

P009 Involvement of the intracellular loops of the transporter Mep2 in ammonium transport and ammonium-induced activation of the FGM pathway in *Saccharomyces cerevisiae*.

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Yeast cells starved for nitrogen stop growing and enter the stationary phase G_0 where they have an increased stress resistance. Readdition of ammonium, in the presence of a fermentable sugar activates the Fermentable Growth Medium-induced pathway (FGM-pathway). As a consequence the cells start growing again but they lose their stress resistance. *Saccharomyces cerevisiae* possesses three known ammonium permeases: Mep1, Mep2 and Mep3, which can all mediate ammonium-induced activation of the FGM-pathway to a certain extent, but Mep2 is most effective. In a *mep1Δ mep2Δ mep3Δ* mutant ammonium transport and signalling are both lost. In order to provide evidence that Mep2 acts as an ammonium sensor, point mutations in its intracellular loops 1, 2 and 4 were made. Three mutants presented a partial uncoupling between ammonium (or its homologue methylamine) transport and sensing: Mep2^{R58A K59G}, Mep2^{K60A H61G} and Mep2^{D279A Y280G}, each mutant presenting a specific effect. These results provide evidence that both for ammonium and methylamine the transport is not strictly coupled with sensing, which strongly suggests that the Mep2 permease itself acts as a sensor for these two substrates.