

### Myoglobin from equine skeletal muscle

Product Number **M 0207**  
Storage Temperature -0 °C

#### Product Description

CAS Number: 100684-32-0  
Molecular Weight: 17.6 kDa<sup>1</sup>  
Extinction Coefficient:  $E^{mM} = 12.92 (555 \text{ nm})^2$   
pI: 7.3 (major component) and 6.8 (minor component)<sup>3</sup>

Myoglobin from horse skeletal muscle is a single chain heme protein containing 153 amino acid residues. It possesses no disulfide bridges or free -SH groups. Myoglobin contains 8 variously sized right-handed helical regions, joined by non-ordered or random coil regions. These 8 helices (A, B, C, D, E, F, G, H) are folded back on top of one another, and the heme is situated between helices E and F. The heme is almost totally buried. Only the edge carrying the two hydrophylic propionic acid groups is exposed. The heme is held in position by a coordinating complex between the central Fe(II) atom and 2 histidine residues (on helices E and F, respectively). One of these histidines binds to the oxygen of the water molecule, which is bound to the heme. The position and the functional competence of the heme depends on the hydrophobic amino acids that line the inside of the heme pocket. The function of myoglobin is oxygen storage and transfer (from hemoglobin to respiratory enzymes). The affinity of myoglobin for oxygen is higher than that of hemoglobin.<sup>4</sup> Slight changes in the tertiary structure of myoglobin destroy the oxygen binding function of the heme. Metmyoglobin, myoglobin with Fe(III), does not bind oxygen. Myoglobin is found in skeletal muscle.<sup>4</sup>

#### Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

#### Preparation Instructions

This protein is soluble in water (20 mg/ml), yielding a clear red brown solution.

#### References

1. Darbre, P. D., et al., Comparison of the myoglobin of the zebra (*Equus burchelli*) with that of the horse (*Equus caballus*). *Biochim. Biophys. Acta*, **393(1)**, 201-204 (1975).
2. Bowen, W. J., The absorption spectra and extinction coefficients of myoglobin. *J. Biol. Chem.*, **179**, 235-245 (1949).
3. Radola, B. J., Isoelectric focusing in layers of granulated gels. I. Thin-layer isoelectric focusing of proteins. *Biochim. Biophys. Acta*, **295(2)**, 412-428 (1973).
4. Concise Encyclopedia Biochemistry, 2nd ed., Scott, T., and Eagleson, M., Walter de Gruyter (New York, NY: 1988), p. 386.