

P010 An *Arabidopsis* homologue of the yeast GCN2 protein kinase: an important regulator of protein synthesis in plants?

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We cloned a homologue of yeast GCN2 from *Arabidopsis* by RT-PCR. It contains a full-length coding region of 3723 nucleotides encoding a protein of 1241 amino acid residues with a predicted molecular weight of 140321 Da. The AtGCN2 gene is expressed constitutively in *Arabidopsis*. It was detected by RT-PCR in different parts of plant and in whole seedlings of different developmental stages. In addition, 3' and 5' RACE showed that AtGCN2 had multiple transcription start sites as well as multiple polyadenylation sites. The functional conservation between AtGCN2 and yeast GCN2 was determined by a complementation experiment using *gcn2* mutant yeast strains H1816 and Y13642. When AtGCN2 was induced to express in these mutants, both were enabled to grow on medium containing an inhibitor of amino acid biosynthesis. This showed that AtGCN2 was able to complement *gcn2* mutation.

These results suggest that a signalling pathway analogous to the GCN2/GCN4 pathway in yeast might exist in plants and that the mechanism controlling co-ordinated response to amino acid starvation might be conserved in plants.