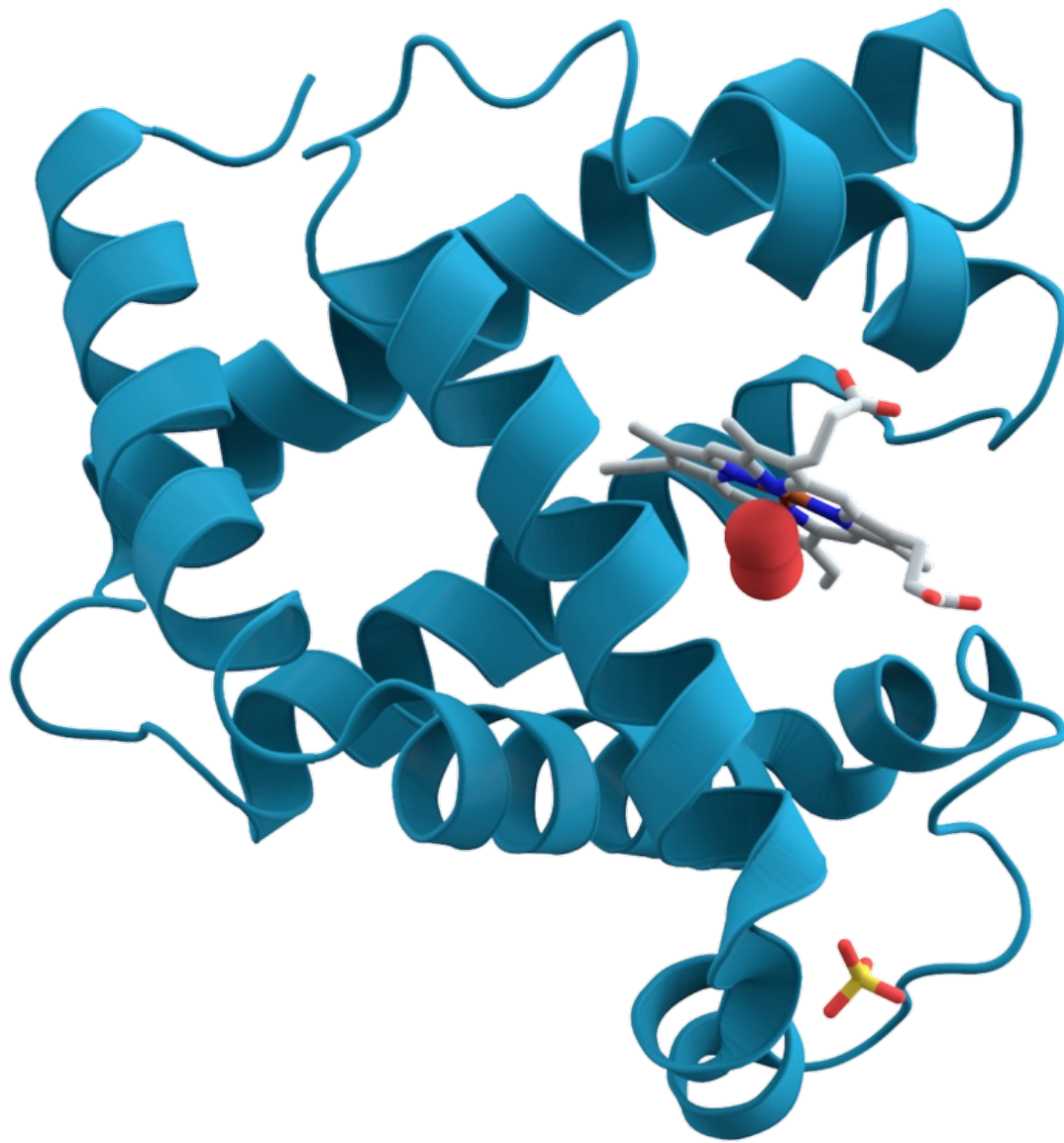


Myoglobin



Myoglobin is a globular protein consisting of a single chain of amino acids that contains heme as a prosthetic component . It reversibly binds and transports oxygen in muscle cells. Myoglobin **from skeletal muscle and myocardium is identical** . In the kidneys, it is filtered through the glomerular membrane and excreted in the urine. It has a very short biological longevity, 10-20 minutes.

Unlike hemoglobin myoglobin contains only one heme group and one globin chain, and therefore can transport only one O₂ molecule . The affinity of myoglobin for oxygen is higher compared to hemoglobin . ^[1]

As a *low molecular weight cytoplasmic protein*, it is very quickly released from the affected tissue. Elevated serum myoglobin levels in acute myocardial infarction (AMI) begin rapidly (0.5–2 hours) from the onset of chest pain. Myoglobin levels, which can reach 20 times physiological levels, peak in about 6-12 hours and return to baseline within 12-24 hours. Myoglobin is considered to be the most sensitive biochemical marker of acute myocardial infarction suitable for early detection . The disadvantage of myoglobin determination in AIM is the lack of cardiospecificity . Its increase can be observed:

- any skeletal muscle damage (including eg intramuscular injections or minor bruising after a fall),
- after a large muscular load (including, for example, engaging the abdominal press during prolonged vomiting),
- in renal insufficiency.

Myoglobin determination may rule out an acute myocardial infarction: if it is certain that the blood was taken outside the diagnostic window, ie more than 2 hours after the onset of chest pain or other symptoms, and if serum myoglobin is within the reference range, the diagnosis of acute infarction is myocardial infarction. If myoglobin is positive, it is necessary to differentially consider the reason for its increase (myocardium, skeletal muscle, renal insufficiency) and it is usually necessary to evaluate more specific cardiomarkers - troponin or CK-MB mass.

Various immunochemical methods are used for the determination (immunoturbidimetry, immunonephelometry, enzyme immunoassays, rapid immunochemical tests).

Links

External links

- Myoglobin (Czech wikipedia)
- Myoglobin (English wikipedia)

References

1. ŠVÍGLEROVÁ, Jitka. *Myoglobin* [online]. The last revision 2009-02-18, [cit. 2010-11-12]. <<https://web.archive.org/web/20160416224337/http://wiki.lfp-studium.cz/index.php/Myoglobin>>.