Pectins form the gel matrix of the primary cell wall and are abundant in the middle lamella that holds plant cells together. The Arabidopsis seed coat epidermis has distinct properties that facilitate the study of cell wall components, particularly pectin, and analysis of seed mucilage mutants has led to the identification of several genes involved in the biosynthesis of cell wall components. Voiniciuc et al. (pages 944–959) characterize flying saucer1 (fly1), an Arabidopsis seed coat mutant that displays primary wall detachment, reduced mucilage extrusion, and increased mucilage adherence, and show that FLY1 is a transmembrane protein that positively regulates the degree of pectin methylesterification in seed mucilage through a mechanism mediated by ubiquitin. The cover shows images of seed with mucilage labelled in three different ways. The top two panels show fly1 mutant (left) and Columbia-2 wild-type (right) seed stained with the cellulose stain Pontamine S4B. The fly1 mutant seed in the middle panel was stained with the pectin dye ruthenium red. The bottom two panels show wild-type (left) and fly1-1 (right) seed labelled with an antibody that recognizes unesterified homogalacturonan cross-linked by calcium bridges.

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