



University of Oxford Laboratory Services Showcase

BioEscalator, 18th May 2023





1. Introductions

Dr Claire Shingler

Dr Emma Packard

Welcome



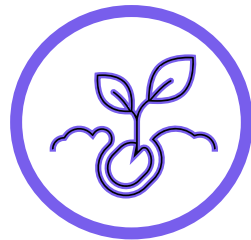
Incubator for spin-out and start-up biomedical science companies

Shared and private CL2 labs

Entrepreneurial and business support



£1.6B funds raised



36 new companies



42% OU spin-outs



13 graduated companies



280 jobs created



31% women founders/CEOs



150 events reaching >3000 people

Today's event



- 24 Flash presentations (2 mins)
- Networking lunch/Q&A
- Housekeeping
- Sponsors: Oxford University Innovation and The Oxford Trust

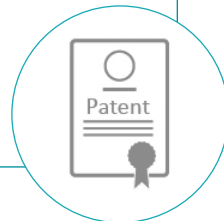
Oxford University Innovation Limited

Creating global impact from academic discovery and expertise



- **Enabling impact from *discovery*** through Licensing, IP and Patents, Spinout formation, Material Sales, Clinical Outcomes, Startup Incubator, Social Enterprise creation, Oxford University Hospitals NHS Foundation Trust

Licensing & Ventures



- **Supporting researchers and external partners** to utilise academic expertise and technical services

Consulting Services



- **Enabling ventures to grow from concept to maturity** through Seed Funds, Oxford Investment Opportunity Network, Spinout Equity Management

Funding, Investment & Management



Consulting Services

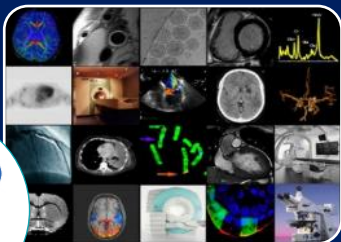
Enabling Oxford expertise to have impact in the wider world



Providing external organisations with access to University expertise & facilities.



Helping academics identify and manage consulting opportunities.



Supporting Departments in arranging external services (including consultancy) work.



2,356 academic consultants registered with OUI Consulting Services

- providing advice and expertise to organisations worldwide.



OXFORD UNIVERSITY INNOVATION



Contact us

emma.packard@innovation.ox.ac.uk

sally.sheard@innovation.ox.ac.uk

enquiries@innovation.ox.ac.uk

www.innovation.ox.ac.uk

 [linkedin.com/company/oxford-university-innovation](https://www.linkedin.com/company/oxford-university-innovation)

