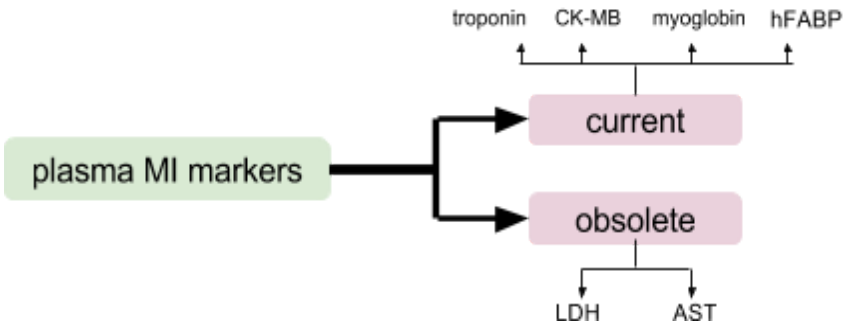
Criteria for diagnosis of MI	Features of an ideal cardiac marker (*troponin)
To diagnose MI, the presence of at least two of the following characteristics is required: 1. Typical heart attack symptoms 2. Characteristic rise and fall pattern of a cardiac marker in plasma: • Rise and gradual fall of cardiac troponins • More rapid rise and fall of CK-MB 3. Typical ECG pattern	1. High concentration in the myocardium 2. High sensitivity (detected in low concentration at early stages) 3. High specificity (for cardiac tissue damage) 4. Rapid release into plasma 5. Good prognostic value (strong correlation between plasma level and extent of myocardial injury) 6. Easily measured
Blood samples collected after MI	• Baseline (upon admission) • Between 12 and 24 hours after the onset of symptoms



Troponin	CK-MB	Myoglobin	hFABP
• structural proteins in cardiac myocytes and skeletal muscle • "cardiac troponins (cTn) are structurally different from muscle troponins"	• it rises and falls transiently after MI • More than 5 % is indicative for MI	• non-specific because it is elevated in: ★ Muscle disease/injury ★ Acute and chronic renal failure • sensitive marker of cardiac damage	• cytosolic protein involved in fatty acid transport & metabolism • Appears 30 min after acute ischemia early marker for detecting acute ischemia prior to necrosis
↑ specific for MI	sensitive & specific for MI		
• Appear in 3-4 h after MI • Remain elevated for up to 10 days	• Appear in 3-10 h after MI • Returns to normal within 2-3 days	• Appears early (within 1-4 hours)	**BNP**
After a MI, cytosolic troponins are released rapidly (first few hours) Structurally bound troponins are released later for several days	• Useful for diagnosis of re-infarction • Not highly specific (it is elevated in skeletal muscle damage & in atheletes)	early marker of MI	• produced by the ventricles in response to myocardial stretching and ventricular dysfunction after MI • marker for detecting CHF "differential diagnosis of pulmonary diseases and CHF"