

## 2. BIOSENSOR SYMPOSIUM

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### **Early detection of acute myocardial infarction with the new marker Fatty Acid-Binding Protein: rapid testing and diagnostic value**

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#### **Poster**

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There are several requirements for the early detection of AMI with biochemical markers:

The *biochemical marker* should be:

- ✍ Specific
- ✍ Sensitive
- ✍ Fast elevated after the clinical onset of the symptoms.

The *test* should be:

- ✍ Easy to perform
- ✍ Give a fast result
- ✍ Preferably bedside
- ✍ Inexpensive

Here, we demonstrate the biochemical characteristics of heart-type Fatty Acid-Binding Protein (FABP) in AMI and UAP patients. Also, we show some preliminary data on a new in-house made quantitative rapid test with simple test procedures.

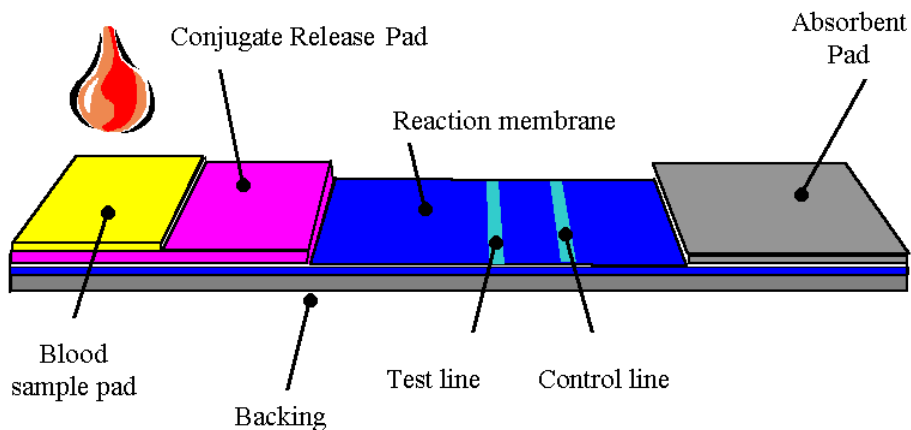


Fig. 1 The layout of the dipstick rapid test

**Methods:**

- ✍ Patients: 50 patients of the CCU of PWH are included in the study diagnosed with UAP or AMI. Eight blood samples per patient were taken at 0-72 hours after admission and analyzed with a laboratory ELISA test.
- ✍ Rapid test procedure: 80 µl plasma or serum is added on the sample pad. Within 5 minutes, the strip can be read out with an optical reader (the PART from LRE, Munich, Germany).

**Results:**

A release curve for AMI patients shows a significantly elevated FABP concentration already 1 hour after infarction, whereas for CPK, this is found after 3 hours (Fig. 2).

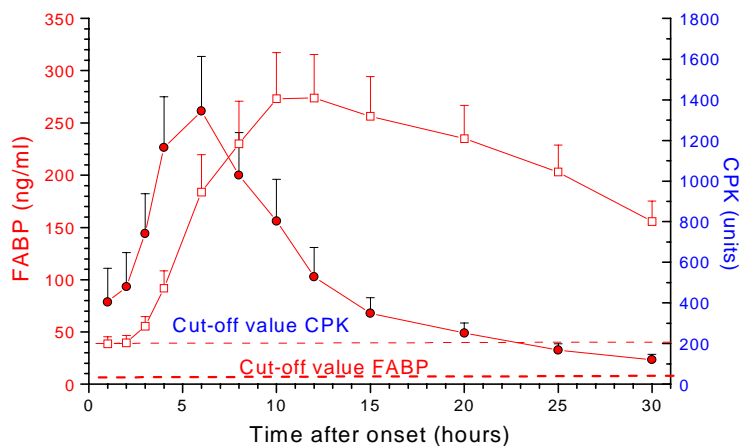


Fig. 2 Comparison of the release of FABP (15 kD) and Creatine PhosphoKinase (CPK, 86 kD)

Comparing the ROC curve for patients arriving at the hospital and 1 hour later for FABP and CPK demonstrates the preference of FABP over CPK (Fig.3).

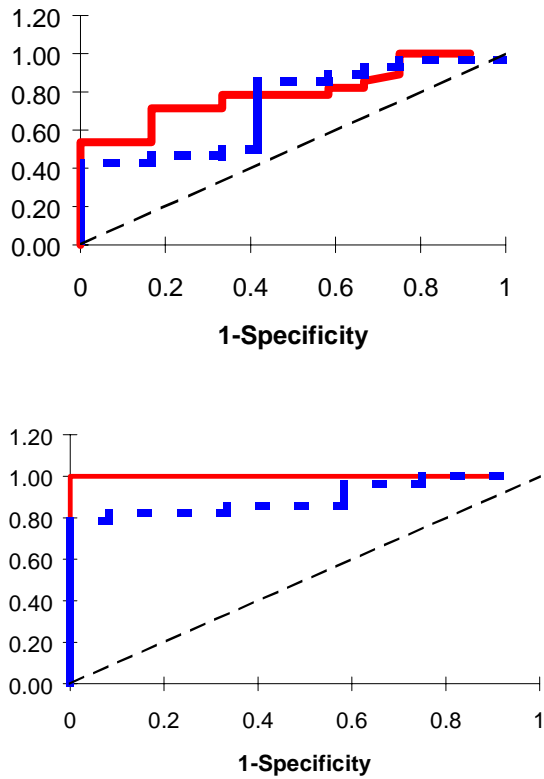


Fig. 3 Differentiation of AMI and Unstable

Angina Pectoris (UAP) patients at admission (upper) and one hour after admission (lower)

The preliminary results of the rapid test show for selected plasma and serum samples a measuring range of 0-200 ng/ml FABP (Fig. 4).

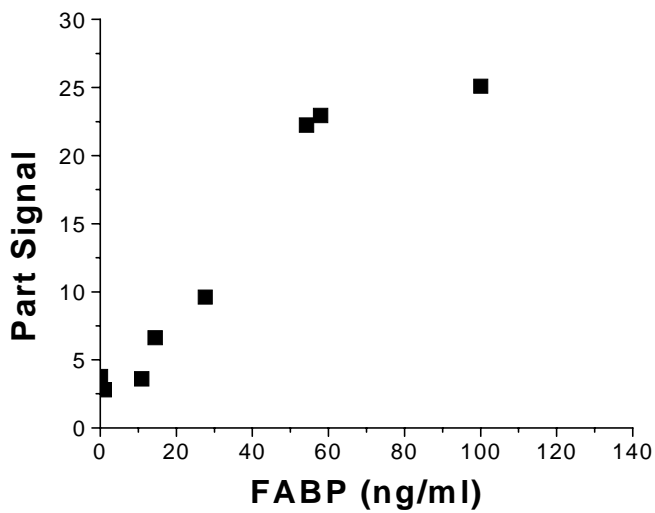


Fig. 4B Patient Samples analysed with the rapid test

**Conclusion:**

The availability of a rapid bedside test for FABP enables faster diagnosis in patients with no clear ECG. This can be used for both inclusion or exclusion of AMI.

**Literatur**

- [1] Niemeyer, C. and Blohm, D. (1999) *Angew. Chem.*, **111**, 19.
- [2] Graber, J. H., O'Donnel, M. J., Smith, C. L. and Cantor, C. R. (1998) *Curr. Opin. Biotechnol.*, **9**
  
- [a] <http://www.barolo.ipc.uni-tuebingen.de>
- [b] <http://barolo.ipc.uni-tuebingen.de>