 twitter.com/OxUInnovation





2. Advanced Proteomics Facility

Dr Marjorie Fournier



Biochemistry, South Parks Road, Oxford

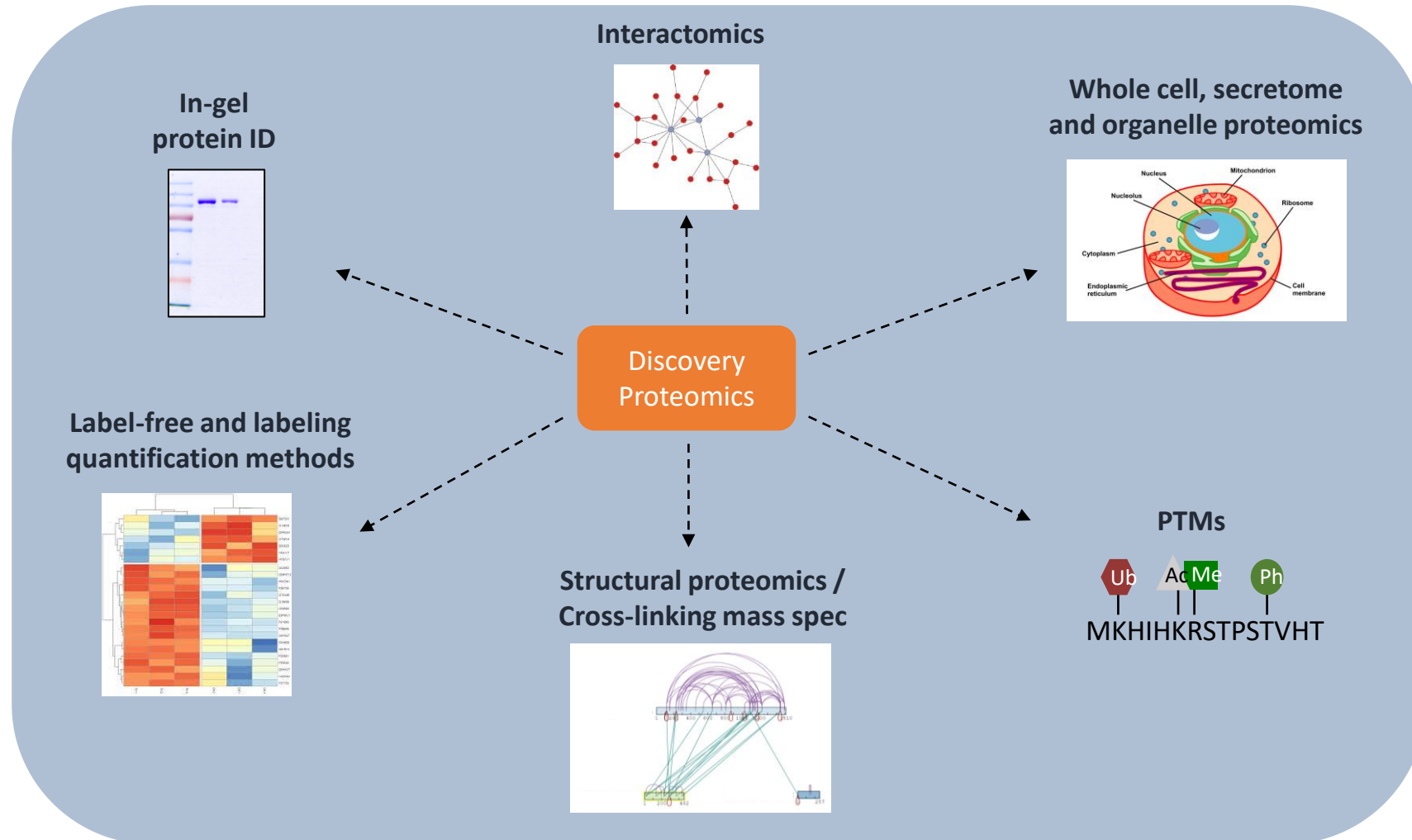
Advanced Proteomics Facility

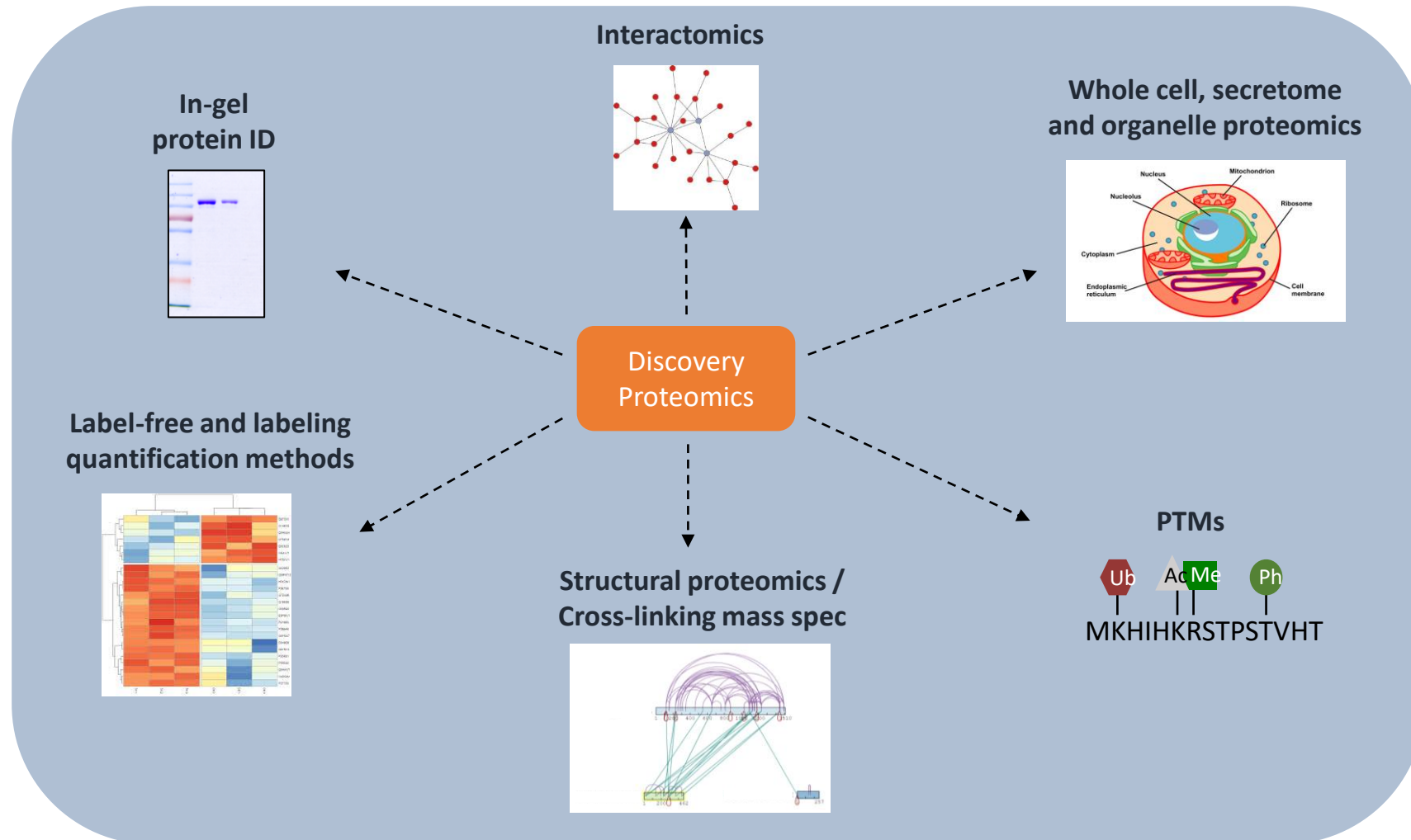
