Oral Communication Abstract - 6.01

TOWARDS A DYNAMIC MODEL OF THE *ARABIDOPSIS* SHOOT APICAL MERISTEM

C. GODIN

INRIA - UMR Cirad/Inra/Cnrs/Univ.MontpellierII AMAP, Botanique et Bio-informatique de l'Architecture des Plantes, TA40/PSII, Boulevard de la Lironde - 34398 Montpellier Cedex 5, France

During the last decade an impressive body of knowledge concerning shoot apical meristem function has been generated.

This concerns information on the genes involved, their expression patterns, cell differentiation, cell division patterns, etc. The complexity of these data is such, that an integrated view of meristem function is not yet possible. Therefore, adapted mathematical and informatics approaches are now required to integrate the knowledge and to advance the level of understanding in the field. To formulate and test hypotheses on spatial aspects such as flows of signalling molecules between cells, strain within tissues, and the role of gene products in the spatial control of cell proliferation, we are creating a virtual meristem, that will integrate as much spatial, dynamic and quantitative information as possible.

Here, we will present the first results obtained on the mathematical modelling of auxin fluxes in the meristem, based on experimental data. This modelling framework, based on local interaction hypotheses between cells, suggests that phyllotaxy patterns may emerge due to auxin overflowing in the meristem centre in growing meristems.