

Postdoc in polyploidy: from cell physiology to tissue-scale effects of nuclear structure

A postdoctoral research position is available in the [group of Dr. Kristen Panfilio](#) at the University of Warwick, UK, to join our BBSRC-funded project on how polyploid nuclear structure influences cellular function in dynamic epithelial tissues. This is a full-time, fixed-term position for up to 36 months, integrating developmental biology, bioinformatics, cell cycle regulation, genome organization, and 4D live cell imaging.

Polyploidy is hypothesized to aid epithelial barrier formation and its repair after wounding and to rapidly supply gene products by transcription from multiple gene copies. Yet polyploid genomic structure may be unstable and require active inhibition of apoptosis through regulatory processes that are not yet well understood. Investigating the costs and benefits of polyploidy is essential to understand tissue-specific development, homeostasis, and ageing.

The two extraembryonic tissues of insects offer an excellent – and inherently comparative – research model, spanning key developmental stages for morphogenesis and cellular physiology. Our research species is the flour beetle *Tribolium castaneum*, which offers advanced genetic resources and where we integrate fluorescent live cell imaging and next-generation sequencing approaches (see the lab's recent publications in [eLife 5:e13834](#), [Development 143:3002](#), [Commun. Biol. 3:552](#)). The project uses methods to assess nuclear size and tissue integrity, quantify gene expression, and genetically challenge barrier organization and cell number. Altogether, we will test long-standing hypotheses on polyploidy function and its end-stage implications in animal tissues. A complete description of the project is available at: <https://gtr.ukri.org/projects?ref=BB%2FV002392%2F1>.

You will have a Ph.D. or equivalent and good knowledge and experience in genetics, cell and developmental biology, standard molecular biology techniques, and working with NGS data, as evidenced by your Ph.D. thesis and/or authored papers in peer-reviewed journals. Familiarity with the fields of insect developmental genetics and comparative genomics would also be highly advantageous. Practical experience in any of the following is desired: advanced microscopy (including light sheet fluorescence microscopy), RNAi, FACS, RT-qPCR, and computational work with either sequencing or imaging data. We will provide full training in new techniques, supported by the possibility for international travel and collaboration.

Enquiries and expressions of interest directly to Kristen (K.Panfilio@warwick.ac.uk) are welcome, with [applications made on-line](#) (post number 103508). Full applications will include contact details for at least two referees, a CV, and covering letter stating why you are interested in the topic and what you would bring to the project. The application closing date is **7th February 2021**.