Dr Marjorie Fournier, Manager

OU Facilities Showcase
Bioescalator Oxford, 18th May 2023



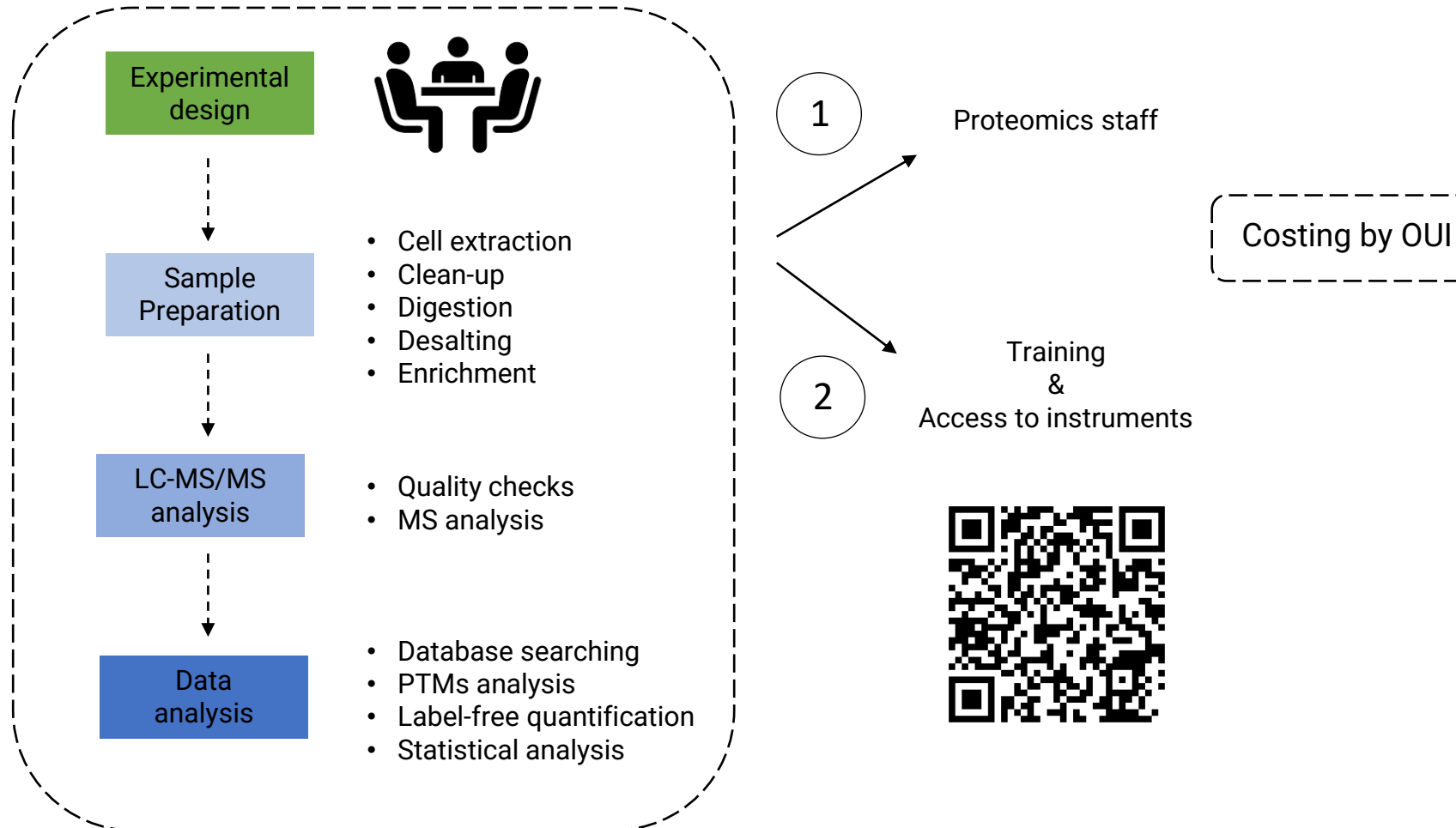
APF Proteomics Applications





“Key methodologies to identify molecular mechanisms regulating biological processes”

