

عنوان مقاله:

(Isolated Diaphorase From Bovine Erythrocyte Cannot Reduce Oxidized Cytoglobin (Metcygb

محل انتشار:

مجله گزارش های بیوشیمی و زیست شناسی مولکولی، دوره 11، شماره 2 (سال: 1401)

تعداد صفحات اصل مقاله: 10

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خلاصه مقاله:

Background: Cytoglobin (Cygb) is a relatively newly identified globin protein that acts as an oxygen transporter in tissues like hemoglobin (Hb) in erythrocytes and myoglobin (Mb) in muscles. The natural oxidation of the Fe²⁺ ion in its heme group into metglobin (globin-Fe³⁺) made the loses of oxygen binding functions. It is known metHb and metMb can be reduced enzymatically using diaphorase or cyb δ r³. However, metCygb reductase had not been previously identified. This study aims to analyze the reducing activity of bovine diaphorase on metCygb. Methods: Diaphorase was isolated from bovine erythrocyte and purified using gel filtration and cationicexchanger chromatography. Its purity was verified by SDS-PAGE and western blot (WB). The metCygb was obtained from Cygb oxidation with potassium ferrocyanide and its reducing activity was determined by spectroscopy. Results: The diaphorase (MW=30.09 kDa) was purified 10.77-fold from crude enzyme with specific activity against metHb 8.479 U/mg. The purity was confirmed by WB using primary antibody anti-cyb δ r³. The purified enzyme reduced metCygb at 0.785 μ gmin⁻¹, which was 13.7 times less than the V_{max} of metHb. Conclusions: In conclusion, the purified diaphorase from bovine erythrocytes did not significantly reduce metCygb rather than metHb, a natural substrate in cells

کلمات کلیدی:

.Bovine Erythrocyte, Cytochrome B δ Reductase, Diaphorase, Metcytoglobin, Reduction

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