Dr Paula Rudall
Head of Micromorphology at the Royal Botanic Gardens, Kew, in West London

Paula uses powerful microscopes to unlock the secret structure of plants, addressing questions such as how flowers have evolved.

I study plant structure, especially the arrangement and development of plant cells, tissues and organs. My work contributes to understanding the evolution of plant form, ranging from the organization of flowers and the patterning of petal surfaces, which are so important in attracting pollinating insects, to the intricate structure and development of the stomatal pores on the surfaces of leaves, which represent a vital interface with the environment. In addition to exploring plant function, I collaborate with other morphologists and molecular researchers to study how plants have evolved.

I was interested in the natural world from an early age, so it was an easy decision to study biology at university. I completed my first degree and also my PhD at the University of London, and eventually also obtained a higher doctorate (DSc) from the same University. I use a wide range of microscopes and associated techniques, some of which require specialist training, but perhaps the most challenging aspect is keeping abreast of new developments and the vast literature on plant evolution and development.

Working at Kew for most of my career has given me the opportunity to investigate many different types of plants, both in their natural environments and in Kew's extensive living collections, as well as preserved plant material. I have carried out fieldwork in Brazil, Mexico, Peru, New Guinea and many other parts of the world; one of the highlights has been searching for rare and unusual plants in Australia. An essential element of my work lies in establishing long-term collaborations with other international researchers. Co-organising conferences and symposia helps to achieve this goal.

In addition to more than 200 peer-reviewed papers, I have published several books, including a textbook, *Anatomy of Flowering Plants,* which has reached its third edition and has been published in Japanese and Spanish translations. My research has led to several honours and awards, including the Linnean Society Gold Medal for Botany, honorary memberships of the Botanical Society of America and American Society of Plant Taxonomists, and the prestigious international Dahlgren Prize.

Stemona tuberosa, flower

I decided to apply for IMP because it represents the gold standard for institutional research, and I felt strongly that Kew should re-enter the scheme. In preparing the paper work, I consulted with existing IMP researchers from other institutions. The interview was rigorous, and I felt the assessment was fair and accurate. It is difficult to distinguish between cause and effect, but since I was awarded the IMP, I have been invited to present several keynote lectures and have further increased my research productivity.