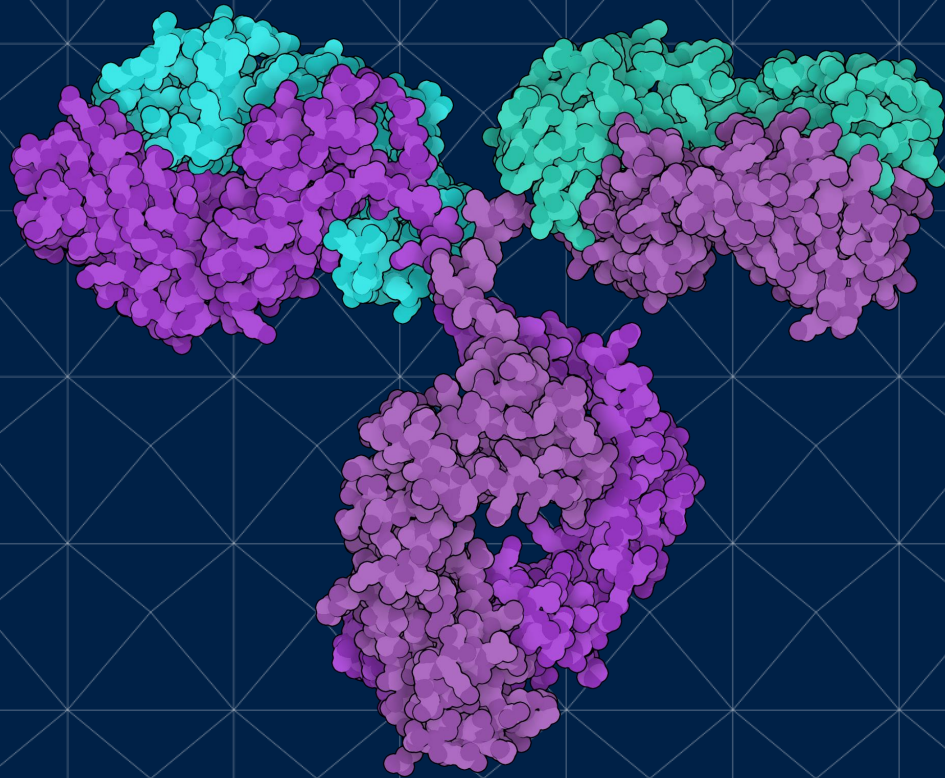
APF Supports and Services





3. OHS Specialised Analytical Service Provider

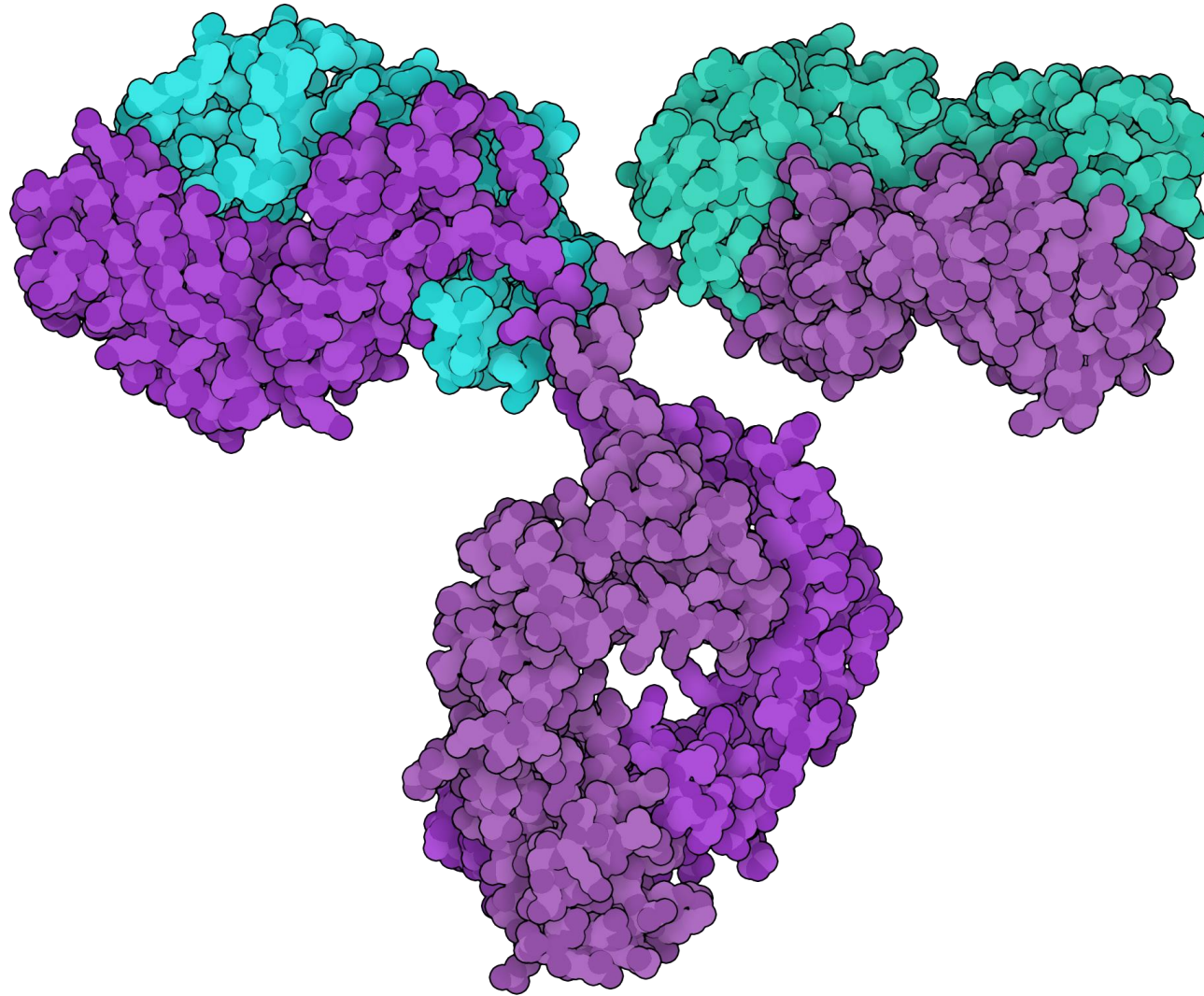
Dr Rod Chalk



OHS specialised analytical service provider

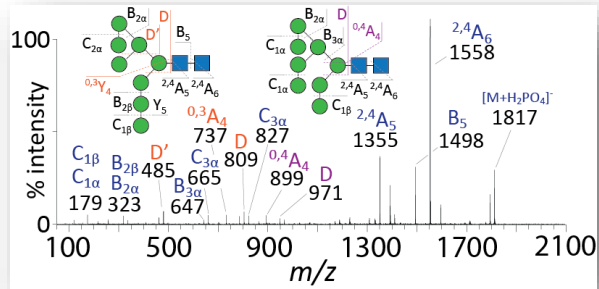
Rod Chalk PhD

Everything you need to know about your expressed protein

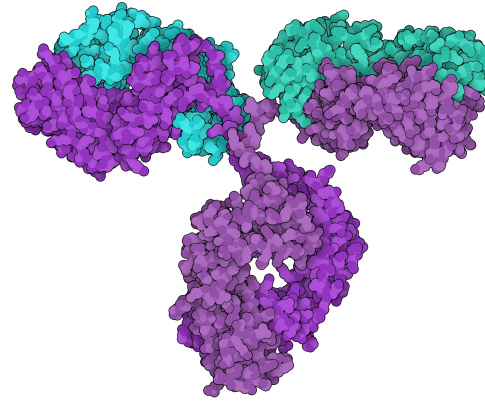


Over 20 years experience in the structural characterization of glycoprotein assemblies – from biotherapeutic antibodies to viruses and vaccines

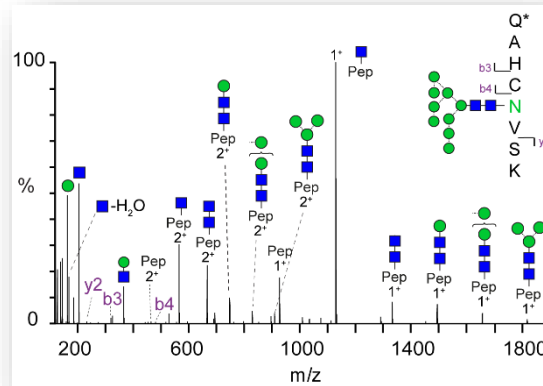
Glycomics



Uncovering the molecular detail of glycan structures: topology, branching & monosaccharide composition

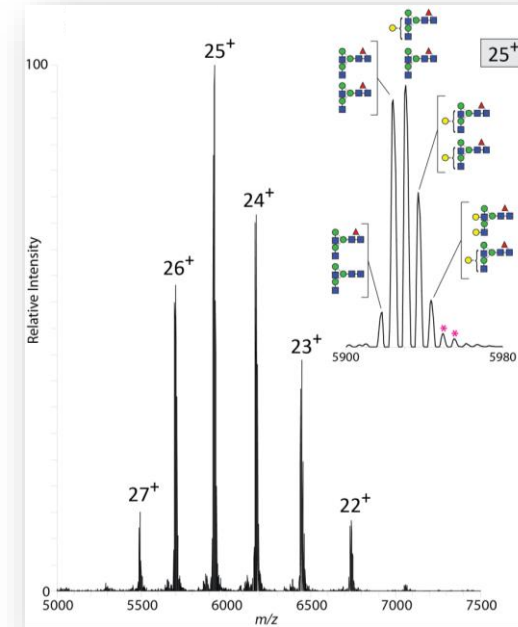


Glycoproteomics



Resolving positional information of glycan attachment to the peptide backbone

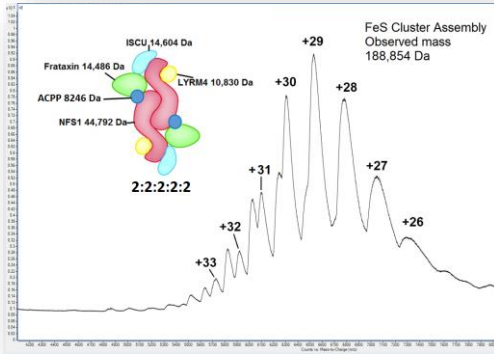
Native MS



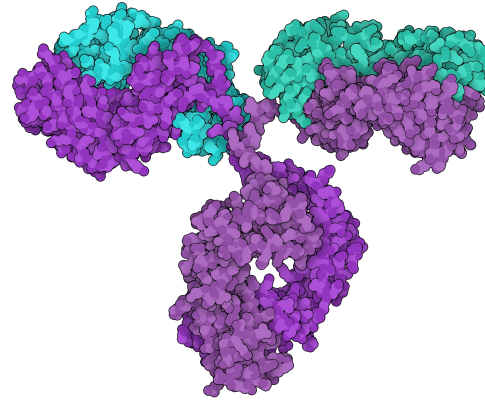
Quantifying glycosylation occupancy across the entire protein *plus* glycan structural information

