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Title

Structure studies of platinothioneins by using extended X-ray absorption fine structure spectroscopy

Source

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Abstract

The metal binding sites in the two Pr containing metallothioneins (Pt7MT and Pt14MT) were examined by means of Pt(II) L₃-edge extended X-ray absorption finestructure (EXAFS) spectroscopy. Comparisons between the phase and amplitude functions derived from the isolated shells to those of Pt...Pt, Pt-S and Pt-N model components showed that each platinum in Pt7MT was coordinated by four sulfur atoms at a distance of 2.31±0.01 Angstrom. Analysis of the outer shell data of platinum atom in Pt7MT indicated backscattering platinum atom at approximate 4.29 Angstrom. Strikingly different structural parameters had been obtained for the Pt14MT species, fitting of the first shell revealed that each platinum was coordinated by two sulfurs at the distance of 2.30±0.02 Angstrom and two nitrogens at 2.02±0.02 Angstrom. The results of the work provided the detailed information concerning the local environments of the coordinated Pt(II) in these two platinothioneins. [References: 25]

Publication Type

Article