

Facile Uptake of Manganese(III) by Apo-Transferrin: Possible Origin of Manganism

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We have investigated the mechanism of manganese ion uptake by apo-transferrin using a capillary electrophoresis method, and obtained clear evidence that oxidation state +3 and the binuclear unit of a manganese chelate are essential factors for the facile uptake by apo-transferrin, similar to that observed for Fe(III) chelates. These results may give valuable information to understand the pathogenesis of manganism and to develop new countermeasures for the neurotoxicity by manganese ions.

Key words: Manganism, Capillary Electrophoresis, Transferrin, Binuclear Mn(III) Unit