Structural and functional analysis of expressed proteins using top-down, bottom-up & native mass spectrometry

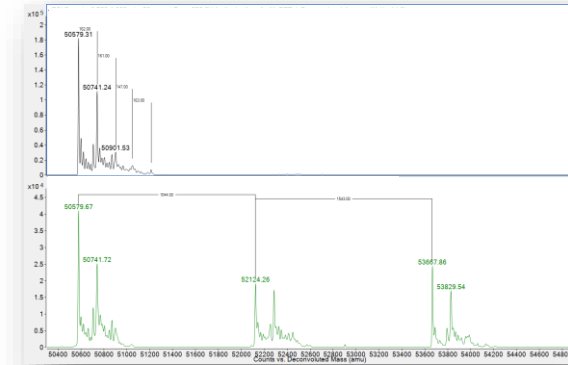
Complexes



Stoichiometry determination for homo and heterocomplexes

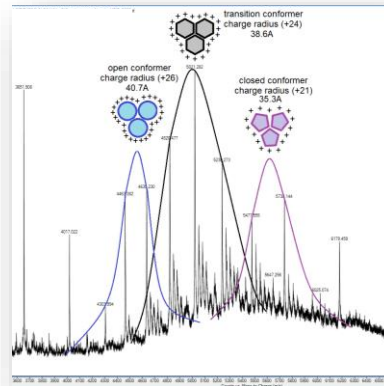


ADCs



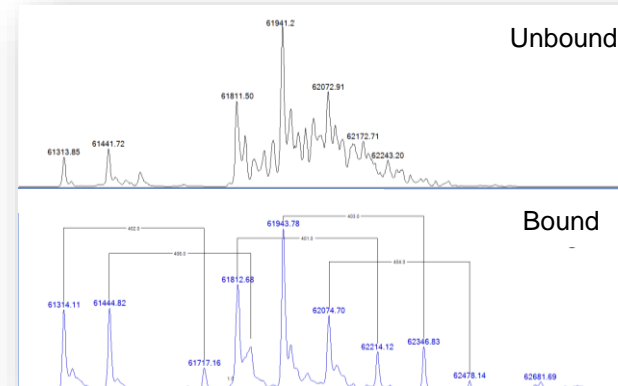
Confirmation of chemical conjugation reactions and quantitation of drug payloads

Membrane proteins



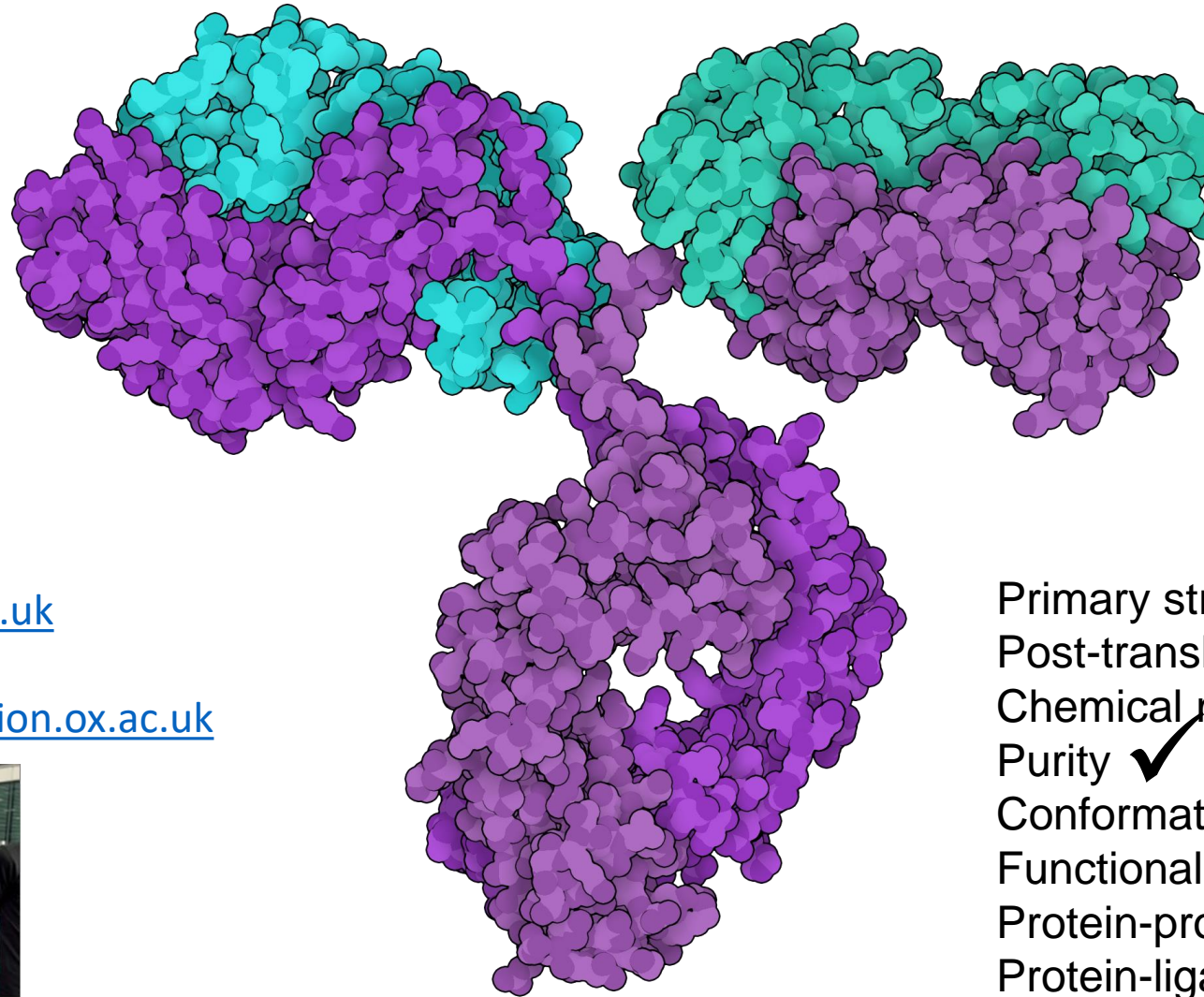
Resolving conformational changes in native structures

