



INSTITUTE FOR CELLULAR ENGINEERING

Actin Depolymerizing Factor is essential for polarized growth

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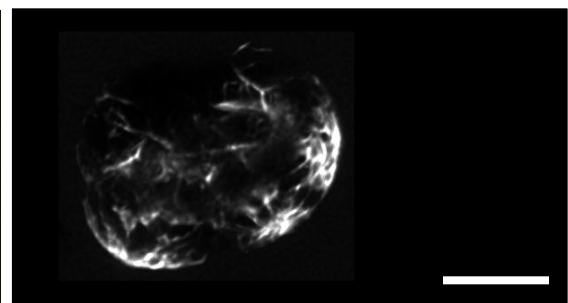
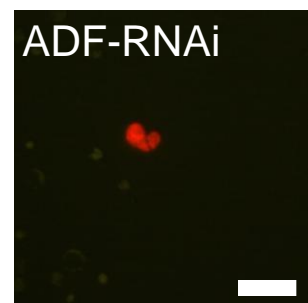
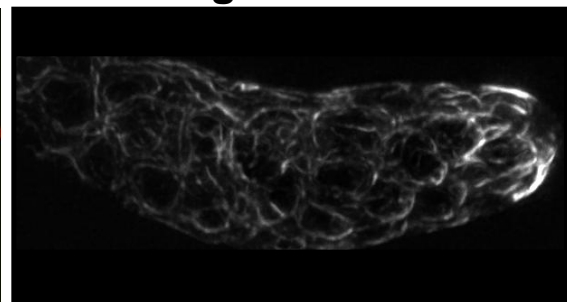
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Actin depolymerizing factor (ADF) is a small, conserved protein that severs and disassembles actin filaments. Pollen tubes, root hairs, and other cells that require actin dynamics for polarized growth utilize ADF as a major regulator of actin turnover, however the exact role of ADF in growth has remained elusive.

We are using RNA interference (RNAi) to disrupt ADF gene function in the moss *Physcomitrella patens*. Our results demonstrate that loss of ADF function results in plants with stunted morphology that are unable to perform polarized growth. Control plants have an accumulation of actin at the apex, whereas ADF-RNAi plants form star-shaped actin cables that emanate from multiple foci. These data indicate that ADF is a critical component of the polarized growth machinery.

One Week Old Moss Plants

Actin Filament Organization



100 μ m

10 μ m