



Interpretation of 5th Gen Troponin T Results

See algorithm for complete details

UnityPoint Health
Des Moines

4th vs 5th Gen Troponin T Comparison Guideline

4 th Gen Trop T	5 th Gen Trop T
0.01ng/ml	30ng/L
0.03ng/ml	53ng/L
0.1ng/ml	100ng/L
1ng/ml	1000ng/L

The equation below is a rough guideline for conversion between the 4th Gen Trop and the 5th Gen Trop. This is useful for 5th Gen results >100ng/L.

$$4^{\text{th}} \text{ Gen Trop T (ng/ml)} \times 1000 = 5^{\text{th}} \text{ Gen Trop T (ng/L)}$$

Normal 5th Gen Trop T is F: ≤10ng/L M: ≤15ng/L

0 hour result	Interpretation
F: ≤10ng/L M: ≤15ng/L & Pain onset >6 hrs	Acute myocardial injury ruled out
Other	Indeterminate: 2-hour test recommended
>100ng/L	Acute myocardial injury ruled in
2 hour change	Interpretation
≤3 ng/L	Not changing: Acute myocardial injury ruled out
4-9ng/L	Indeterminate: 6-hour test recommended
≥10ng/L	Changing: Acute myocardial injury ruled in
6 hour change	Interpretation
<12ng/L	Not changing: Acute myocardial injury ruled out
≥12ng/L	Changing: Acute myocardial injury ruled in

5th Generation Troponin T Major Points

Troponins are released during myocyte necrosis and/or increased permeability of the cell wall. Generally they are cardiac specific, however are not specific for MI.

5th Generation troponin T is a high-sensitivity troponin T test and is the biomarker of choice to test for possible myocardial injury. Elevation begins early after myocardial injury and may remain elevated for more than 14 days.

Interpretation and risk stratification requires the integration of clinical data.

Elevated values may not be due to acute myocardial infarction however may indicate myocardial injury (acute or chronic). A rising and/or falling pattern distinguishes acute from chronic myocardial injury.

Patient's with stable increases in 5th gen troponin are at increased long term risk however should not require hospitalization based solely on a single lab result.

CAUSES OF ↑ TROPONIN T (EXCLUDING ACS)

- 1) Sepsis
- 2) Renal failure
- 3) Acute respiratory failure
- 4) Shock/hypotension/hypoperfusion
- 5) Heart failure
- 6) Pulmonary embolism
- 7) Stroke
- 8) Severe hypertension
- 9) Malignancy

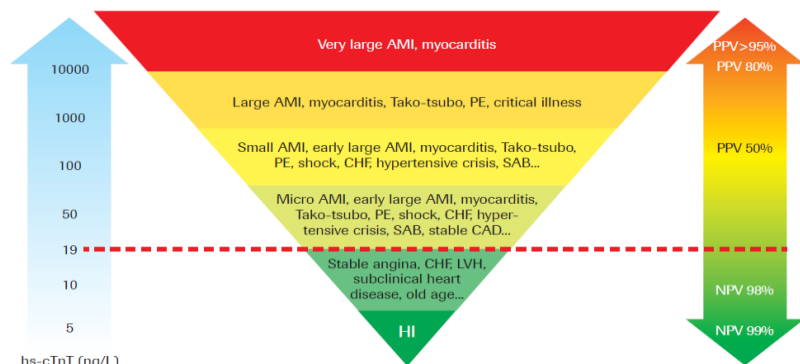
No interference seen up to

Skeletal muscle troponin T 10000 ng/L
Skeletal muscle troponin I 100000 ng/L
Cardiac troponin I 10000 ng/L
Human troponin C 80000 ng/L

Samples showing visible signs of hemolysis may cause interference.

Falsely depressed results are obtained when using samples with free hemoglobin concentrations > 0.1 g/dL.

High-Sensitivity Cardiac Troponin as a Quantitative Marker



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Yader Sandoval, MD, Allan S. Jaffe, MD. Using High-Sensitivity Cardiac Troponin T for Acute Cardiac Care. *The American Journal of Medicine* (2017) 130, 1358-1365

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