

**P009** Roots, cycles and leaves: expression of the phosphoenolpyruvate carboxylase kinase gene family in soybean

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Phosphorylation of phosphoenolpyruvate carboxylase (PEPc; EC4.1.1.31) plays an important role in the control of central metabolism of higher plants. This phosphorylation is controlled largely at the level of expression of PEPc kinase (*PPCK*) genes. Soybean contains at least four *PPCK* genes. For two of these genes, *GmPPCK2* and *GmPPCK3*, transcript abundance is highest in nodules and is markedly influenced by supply of photosynthate from the shoots. One gene, *GmPPCK4*, is under robust circadian control in leaves but not in roots. We also report the expression patterns of five *PEPc* genes, including one encoding a bacterial-type PEPc lacking the phosphorylation site of the "plant" PEPcs. The PEPc expression patterns do not match those of any of the *PPCK* genes, arguing against the existence of specific PEPc-PEPc kinase expression partners. The *PEPc* and *PPCK* gene families in soybean are significantly more complex than previously understood.