David G. Robinson

PhD Leeds University, UK, 1972. Postdoctoral work at Stanford Univ. USA. Asst Prof. Stanford 1973.
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Intracellular protein transport in plants

Current Research

Although the major endomembranes of plant and animal cells are similar, there are three significant differences in the secretory pathway: a. plants do not possess a distinct ERGIC compartment, b. Golgi stacks in plants are dispersed throughout the cytoplasm, and do not disappear during mitosis,c. plants can have functionally distinct vacuoles e.g lytic (lysosome-like) and protein storage vacuoles. Our work centers on the mechanisms responsible for protein trafficking in plant cells. In particular we would like to learn how vacuolar storage proteins traverse the Golgi stack, and become sorted from other secretory proteins. We are also very interested in COP- and clathrin-coated vesicle- mediated events, especially in relation to endocytosis and vacuolar protein transport.

Projects for a doctoral thesis

1. ER export sites in plants: visualization *in situ*, and reconstitution *in vitro.*

2. **Identification and characterization of Golgi-derived vesicles carrying** δ-TIP (tonoplast intrinsic protein for storage vacuoles), and γ-TIP (for lytic vacuoles).

Selected Publications

- Hillmer,S et al. (2001) Vacuolar storage proteins are sorted in the cis-cisternae of the pea Golgi-apparatus. J. Cell Biol (in press)
- Pimpl,P et al. (2000) In situ localization and in vitro induction of plant COPI-coated vesicles. Plant Cell 12, 2219-2235
- **Crofts,A et al. (2000) Saturation of the endoplasmic reticulum retention macxhinery reveals anterograde bulk flow. Plant Cell 11, 2233-2248**
- Hinz, G et al. (1999) Vacuolar storage proteins and the putative sorting receptor BP-80 exit the Golgi apparatus of developing pea cotyledons in different transport vesicles. Plant Cell 11, 1509-1524
- Robinson, D.G et al (1998) The molecular characterization of transport vesicles.Plant Molec. Biol.. 38**, 49-76**

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