Identification and functional Characterisation of ctr1, a *Pleurotus ostreatus* Gene Coding for a Copper Ttransporter

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Copper homeostasis is primordial for life maintenance and especially relevant for ligning-degrading fungi whose phenol-oxidase enzymes depend on this micronutrient for their activity. In this paper we report the identification of a gene (*ctr1*), coding for a copper transporter in the white rot fungus *Pleurotus ostreatus*, in a cDNA library constructed from four-days old vegetative mycelium growing in submerged culture. The results presented here indicate that: (1) *ctr1* functionally complements the respiratory deficiency of a yeast mutant defective in copper transport supporting the transport activity of the Ctr1 protein; (2) *ctr1* transcription is detected in all *P. ostreatus* developmental stages (with exception of lamellae) and is negatively regulated by the presence of copper in the culture media; (3) *ctr1* is a single copy gene that maps to *P. ostreatus* linkage group III; and (4) the regulatory sequence elements found in the promoter of *ctr1* agree with those found in other copper related genes described in other systems. These results provide the first description of a copper transporter in this white rot fungus and open the possibility of further studies on copper metabolism in higher basidiomyetes.

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