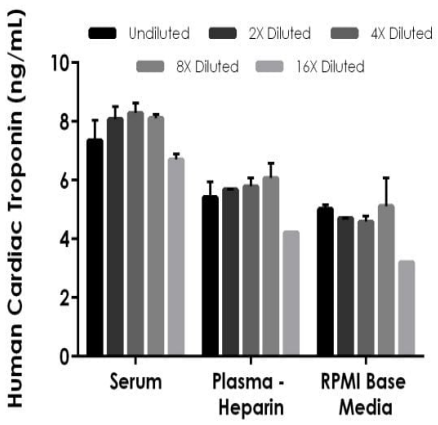
Other - Human Cardiac Troponin I ELISA Kit, Fluorescent (ab229404)

SimpleStep ELISA technology allows the formation of the antibody-antigen complex in one single step, reducing assay time to 90 minutes. Add samples or standards and antibody mix to wells all at once, incubate, wash, and add your final substrate. See protocol for a detailed step-by-step guide.



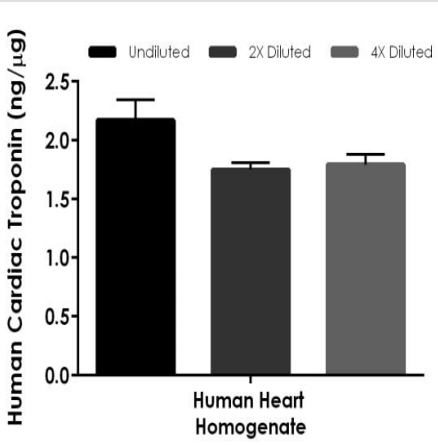
Example of human Cardiac Troponin I standard curve in Sample Diluent NS.

Background-subtracted data values (mean +/- SD) are graphed.



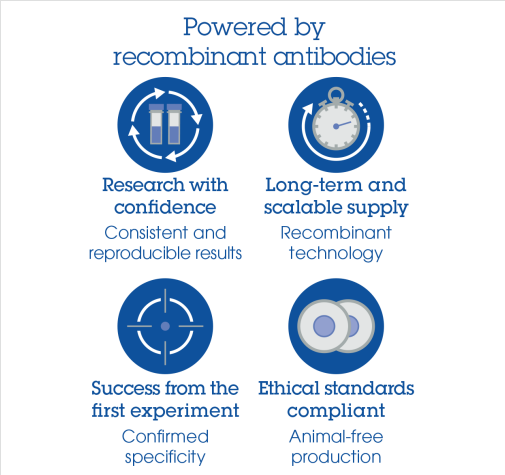
Linearity of dilution of spiked Cardiac Troponin I in serum, heparin plasma, and cell culture media.

Recombinant human Cardiac Troponin I was spiked into serum (1:4), heparin plasma (1:4), and cell culture media (1:10) and then diluted in a 2-fold dilution series in Sample Diluent NS. The interpolated dilution factor corrected vales are graphed (mean +/- SD).



Linearity of dilution of native Cardiac Troponin I in human heart homogenate.

Native Cardiac Troponin I in human heart homogenate (0.4 µg/mL) was diluted in a 2-fold dilution series in 1X Cell Extraction Buffer PTR. The interpolated concentration corrected vales are graphed (mean +/- SD).



Sandwich ELISA - Human Cardiac Troponin I ELISA Kit, Fluorescent (ab229404)

To learn more about the advantages of recombinant antibodies see **here**.

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