

**P9: Identification of gametangium specific gene trap lines in the moss *Physcomitrella patens*.**

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In land plants, both sporophyte and gametophyte form reproductive organs. In the course of the land plant evolution, the size and the complexity of sporophytic reproductive organ were increased, and those of gametophytic organ were decreased. The relationship between the evolution of sporophytic reproductive organs and the evolution of genetic network including MADS-box genes has been discussed. On the other hand, the evolution of developmental mechanisms for the gametophytic reproductive organs is unclear, because the mechanisms have been studied only on the angiosperms. It is necessary to know the developmental mechanism of the gametophytic organs in bryophytes or pteridophytes that form antheridia and archegonia as the gametophyte reproductive organs. *Physcomitrella patens* is a model bryophyte for which a number of gene trap lines have already been established, and therefore useful to isolate genes specifically expressed in gametangia.

To study the developmental molecular mechanisms of antheridia and archegonia, and then to compare them to the developmental mechanisms of pollen and embryo sac of the angiosperms, we explore genes involved in archegonia and/or antheridia formation, using the gene trap lines of *P. patens*. We screened approximately 3300 gene trap lines and obtained more than 250 lines with archegonia and/or antheridia specific gene expression patterns. Some lines showed cell or tissue specific expression patterns, such as in an egg cell or an archegonial neck cell. There were also the lines with expression signals in the primordial cells of gametangia, showing the presence of possible trapped genes involved in gametangia determination.