

Isolation and Purification of Metallothionein from Liver and Intestine of Giant Salamander Induced by Cadmium

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Abstract:

The giant salamander is very interesting animal from evolutionary point of view, because its transitional position from aquatic to terrestrial life, therefore, the present investigation dealing with the metallothionein (MT) molecular evolution of the giant salamander provides significant clues to evolution of vertebrate. Each extract of liver and intestine of giant salamander induced by subcutaneous injection of cadmium (CdCl₂) was separated by gel filtration chromatography Sephadex G-50 column, then was separated into two isometallothioneins (isoMTs) by ion-exchange chromatography DEAE Sepharose Fast Flow column. According to the results of gel filtration HPLC detection, the molecular weight of the two isoMTs was about 12 [KG-*7]000 dalton. The isoMTs contained Cd and Zn (cadmium and zinc) and the value of Cd/Zn was about 3/1. The Cys content was about 21%~24% and the product amount were about 628 μg MT/g wet liver, 185 μg MT/g wet intestine. The isoMTs have the typical amino acid composition of metallothionein and U.V. absorption shoulder near 250 nm.

Key words:

metallothionein; giant salamander; isolation and purification

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