

# Automated whole organ imaging using open source tools

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Many biological questions require not only high resolution imaging, but also the ability to acquire large 3D volumes of whole organs. However, acquiring these data using conventional approaches, such as manual sectioning, is very labor intensive. Furthermore, sections on a slide will always exhibit some degree of deformation and so are difficult to reassemble into a seamless 3D volume.

Cellular level 3-D images of whole organs can be acquired using serial-section block-face microscopy, or light-sheet imaging of cleared tissue. These two broad approaches encompass a number of different microscope designs and tissue processing techniques. Commercial solutions are often closed source and may not be flexible enough for the end user. This poster describes two complementary open source tools: “**BakingTray**” is a software platform for serial-section imaging of fixed tissue; the “**MesoSPIM**” is a mesoscale lightsheet microscope for very rapid imaging of cleared tissue. Both tools are well documented and supported by active user communities.