

**Targeted disruption of a hexokinase gene in the moss *Physcomitrella patens* and characterization of the resulting phenotype.**

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Hexokinase catalyzes the first step in hexose metabolism, but has also been implicated as being involved in sugar sensing and signalling, which in turn controls a wide variety of developmental and metabolic processes in plants. The molecular details of this postulated regulatory function of plant hexokinases are largely unknown. To learn more about the function of hexokinases in plants we have cloned a hexokinase gene, *PpHKK1*, from the moss *Physcomitrella patens*. In addition to *PpHKK1*, there seem to exist at least two more hexokinase genes in the moss. We found that *PpHKK1* is constitutively expressed in chloronemal tissue. We have used a targeted disruption to knock out *PpHKK1* and are now analyzing the resulting phenotype. We have found that the *hkk1* mutant exhibits increased sensitivity to the plant hormones abscissic acid and cytokinin. There are also indications that the mutant is deficient in the growth response to glucose, which could suggest a possible function for *PpHKK1* in glucose sensing or signalling.