

- P013** Identification of cadmium tolerance mechanisms in *Arabidopsis*
Catriona Thomson¹, Illeana Farcasanu², Guoping Zhang³,
Feibo Wu⁴, Abdellah Akhkha¹, Jillian Price¹ and Peter Dominy¹
¹Plant Science Group, Division of Biochemistry & Molecular
Biology, IBL, University of Glasgow, Glasgow G12 8QQ.
² current address: Department of Organic Chemistry &
Biochemistry, Faculty of Chemistry, Bucharest University,
Pancuri 90-92, Bucharest, Romania
³Department of Agronomy, Zhejiang University, Hangzhou
310029, China

A screen of activation tagged *Arabidopsis* lines for increased tolerance of Cd has identified 16 authentic mutants. TAIL-PCR has now been performed on eight of these mutants and the site of the inserted tag determined. Included in the list of disrupted genes are those coding for proteins reported to be involved in phytochelatin biosynthesis, ion transporters, transcription factors, and the ubiquitination pathway. One of the mutants (GZ-6) carries the insertion in an exon of a gene annotated as a 'phytochelatin synthase (PCS)'; this annotation was based on experimental evidence. Quantitative PCR has confirmed that Cd induces the expression of this gene in both roots and shoots of Col-0, but the effect is greater in the GZ-6 mutant line. Transgenic lines have been generated by transforming Col-0 with *Agrobacterium tumefaciens* carrying a construct containing transcriptional enhancer elements (activator) fused 5' of a genomic fragment containing the full 'PCS' gene complete with promoter (~500 bp) and 3' (~300 bp) sequence. Several of these lines show enhanced tolerance to Cd at the seedling stage. During these studies, this sequence was re-annotated 'COBRA protein' which are reported to be involved in determining polarity in root cells; it is no longer believed to be a PCS. We will report on our studies on this locus and its role in conferring Cd tolerance, and present a cursory summary of some of our other Cd tolerant lines.