

**P039** Progression of meiosis in *Arabidopsis thaliana*

**Nicola Roberts and Sue Armstrong**

*School of Biosciences, University of Birmingham,  
Birmingham B15 2TT*

One of the outstanding questions in meiosis is how homologous chromosomes pair and synapse during meiotic prophase. Recent attention has been paid to the bouquet, a nearly universal event, during which the telomeres cluster in early prophase. It has been suggested that because the telomeres are in close proximity this would enhance the pairing of the homologues. We have shown in *Arabidopsis* that we do not observe a classical bouquet, rather the telomeres are organised already around the prophase nucleolus. The homologous telomeres are paired at the transition from G2 to leptotene during the assembly of the axial elements. As the chromosomes synapse during zygotene, the telomeres reveal only a loose clustering, which may represent a relic bouquet.

Disruption of the bouquet and progression of meiosis with the depolymerising agent colchicine has been reported widely, although the mechanism is unknown. We marked the meiotic S cells with bromodeoxyuridine and added 100 $\mu$ M colchicine via the transpiration stream to *Arabidopsis* meiotic cells, and found that progression of meiosis was not inhibited.

We suggest that the formation of the 'classical bouquet' requires large scale chromosome movement, and colchicine may function by preventing this. Because the telomeres are already in a restricted area then colchicine will have no effect on *Arabidopsis* meiotic progression.