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Characterization of a TIR-like Gene in the Moss Physcomitrella Patens

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Oral Presentation O3.3

CHARACTERIZATION OF A TIR-LIKE GENE IN THE MOSS PHYSCOMITRELLA PATENS

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Auxin is a plant hormone mediating a wide variety of plant developmental and growth processes. One way that auxin exerts these affects is by regulating gene expression.

Aux/IAA proteins are transcription repressors that interact with specific transcription factors known as ARFs. TIR and TIR-like genes encode f-box proteins that promote the ubiquitin-mediated degradation of Aux/IAA proteins and thus are also important regulators of plant development. In the presence of increased auxin concentrations, auxin binds to TIR1, promoting its association with the SCF complex. TIR1 then targets Aux/IAA proteins for ubiquitination by the SCF complex. This results in the degradation of Aux/IAA proteins and the release of ARFs. ARFs are then free to promote transcription of downstream genes important in plant growth and development.

I am interested in understanding TIR function in mosses. One TIR-like gene encoded in the moss Physcomitrella patens genome is 18f14. Using cloning, PCR, and sequencing techniques, I have characterized the gene structure and isolated 3 introns within 18f14.