



## ***ABSTRACT***

*“Making new molecules”*

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Plants produce a huge array of natural products, many of which are specialised metabolites associated with particular species. These secondary metabolites often have important ecological roles, facilitating pollination and seed dispersal and/or providing protection against attack by pests and pathogens. Although the ability of plants to perform *in vivo* combinatorial chemistry by mixing, matching and evolving the genes required for different secondary metabolite biosynthetic pathways is likely to have been critical for survival and diversification of the Plant Kingdom we know very little about the mechanisms underpinning this process. This talk will focus on plant natural product function and synthesis, the origins of metabolic diversity and potential for metabolic engineering, drawing on our research on terpene synthesis in crop and model plants.