

Under the microscope #8 - beetle embryo

February 14 2012

Under the Microscope is a collection of videos that show glimpses of the natural and man-made world in stunning close-up.

Matt Benton: “For my PhD I am studying the embryonic development of the beetle, *Tribolium castaneum*. During development in this beetle, a large number [cells](#) must move together at a certain location of the egg to form the embryo proper. At the same time, other cells move to overlap the forming embryo, to protect it and help it grow. Currently, we only have a basic understanding of how these different groups of cells move. In my work I am trying to extend this understanding, and to learn how the movements of different groups of cells are controlled and coordinated. Together with the group of Michalis Averof, I am developing methods to allow the movements of these cells to be seen in live [embryos](#). The beetle shown in this video has been genetically modified so that the nucleus of each cell is labelled with a fluorescent protein. By using a certain [microscope](#), I am able to record the movements of these cells in 3D, as the embryo develops.

Many thanks to Michalis Averof for creating the nuclear-green fluorescent protein transgenic line shown in the movie, and to my PhD supervisor, Michael Akam, for supporting my work.”

The width of this egg is 300 micrometres, and the length is 600 micrometres (1 metre is 1,000,000 micrometres). So the width of this egg is roughly 3 times the width of a human hair.

The time span of the movie is about 5.5 hours.

More information: www.zoo.cam.ac.uk/zoostaff/akam/benton.html

Provided by University of Cambridge

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