Drug targets



Compound and fragment screening

Everything you need to know about your expressed protein



General enquiries:

rod.chalk@cmd.ox.ac.uk

Service contracts:

sally.sheard@innovation.ox.ac.uk



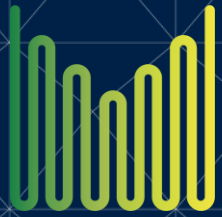
Find me at the network session

- Primary structure ✓
- Post-translational modification ✓
- Chemical modification ✓
- Purity ✓
- Conformation ✓
- Functional activity ✓
- Protein-protein interaction ✓
- Protein-ligand interaction ✓



4. PX (Protein Crystallography)

Dr Lizb  Koekemoer



CENTRE *for*
MEDICINES
DISCOVERY



NUFFIELD
DEPARTMENT
of MEDICINE



UNIVERSITY OF
OXFORD

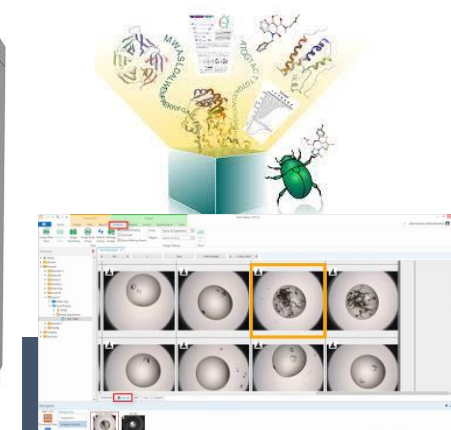
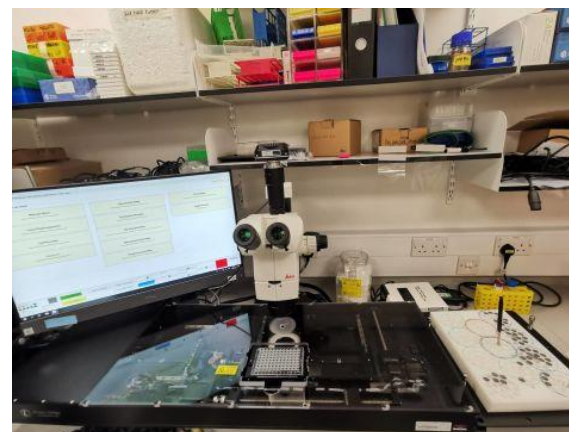
PX (Protein crystallography) SRF

Lizb  Koekemoer

- 18 May 2023

Our facility

- Walk-in facility for academic collaborators:
 - Access to crystallography equipment and facilities, including an extensive screening library
 - Diamond sample registration, and tracking of crystals using our Scarab database
 - Crystal storage and shipping to Diamond, and subsequent disposal
 - Tracking of crystals using Scarab database
 - Diamond BAG reporting
- Crystallography as a service for academic and industrial users:
 - Crystallization of novel targets, including trouble-shooting of difficult targets
 - Reproducing published structures and internal projects
 - Hit optimisation and elaboration
 - Protein-Ligand and Protein-Protein complexes
 - LCP crystallography of membrane proteins
 - Structure solution and PDB deposition preparation
 - Project management and reporting
- XChem:
 - Getting crystals XChem-ready
 - Performing XChem screens
 - Data analysis and reporting
- Scientific support and method development, including protein engineering (in collaboration with the Protein Production SRF).
- All data capturing and reporting done using Scarab (Research informatics) and RockMaker web.





5. Protein Production

Dr. Ellie Williams

Protein Production Small Research Facility

- Dr. Ellie Williams – Protein production facility coordinator

Protein Production Facility - CMD

Construct Design and Cloning

- Help with construct design available
- High throughput 96 well plate cloning
- Access to 150+ vectors for *E. coli* / Insect / Mammalian systems

Protein Expression

- *E. coli*, Insect and Mammalian expression platforms in use
- 80+ *E. coli* cell strains available
- Virus generation for baculoviral strategies

Protein Purification

- Expertise in protein purification for multiple final applications
- Development of purification strategies
- Experience in soluble, refolding, secreted and endotoxin free purifications

Of Note

- Continuous pipeline into RI, MS, Biophysics and Crystallography SRF units
- Keen to work with academia and industry

Would like to meet...

- Researchers looking for both short and longer term collaborations
- Anyone looking to talk over ways we could help them across the CMD SRF pipeline



Contact: Eleanor.Williams@cmd.ox.ac.uk

Full range of biophysical instrumentation for hit identification and validation



ITC



SPR



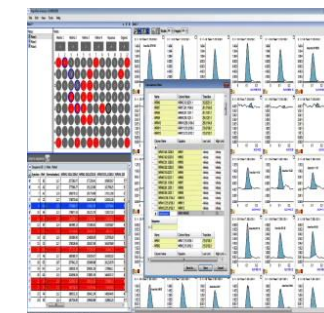
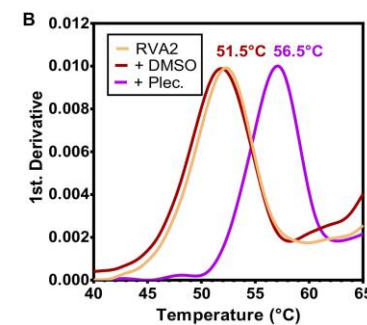
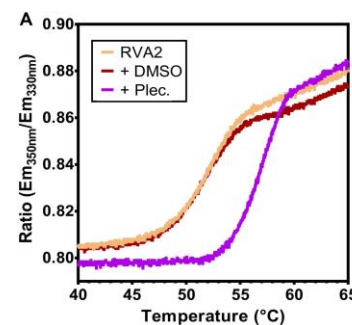
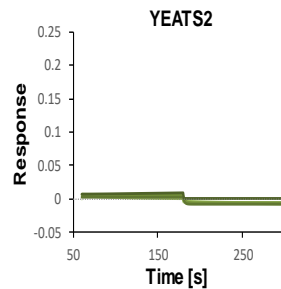
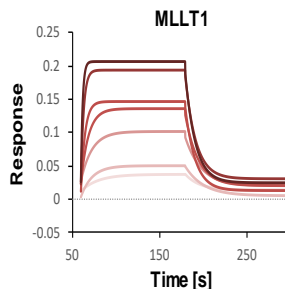
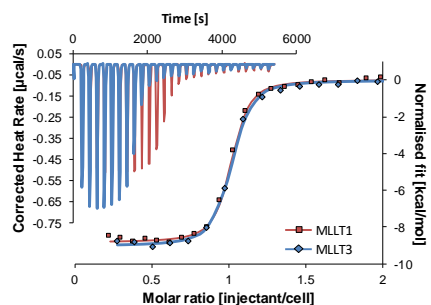
BLI



