



## Professor Kieran Harvey

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### OTHER PROGRAM AFFILIATIONS



Cancer

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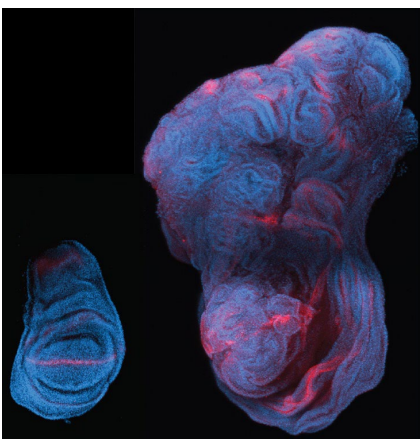
Organ size control is a fundamental but poorly understood aspect of life. Our laboratory has played a central role in the discovery and characterisation of a key organ size control network called the Hippo pathway.

We use the extraordinarily powerful model organism *Drosophila* to discover new Hippo pathway genes and investigate how this pathway controls organ size. To better understand how the Hippo pathway functions we utilise advanced microscopic techniques to monitor pathway activity in real time, in growing organs.

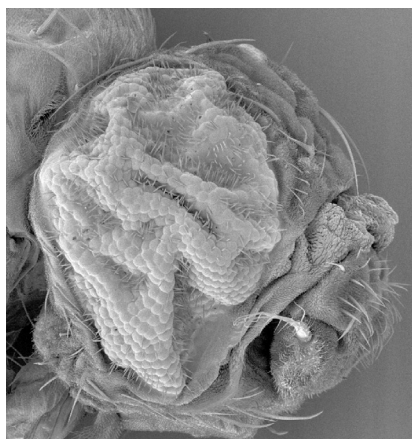
We also investigate the role of the Hippo pathway in human cancer, using cell lines, patient samples and animal models. We have a specific interest in two cancers: melanoma and mesothelioma. By applying our knowledge of Hippo signalling, we aim to discover novel treatments for these diseases.

### Research Projects

1. Watching Hippo pathway activity in growing organs, in real time
2. Searching for the complete set of Hippo pathway genes
3. Defining the role of the Hippo pathway in human cancer



Hippo pathway mutant organs (right) grow many times larger than wildtype organs (left).



A *Drosophila* eye with a Hippo pathway mutation. These eyes grow in an uncontrollable fashion.

### Selected significant publications:

1. Dent LG, Poon CLC, Zhang X, Degoutin JL, Tipping M, Veraksa A and **Harvey KF**. 2015. The GTPase regulatory proteins Pix and Git control tissue growth via the Hippo pathway. *Current Biol* 25(1):124-30.
2. **Harvey KF**, Zhang X and Thomas DM. 2013. The Hippo pathway and human cancer. *Nat Rev Cancer* 13(4):246-57.
3. Poon CLC, Lin JI, Zhang X and **Harvey KF**. 2011. The sterile 20-like kinase Tao-1 controls tissue growth by regulating the Salvador-Warts-Hippo pathway. *Dev Cell* 21(5):896-906.
4. Bennett FC and **Harvey KF**. 2006. Fat Cadherin Modulates Organ Size in *Drosophila* via the Salvador/Warts/Hippo Signaling Pathway. *Curr Biol* 16(21): 2101-10.
5. **Harvey KF**, Pflieger CM and Hariharan IK. 2003. The *Drosophila* Mst ortholog, hippo, restricts growth and cell proliferation and promotes apoptosis. *Cell* 114(4):457-67.