

**P005** The Gap1 general amino acid permease acts as an amino acid sensor for activation of Protein Kinase A targets in yeast  
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Addition of a nitrogen source to *Saccharomyces cerevisiae* cells starved for nitrogen on a glucose containing medium triggers activation of protein kinase A (PKA) targets through a pathway which requires for sustained activation both a fermentable carbon source and a complete growth medium (Fermentable Growth Medium induced (FGM) pathway). Trehalase is activated, trehalose and glycogen content and heat resistance rapidly drop, STRE-controlled genes are repressed and ribosomal protein genes are induced.

We show that activation of these targets by amino acids requires the general amino acid permease Gap1. Furthermore, specific Gap1 point mutants showed differential effects on signalling by different amino acids; signalling and transport were both affected for only some specific amino acids. This indicates that Gap1 apparently acts as an amino acid sensor for activation of the FGM-pathway which controls the PKA-targets. Further research is performed to determine the bindingsites for amino acids in Gap1 by using the substituted-cysteine-accessibility method (SCAM). These results will probably reveal more details of this type of amino acid sensing in which Gap1 is characterized as a novel 'transporter-sensor'

Keywords:

*Saccharomyces cerevisiae* / protein kinase A / nitrogen signalling / general amino acid permease Gap1