Protein stability & aggregation



RapidFire MS



Contact: oleg.fedorov@cmd.ox.ac.uk



6. NDM Centre for Translational Proteomics

Dr Roman Fischer



DisPro (Discovery Proteomics)

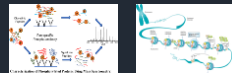
CellPro (Cellular Proteomics)



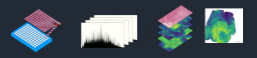
Discovery Proteomics




PP Interactions



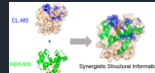
PTMs



Spatial Proteomics



Single Cell Proteomics



Structural Proteomics



Clinical Proteomics

- ✿ Thermo QExactive
- ✿ Thermo Orbitrap Fusion Lumos
- ✿ Thermo Orbitrap Ascend + FAIMS
- ✿ Bruker TimsTOF PRO + Evosep One

- ✿ Bruker TimsTOF FLEX ESI/MALDI
- ✿ Bruker TimsTOF SCP + Evosep One
- ✿ Waters Cyclic IMS HDX (coming soon)



Laser Capture Microscope
 CellenOne (single cell dispenser)
 Bravo liquid handler
 Covaris





7. Nuclear Magnetic Resonance (NMR) Spectroscopy

Professor Christina Redfield

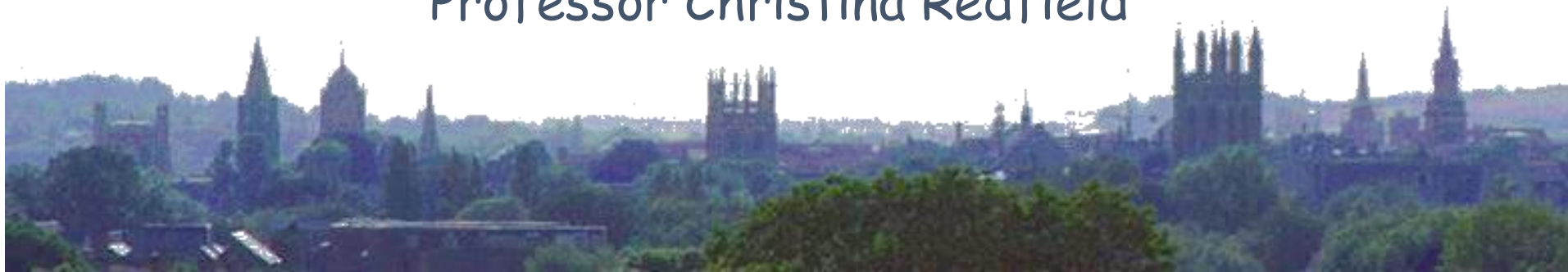


BioEscalator Facilities Showcase

Nuclear Magnetic Resonance (NMR)
Spectroscopy Facility in the
Department of Biochemistry

