



# AIF News

Advanced Imaging Facility Newsletter

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## Introduction

Welcome to the first AIF News. The Advanced Imaging Facility is the light microscopy facility of the College of Life Sciences. It maintains currently 13 microscopes housed in the Adrian Building Wolfson Foundation Microscope Facility (room G1), the Maurice Shock Medical Sciences Building (rooms 383 and 388), the Henry Wellcome Building (room 3/51) and the Robert Kilpatrick Clinical Sciences Building (rooms 229 and 533). The manager of the AIF is Dr Kees Straatman (krs5, 7085).

## Website

The AIF has an extensive website which can be found at [www.le.ac.uk/advanced-imaging-facility](http://www.le.ac.uk/advanced-imaging-facility) including an overview of all the systems available, available software for image analysis, an overview of support provided and an online booking system.

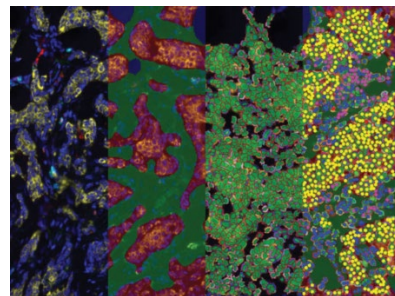
## System of the month

**Vectra Polaris slide scanner** - Early 2019 we installed a Perkinelmer (now Akoya biosciences) Vectra Polaris Automated Quantitative Pathology Imaging System in the LRI. This system was funded via the University Research Equipment



and Infrastructure Fund. It allows whole slide scanning in bright field and fluorescence mode. When using up to seven different colours standard slide scanning or full spectral detection are possible. When using 8 or 9 different fluorescent colours the system allows scanning of regions of interest. The full spectral detection allows for spectral separation of the different fluorescent markers while also taking in account

the auto-fluorescence of the tissue. Special Opal labelling kits are available from Akoya but standard fluorescent markers can be used as well. We also have 4 licences for the InForm analysis software; one on the system, one with the Leicester Cancer Research Centre, one on the new analysis computer (purchased in collaboration with Dr Oggioni, GGD) in the Adrian Building and one in the Henry Wellcome Building.



Breast cancer tissue labelled with the Opal 7-Color Multiplexed IHC Kit. Left to right: spectrally unmixed composite, tissue-segmented image, cell-segmented image and overlaid phenotyping of each cell obtained using the InForm analysis software (source: PerkinElmer).

## New funding

We have had further successes in securing funding for two new microscope systems.

- A fully automated label free high content screening platform is funded via the University Research Equipment and Infrastructure Fund and the Livecyte 2 system from Phasefocus (<https://www.phasefocus.com/livecyte>) has just been ordered and hopefully will become available in late summer or early autumn. It will allow live cell imaging and automatic tracking of every individual cell imaged or single point analysis without having to use a fluorescent marker. It creates a phenotypic fingerprint for each individual cell allowing single cell analysis. This can be combined with fluorescent markers during or after the experiment. The system will be housed in the Wolfson microscope room in the Adrian Building.
- A new confocal laser scanning microscope with super resolution capabilities has been awarded by the BBSRC under the ALERT18 call (lead applicant Dr James Higgins, GGD). This microscope system will be purchased over the summer.

## Systems available

Below a list of the microscope systems currently available within the Advanced Imaging Facility. One off use or regular use is possible. In most cases of regular use the user will get trained on the system. However, collaborations are also possible.

[Nikon microscope 1](#)

[Nikon microscope 2](#)

[Nikon microscope 3 \(LED/Screening\)](#)

[Nikon microscope 4](#)

[Leica confocal laser scanning microscope SP5](#)

[Advanced cytological imaging system](#)

[Olympus Cell^R/scan^R High content screening system](#)

[Nikon C1Si confocal laser scanning microscope](#)

[Olympus FV1000 confocal laser scanning microscope](#)

[Zeiss MP7 multiphoton laser scanning microscope](#)

[Olympus LV200 Bioluminescence imaging system](#)

[VisiTech HAWK fast confocal laser microscope](#)

[PerkinElmer Vectra Polaris slide scanner](#)

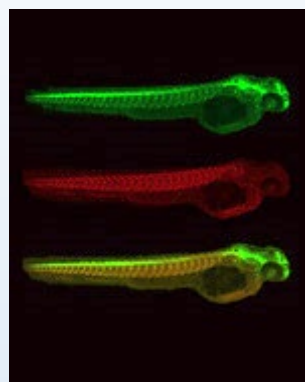
## ImageJ workshops

The next ImageJ/Fiji (Fiji Is Just ImageJ) workshops for Image analysis and analysis automation will be held on Monday 15 (Introduction) and Tuesday 16 July (Macro writing) at College Court. ImageJ and Fiji are image analysis packages which can be downloaded free from the internet. Registration is on first come first serve basis. Please visit the AIF website for more information.

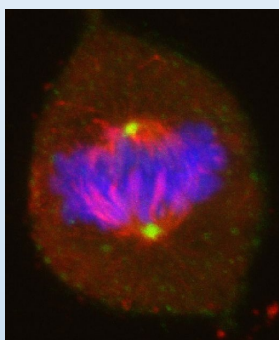
# Advanced Imaging Facility



- Fluorescence, brightfield, DIC and bioluminescence imaging
- 2D/3D/4D imaging
- Live cell imaging
- Multi-colour fluorescence imaging
- Multi-position imaging

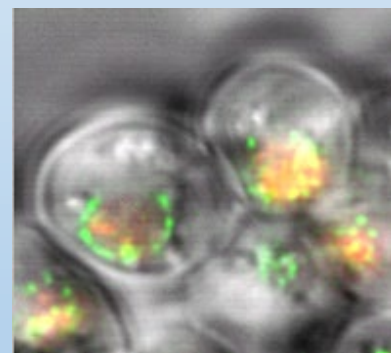


- Spectral imaging
- Super resolution microscopy
- High throughput slide scanning/digital pathology



- F-techniques (FRAP, FLIP, FRET and FCS)
- High content screening
- Metaphase finding
- Correlative Light and Electron Microscopy (CLEM), in collaboration with the EM Facility

- Immunohistochemistry colour imaging
- Quantitative imaging
- Image analysis and processing (ImageJ/Fiji, Imaris, Volocity, Huygens deconvolution)
- Training and teaching
- Advice



[www.le.ac.uk/advanced-imaging-facility](http://www.le.ac.uk/advanced-imaging-facility)



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