

## **FAQ to cardiac infarction test QuickSens®h-FABP of company 8sens.biognostic GmbH, Berlin**

### ***What is the test for?***

To facilitate an earlier treatment of patients that have an acute myocardial infarction (AMI), also called heart attack. When an AMI occurs every minute counts. Effective therapies are nowadays available, but the diagnosis of AMI often remains extremely time consuming, resulting in a too late onset of treatment.

### ***What happens during a myocardial infarction?***

The cardiac muscle is supplied with oxygen and nutrients through the coronary arteries. There exists a natural risk that one of these vessels suddenly becomes obstructed, for instance, by a blood clot. Such an event is called an acute myocardial infarction. Due to the interruption of the supply to the heart muscle, the affected area of the heart muscle gets damaged. The longer the occlusion persists, the more tissue is destroyed.

### ***How does an early diagnosis help AMI patients?***

An AMI consists of two phases – the sudden obstruction of the vessel and the subsequent damaging of the affected area. The later can be stopped very effectively by revascularization treatment. The sooner the treatment starts, the more tissue is saved.

### ***Where is the test being used?***

The test is ideal for all institutions that perform AMI triaging, like emergency units, ambulances, and intensive care departments. It is also very useful for institutions that take care of risk persons like general hospitals, nursing homes and old people's homes. It is furthermore the first test suited for self testing, because of the short waiting prior to testing and its ease of use. By using the test the patient may support the emergency physician in the diagnosis.

### ***How does it work?***

When a person has a myocardial infarction cells of the myocardium get destroyed. This effect is called necrosis. The necrosis causes the release of several heart-specific proteins from the cells into the blood stream. It detects one of this proteins, h-FABP (heart-Fatty Acid-Binding Protein).

### ***What makes it different?***

The use of the cardiac marker h-FABP. This gives the test a superior diagnostic reliability in the first hours after an infarction.

### ***How is the test performed?***

A blood sample is taken from the test person and applied on a test field on the test. Latest 15 minutes thereafter the result can be read directly on the cassette in form of one or two indicator band.

### ***What are the advantages?***

It is an infarction test that has both qualities "high sensitivity" and "high specificity" during the early phase of AMI.

It provides a reliable result already within the important first hours after an infarction. This permits an earlier onset of treatment which leads to less myocardial tissue loss.

By use of the test non-AMI patients can be excluded from treatment at an early stage. This decreases the amount of treatments on a suspect base and observation stays. Thus, less patients suffer unnecessary side effects and significant costs can be saved to the health system.

***What's so special about h-FABP?***

In contrast to the traditional markers it is a reliable marker even in the first hours after an infarction. The traditional markers are either fast or reliable.

***Why can h-FABP be detected much earlier than Troponin?***

In contrast to h-FABP and Myoglobin, Troponin is a protein that is structurally bound. It needs to dissociate from the myofibrillar structure before it can enter the interstitial space. Furthermore, due to its small size h-FABP (and Myoglobin) can cross the endothelial cell barrier directly whereas Troponin must be transported through the lymph drainage (By the way, the same applies to CK-MB).

***But why can it be detected even earlier than Myoglobin?***

Because the concentration gradient between Myocardium and blood is about 4 times higher for h-FABP. Therefore, whilst both are released almost simultaneously the percentage rise in h-FABP is much sharper and higher (peak rise h-FABP: 30fold; Myoglobin: 15fold).

***Is h-FABP present in other parts of the body?***

Yes, h-FABP is also present in the skeletal muscle with about 10-30 % of the mass present in the myocardium. Furthermore it appears for example in the brain and the kidneys, but to a very low extent.

***Why are the ELISA tests for h-FABP not commonly used?***

They take too long to be used for early detection of AMI.

***Does medication interfere with the test?***

No interference is known so far.

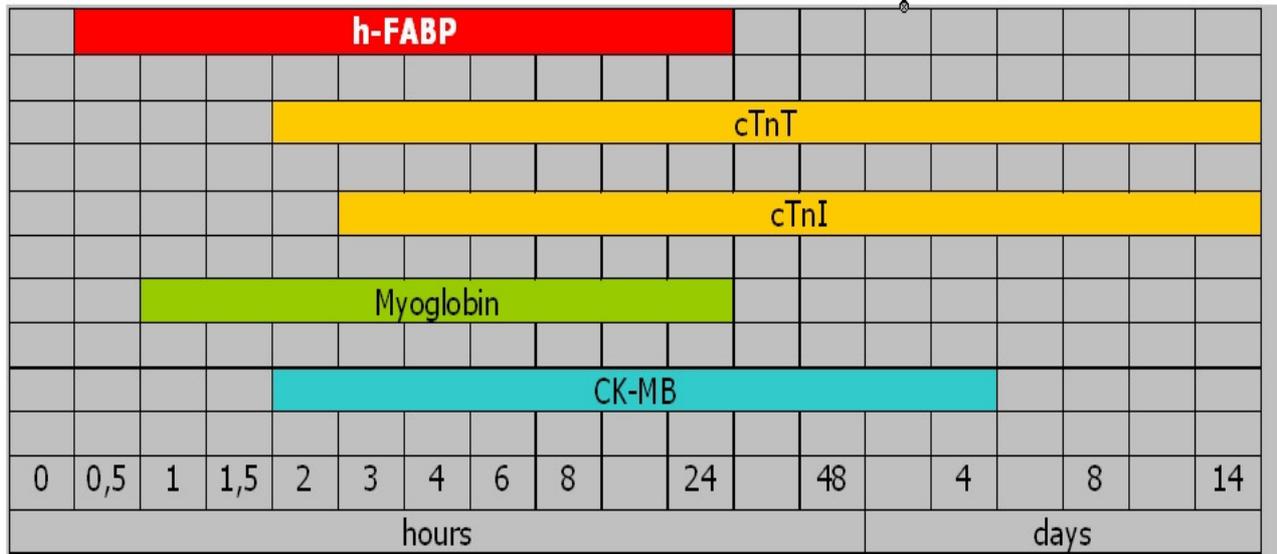
***Can false-negatives occur?***

Yes, in case that the test is used at the borders of the diagnostic window (20min to 24 hours). Although the test has a very high sensitivity, it can not provide absolute reliability, due to the individual differences in the infarction process. In case that the symptom onset was just some hours ago and the test result is negative than the test should be repeated, e.g. after 2 hours, prior to releasing the patient. There are no medical tests with a 100% reliability. Also the Troponin tests are repeated if the result is negative (4 hours later) before the patient is released.

***Can false-positives occur?***

There are two cases known in which a false-positive result may occur: 1. Excessive physical activity. This is due to the fact that h-FABP is also present in the skeletal muscle. Heavy exercise may damage skeletal muscle cells and, thus, increase the normal level of h-FABP in the blood. 2. Renal insufficiency. h-FABP is delivered constantly from the muscles into the blood stream and is washed out with the kidneys. If the kidneys are deficient the h-FABP level is elevated.

Comparison of time of the different markers



8sens.biognostic GmbH  
 Robert-Roessle- Str. 10  
 D- 13125 Berlin  
 Germany  
[www.biognostic.de](http://www.biognostic.de)