

## Molecular Characterisation and Expression analysis of Developmentally Regulated Genes in *Agaricus bisporus*

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Analysis of cDNA transcripts, PCR based methods and genomic library screening have been used to clone and characterise developmentally regulated genes in the cultivated white button mushroom *Agaricus bisporus*. Up-regulated genes identified during the rapid expansion phase of the sporophore include sugar transporter gene *sut1*, putative riboflavin-aldehyde-forming-enzyme gene (*raf*) and three novel morphogenes *mag2-mag4*. Further, a hexose transporter gene *sut2* and lectin genes *abl1* and *abl2*, among others have been cloned from *A. bisporus* using PCR based strategies. Northern analysis indicated their up-regulation during sporophore differentiation and development. Sugar transporter gene *sut1* transcripts increased abundantly during sporophore development and although *sut1* showed varying levels of homology to other sugar transporters, its substrate preference could not be identified based on homology. Interestingly, analysis of basidiomycete genome sequences revealed the presence of a putative *sut1* homolog in the white rot fungus *Phanerocheate chrysosporium*. On the other hand, *Ab sut2* showed strong homology to fungal glucose/hexose transporters and its homologs also appear to be present in *A. bitorquis* and *Coprinus cinereus* suggesting a generic role. Analysis of the genomic cosmid clones revealed that the lectin genes *abl1* and *abl2* are present in close proximity to each other and further characterisation is on-going.