Flowering and plant architecture in the perennial model *Arabis alpine*

Maria Albani[1]

[1]*University of Cologne*

Perennials maintain vegetative growth after flowering showing a complex shoot architecture consisting of flowering branches, vegetative branches or dormant buds. The topology and fate of meristems differ between species but in general flowering and vegetative branches or dormant buds are organized in recurrent distinct zones that appear in a stable pattern within a species. We use the Brassicaceae species *Arabis alpina* as a model to study flowering and vegetative traits in perennials. Different behaviors of axillary meristems have been described in *A. alpina*: I) axillary meristems that develop into axillary branches that commit to reproductive development, II) dormant axillary meristems and III) axillary meristems that develop into vegetative branches after floral transition. This growth pattern is a result of coordinated action of floral repressors regulating maintenance of vegetative growth after flowering. Previous studies in *A. alpina* demonstrated that the MADS box transcription factor *PERPETUAL FLOWERING 1* (*PEP1*) regulates maintenance of vegetative growth after flowering. We are interested in understanding the downstream effects of maintenance of vegetative growth mediated by the *Type III* branches. Auxin measurements indicate that return to warm temperatures after vernalisation results in transient increase in auxin levels in different stem parts which correlates with accelerated bud outgrowth.