

Mitochondrial proteomics in the moss *Physcomitrella patens*: Are there two subpopulations of mitochondria?

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Proteomics as discipline aims to identify the composition of the cellular proteome and thereby to describe the actual “toolkit” of the living cell. Additionally, the characterisation of organellar proteomes is necessary to get an insight into compartmentalised protein subsets of the cell and hence in organelle-specific pathways and functions. So far, the isolation of mitochondria and the large scale identification of mitochondrial proteins in plants have been described in the flowering plants *Arabidopsis thaliana* and *Oryza sativa*.

During the last months a protocol using differential centrifugation and density gradient purification was adapted to obtain a cellular fraction enriched in mitochondria of the non-vascular model plant *Physcomitrella patens*. Two fractions enriched in mitochondria can be separated on a density gradient and were characterised using microscopy, Western blotting, shotgun proteomics and enzyme assays. Mitochondria proved to be intact in both fractions and differ in their protein and nucleic acid content, suggesting the existence of two mitochondrial subpopulations with potentially distinct functions in moss protonema.