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1. JOURNAL. Ow, David W.. **Phytochelatin-mediated cadmium tolerance in Schizosaccharomyces pombe.** In: In Vitro Cellular & Developmental Biology Plant 1993. 29P (4): 213-219. Language: English; Pub type: JOURNAL ARTICLE

**Abstract:** Plants and certain fungi respond to heavy metal toxicity with the induced synthesis of metal-binding peptides known as phytochelatins (PCs). With cadmium, PCs can bind the metal to form a low molecular weight PC-Cd complex and a high molecular weight PC-Cd-S-2- complex. The sulfide ions enhance the stability and Cd-binding capacity of the metal chelate, and formation of this sulfide-containing complex is associated with enhanced tolerance to cadmium. Molecular analyses of two fission yeast mutants that fail to produce a wild type level of the PC-Cd-S-2- complex have determined that a vacuolar membrane transporter and several enzymes of the purine biosynthesis pathway are necessary in vivo for formation of the PC-Cd-S-2- complex. A model based on vacuolar sequestration of the PC-Cd complex by an ATP-binding cassette-type transporter and its subsequent maturation into the stable PC-Cd-S-2- complex via the actions of two purine biosynthetic enzymes is described.

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