



## ON-SITE BIOLOGY COLLOQUIUM

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Hosted by Prof Antonia Monteiro

# Eco-Evo-Devo of petal patterning in Hibiscus flowers

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### **About the Speaker**

*I am a molecular and cell biologist specialising in plant development and evolution. During my PhD (Grenoble University, Ecole Normale Supérieure of Lyon, France) I studied a central regulator of flower development, linked with the emergence of flowering plants. I joined the Department of Plant Sciences in Cambridge (UK) as a post-doctoral fellow to understand how plants can produce iridescence and how pollinators respond to such optical cues. I started my group at the Sainsbury Laboratory in Cambridge (UK) five years ago to investigate the formation and evolution of patterns on petals. I lecture in the Department of Genetics and I am the Nicolli Fellow in Natural Sciences at Queens' College. In parallel, I lead several outreach initiatives to make science more inclusive and accessible to a wider society. I received the Bicentenary Medal of the Linnean Society (2018) and was awarded a Plant Journal Fellowship for new investigator (2020).*

Plants are expert architects that control cell proliferation and differentiation with exquisite spatiotemporal resolution to produce a diversity of shapes and forms. The colourful patterns on the petals of flowering plants perfectly illustrate their engineering skills. These patterns are also functionally relevant: they can protect pollen grains from UV radiation and act as communication devices to attract pollinators. Petal patterns are often highly elaborated and combine differences in pigmentation, cell shape and texture to generate neighbouring tissues with distinct appearances. However, the mechanisms used to program cell behaviour in a coordinated fashion across the epidermis of a developing petal are not well understood. I will present some results our group obtained while investigating pattern formation and evolution using a small species of Hibiscus and its close relatives as a model system. Our results help us understand how plants can set-up boundaries within the petal epidermis and how evolution tinkers with these processes to generate the diversity of patterns observed in nature.