

## Elicitor responses in *Physcomitrella patens*

Mikko Lehtonen<sup>1\*</sup>, Motomu Akita<sup>2</sup> and Jari Valkonen<sup>1</sup>

<sup>1</sup> Department of Applied Biology, University of Helsinki, Latokartanonkaari 7,  
FIN-00014, Finland

<sup>2</sup> Department of Biotechnological Science, Kinki University, 930 Nishimitani,  
Uchita, Naga, Wakayama, 649-6493, Japan

\* email: [mikko.t.lehtonen@helsinki.fi](mailto:mikko.t.lehtonen@helsinki.fi), phone +358 9 191 58375, fax +358 9 191 58434

Oxidative burst is an early response of plants to an attack by microbial or fungal pathogens. The production of reactive oxygen species (ROS) can directly inhibit the growth of pathogens or induce additional defence-related responses. Response of *Physcomitrella patens* to an elicitor prepared from yeast cell extract was investigated by measuring the production of hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) in liquid culture after elicitor treatment. Browning of the cells and dissolution of chloroplasts was observed in protonemal filaments and at the base of the gametophores of elicitor-treated plants, but H<sub>2</sub>O<sub>2</sub> production could not be detected. Elicitor-treated cultures were, however, able to metabolize externally applied H<sub>2</sub>O<sub>2</sub> at faster rates compared to control plants. Preliminary studies suggest that secreted peroxidase(s) are responsible for scavenging H<sub>2</sub>O<sub>2</sub>. Research is being carried out to characterize their properties.