What are you doing to me?
The effect of commonly used inhibitors on tobacco epidermal cell structure.

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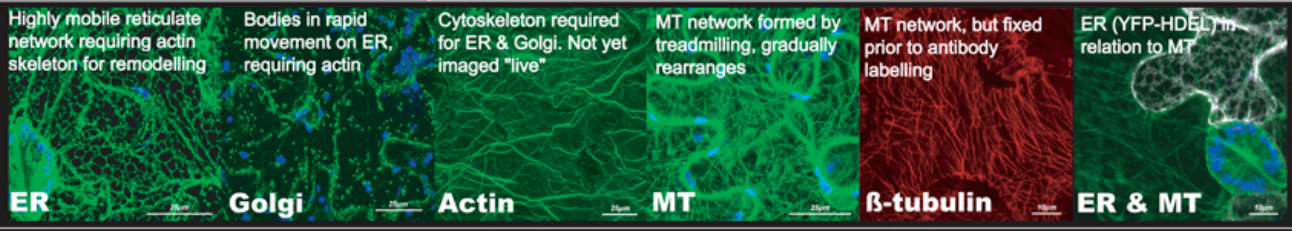
Introduction

During the course of our investigations into the interaction of Tobacco mosaic virus movement protein with plasmodesmata and microtubules (MT) we have utilised a range of commonly used inhibitors. Here we report the effect of these treatments on tobacco epidermal cell structure.

Materials and methods

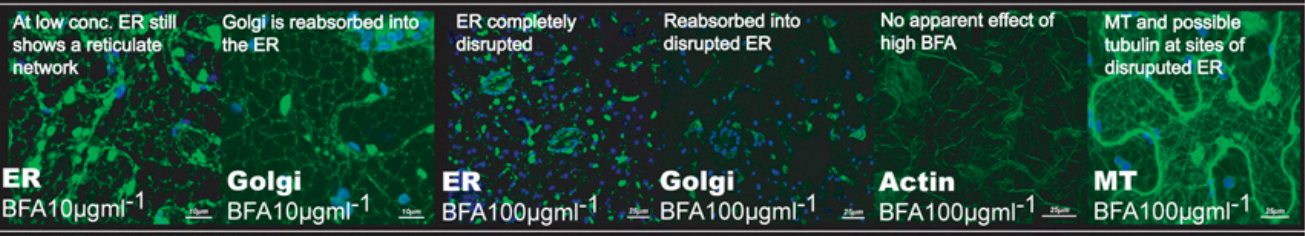
We have used transgenic plants expressing GFP in the endoplasmic reticulum (ER), Golgi bodies or linked to α-tubulin for MT, antibody labelling of ß-tubulin, and Alexa-phalloidin staining of actin to see the various cell components. The leaf tissue was treated with 10μgml^{-1} BFA for 1h or 100μgml^{-1} BFA, 200μM cytochalasin B, 25μM latrunculin, 20μgml^{-1} oryzalin, 500μM colchicine or 0.02% sodium azide for 2h prior to imaging. Control tissue was infiltrated with water.

Control



Brefeldin A

Disrupts the endo-membrane system - affecting the Golgi or ER but having no apparent effect on actin or MT.

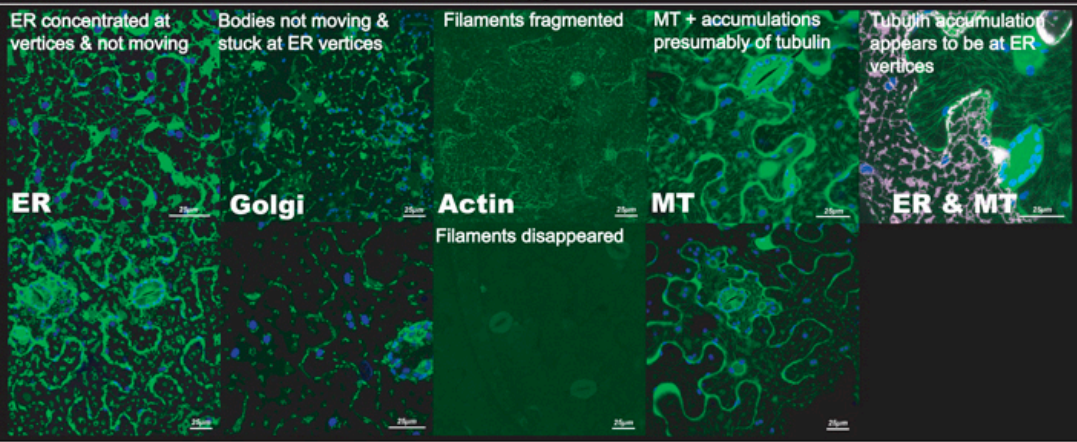


Cytochalasin

Disrupts actin - therefore also stops the movement of ER & Golgi, & changes tubulin distribution.

Latrunculin

Depolymerises actin - therefore also stops the movement of ER & Golgi, & changes tubulin distribution.

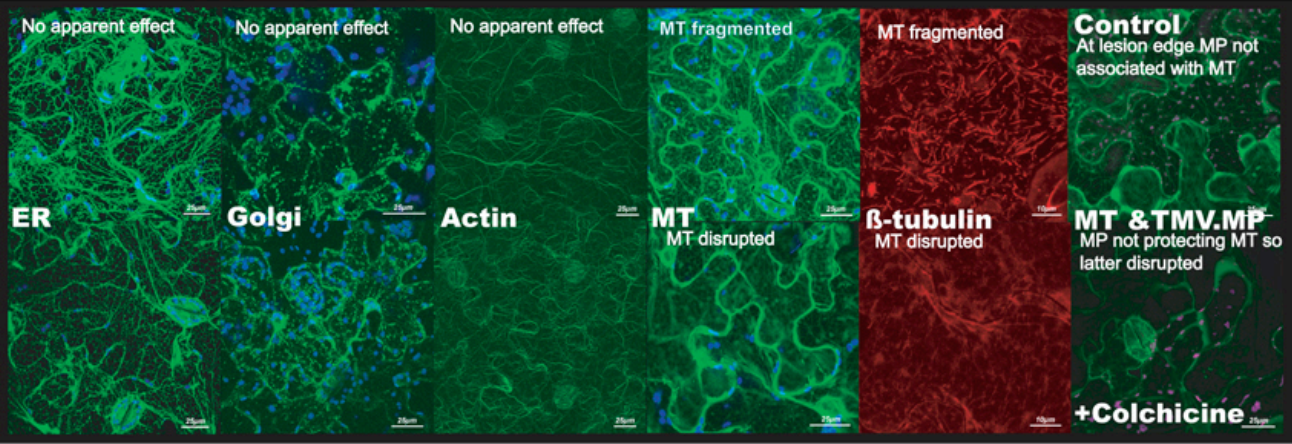


Colchicine

Fragments microtubules - but has no apparent effect on ER, Golgi or actin.

Oryzalin

Disrupts microtubules - but has no apparent effect on ER, Golgi or actin.



Azide

Metabolic inhibitor, depletes ATP levels - stops the movement of ER & Golgi, disrupts actin & changes tubulin distribution.