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## Molecular Biotechnology Programme

Uppsala University School of Engineering

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| Author   | <b>Anna Carlson</b>  |  |
| Title (English)  | <b>Genetic variation in photosensory proteins in <i>Arabidopsis thaliana</i> in relation to altitude</b>   |  |
| Title (Swedish)  |  |  |
| Abstract   | <p>In the Alps there is a large variation in altitude which gives rise to great environmental differences over a short geographical distance. These altitudinal habitat differences include lower temperatures and higher UV radiation with an increase in altitude. Plants are dependent upon light, not only for photosynthesis but also for light cues that control how and when they develop. Two light sensory protein genes of interest in <i>A. thaliana</i> that could be taking part in the adaptation to higher altitude are <i>Phot1</i> and <i>Phya</i>.</p> <p>Regions of the genes were sequenced and then they were analyzed to see if there were any visible patterns related to altitude. A germination experiment was done as well, to see if there was any difference in phenotypes; such as time to germinate; between the high and low altitude populations. <i>Phot1</i> showed patterns correlated to altitude as well as to longitude. There was very little overall variation in <i>Phya</i> and therefore no patterns correlated to altitude were found.</p> |  |
| Keywords   | Adaptation, <i>Phya</i> , <i>Phot1</i> , altitude, germination, light sensory proteins, <i>Arabidopsis thaliana</i>  |  |
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