

## PLASTID TRANSFORMATION OF AN ARCTIC MOSS, AULACOMNIUM TURGIDUM

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The plastid transformation approach offers a number of unique advantages, including high-level transgene expression, multi-gene engineering, and a lack of gene silencing and position effects. The extension of plastid transformation technology to nonvascular plants, including mosses and liverworts, bears great promise for the understanding primitive system of environmental adaptation, and the efficient production of pharmaceutical metabolites. Here, we report a promising step towards stable plastid transformation in an arctic moss *Aulacomnium turgidum*. We produced transplastomic *A. turgidum* colonies and demonstrated transmission of the plastid expressed spectinomycin resistance gene (*aadA*). Transgenic chloroplasts were determined by PCR and genomic Southern analyses. Although the produced rice plastid transformants were found to be heteroplastomic, and the transformation efficiency requires further improvement, this study has established a variety of parameters for the use of plastid transformation technology in mosses and polar organisms.