

FLUORESCENT MICROSCOPY UNIT

ISSUE 7

JAN – APRIL 2015

WELCOME!

IN THIS ISSUE

Welcome	1
New Name	1
MSSA conference	2
News from Tygerberg	2
New upgrades	3
New blog and booking system	3
Notices	3

Welcome to the first issue of the newsletter for 2015! We hope you have enjoyed the festive season and December holidays. As always, we aim to keep clients informed about the new research developments in the

unit as well as inform you about upcoming training dates in our unit. Please feel free to distribute this newsletter to any interested persons. We hope you enjoy this issue!

OUR UNIT HAS A NEW NAME!

With the beginning of the new year, we have one quite important change. Our unit, previously known as the Cell Imaging Unit, will now be the Fluorescent Microscopy Unit. This name change encompasses both fluorescence techniques our unit specializes in for both single cell and population statistics as well as other sample types using the fluorescent microscopy and flow cytometry respectively.

The unit includes our laboratory on main campus, which houses two fluorescent microscopes and a cell sorter, as well as a division on the Tygerberg campus, which focuses on flow cytometry.

With flow cytometry, we focus on particle analysis, including bacterial and yeast cell enumeration and multiparameter cell analysis (up to 8 colours).

In addition, we are able to sort up to four populations of cells or particles.



The BD FACSAria cell sorter housed at our unit.

The Olympus wide field microscope as well as the Carl Zeiss confocal and super-resolution microscope has been used not only for single cell imaging, but for various plant and animal tissue samples, as well as polymer structure.



The Olympus IX-81 wide-field microscope and Carl Zeiss LSM 780 confocal super-resolution microscope at our unit.

Both microscopes can be used for dynamic analysis, such as migration studies and the Zeiss microscope is able to perform super-resolution imaging, providing much more in-depth imaging of samples.

As always, we aim to provide the best quality service and assistance to our clients. Please feel free to contact us with regards to projects and data analysis.

MSSA CONFERENCE, DECEMBER 2014



The 52nd annual Microscopy Society of Southern Africa conference was held from 2-5 December 2014 at Protea Hotel and Conference Venue, Stellenbosch, in association with Stellenbosch University. This conference focuses on the microscopy techniques and novel imaging systems and work done in the field.

This event was hosted in collaboration with CAF Imaging units and was the first MSSA hosted in Stellenbosch since 1985.

Several Stellenbosch students attended and presented at the conference, demonstrating the confocal and super-resolution imaging. A technical forum was held as well as prestigious speakers including Prof Christian Colliex, who provided insight into nanoparticle analysis using scanning transmission electron microscopy, and Dr Lucy Collison, who introduced viewing 3D molecule structures with the use of light, electron and X-ray microscopy.

Yigael Powrie, a BScHons student at the Department of Physiology, won the prize for the most promising upcoming microscopist. The prize, worth R25 000, includes sponsorship to attend the Microscience Microscopy Conference in Manchester later this year.



Yigael Powrie with MSSA committee members, receiving his award.

Two other students from Stellenbosch University were also awarded prizes. Jomien Mouton won the prize for best poster presentation and Elizabeth Louw won the prize for the best confocal imaging. We would like congratulate all the winners, as well as Dr Ben Loos, the conference convenor for a great conference!



Elizabeth Louw receiving her award for the outstanding images.

NEWS FROM TYGERBERG FLOW CYTOMETRY DIVISION

Our Tygerberg Unit, currently houses a new S3 Cell Sorter from BioRad for a trial period. This instrument is an automated benchtop cell sorter with two lasers and up to four fluorescence detectors plus forward- and side-scatter detectors. It will be placed in a biosafety cabinet for sterile sorting.

Also, the Tygerberg Unit was part of EQAPOL, an external proficiency scheme, which supports the development, implementation and oversight of external quality assurance programs to monitor laboratories involved in HIV/AIDS research

and vaccine trials around the world. The score for the proficiency test for the unit was 89%. We would like to congratulate our analyst, Andrea Gutschmit for their success.

A BD hosted user meeting will be held on 9 February 2015, at the Flow cytometry unit, FISAN building. There will be a short presentation on setting up compensation for multicolour experiments, followed by user presentations. Please contact us for more information if you are interested to attend.

NEW INSTRUMENTS AND UPGRADES

Stellenbosch University have been awarded with an NRF NNEP grant to upgrade our Carl Zeiss LSM 780 platform this year to the ELYRA PS.1. This upgrade will enable photoactivated localization microscopy use for endogenous proteins and structures. Another NRF grant has been awarded to purchase a new high resolution

SEM. The grant includes an additional upgrade to our LSM 780 platform to incorporate the ability to perform Correlative Light Electron Microscopy (CLEM), which will incorporate the abilities of fluorescent and electron microscopy (EM). Keep an eye out for our next newsletter where we will provide more details.

NEW BLOG AND ONLINE BOOKING SYSTEM

We are in the process to set up a new blog site for the unit to provide a lot more up-to-date information. As part of this new venture we will move to a new online booking system. The rationale is to enable our users to book

time, with or without assistance, on our instruments at their convenience. We are in the process of setting up the system and we will notify all our users once the system is implemented.

NOTICES

We have a few things to note for the year:

- The lasers on the confocal microscope will be sent to Germany for the upgrade soon. Though we do not have a definite date for the expected down-time, we will keep users informed of the developments.
- Our prices will increase as of the month of February. The price updates will be available shortly on our [website](#). Please contact us in the meantime for accurate information.
- The upcoming training for this year will begin later in February. We will announce the dates soon. Please email us if you would like to attend a course on microscopy or flow cytometry.
- Finally, we have deleted the data for 2013 and 2014 from all our workstations. Please make sure to copy and back up all the raw data after each experiment as we will now clean our databases every quarter to prevent data build up.

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Please feel free to contact us if you have any questions or would like to set up a research project with us.