

12-Oxo-phytodienoic acid (OPDA) is induced by mechanical wounding and suppresses the growth of *Physcomitrella patens*; OPDA is considered as a signal compound in this moss species. In this study, a proteomic analysis of *P. patens* protonemata treated with OPDA was performed. The abundance levels of 41 proteins were significantly altered by OPDA, with decreased levels for 40 proteins. The proteins for which abundance decreased in response to OPDA at the protonema developmental stage were mainly involved in the metabolism of proteins and carbohydrates. The effects of inhibition on protein abundance are likely a major physiological function of OPDA in *P. patens*. OPDA also suppressed the expression of histones at the protein level and gene transcription level. Suppression of histone expression might be an OPDA-specific function in *P. patens* protonemata. In *P. patens*, a subset of the physiological responses caused by OPDA is shown to differ between protonema and gametophore developmental stages.

Classification of OPDA-regulated proteins in *Physcomitrella patens* protonema according to their functions.