18 May 2023

Professor Christina Redfield



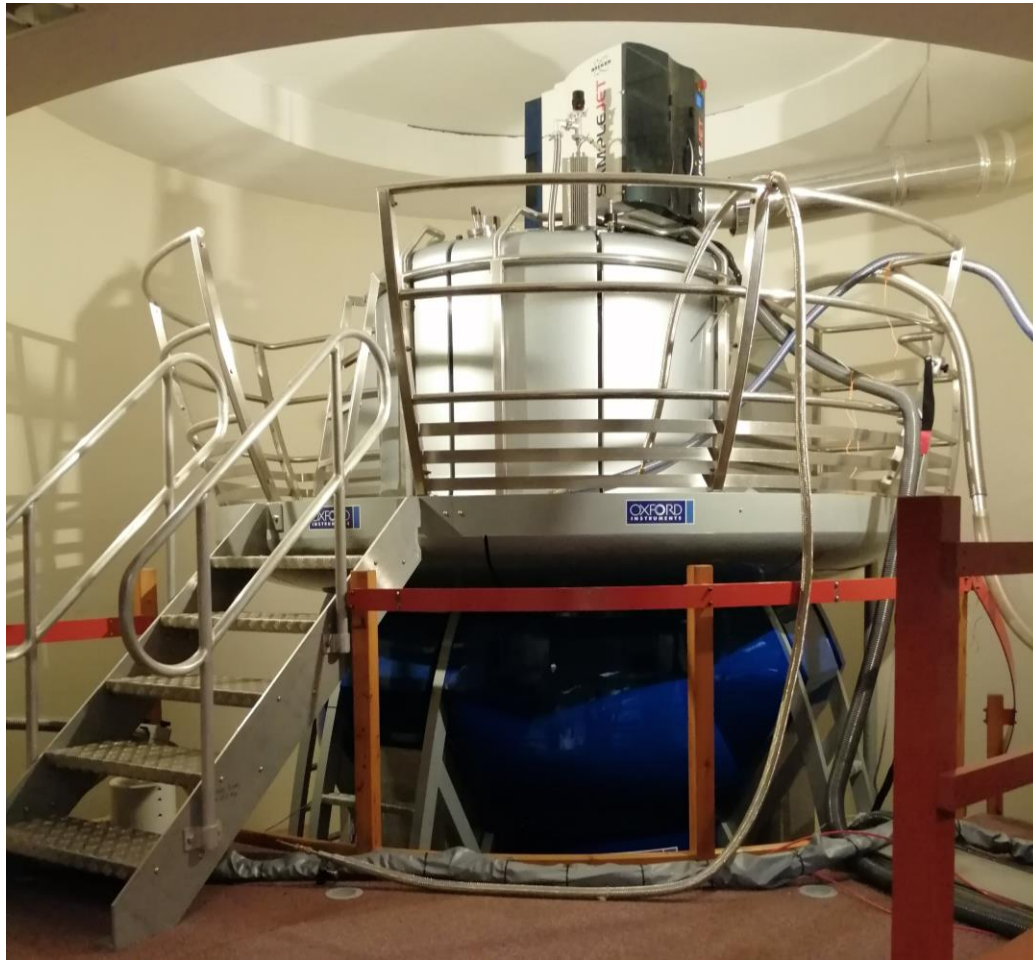
Solution NMR Facility in Biochemistry

- The facility is open to all members of the Biochemistry Department, Medical Sciences Division and the wider University.
- Access to the NMR facility for external companies (i.e. Biotech, Pharma) is also very welcome and this can be arranged via Oxford University Innovation.
- The NMR facility is located in the South Parks Road Science area and has NMR spectrometers operating at ^1H frequencies of 500, 600, 750 and 950 MHz.
- All spectrometers are equipped with Bruker consoles and high-sensitivity inverse $^1\text{H}/^{13}\text{C}/^{15}\text{N}$ triple resonance 'cryo'-probes. The 600 MHz is also suitable for ^{19}F NMR. The 950 has a fully-automated sample changer that can handle racks of 96 NMR tubes.

Solution NMR Facility in Biochemistry

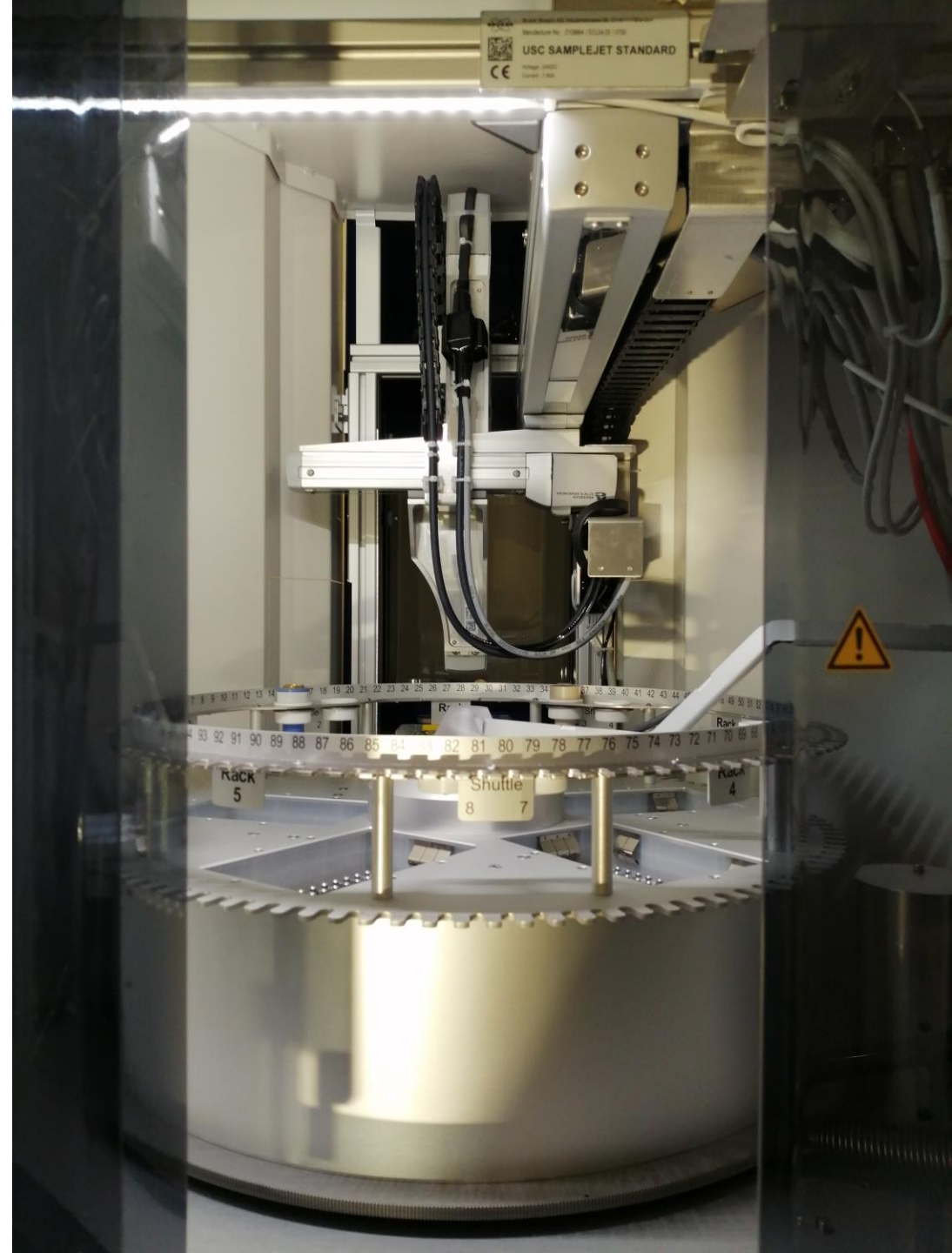
- Training/advice is available for anyone interested in using NMR either as independent users or through collaborations with Redfield/Schnell research groups. A 'service' could also be available.
- Remote operation of the NMR spectrometers is possible. We are part of the Horizon 2020 Remote-NMR project working on developing a common protocol.
- Experiments can be set up with help of facility staff via an interactive Teams/Zoom session or remote user can operate the spectrometer without assistance from facility staff. Samples would need to be shipped/delivered to the Biochemistry Department.

The 950 MHz NMR spectrometer is equipped with a SampleJet sample changer which enables higher throughput experiments.



These might include ligand screening for drug discovery via either ligand or protein detect methods.

The SampleJet can accommodate 3mm or 5mm 'standard' NMR tubes in the ~95 positions around the carousel or racks that hold up to 96 3mm or 5mm short NMR tubes. The samples in the racks can be temperature controlled prior to and after data acquisition. Automation of data collection is done using IconNMR.



Solution NMR Facility in Biochemistry

- The Redfield and Schnell research groups have expertise in biomolecular NMR, particularly studies of structure, dynamics and interactions of proteins in solution.
- The NMR spectrometers are also suitable for characterization of small organic compounds (TOCSY, HSQC, HMBC etc), kinetic measurements (substrate turnover in enzymatic reactions), ligand binding studies (ligand-observe STD NMR, protein-observe titrations), and metabolomics.

Contact information

- Please contact: christina.redfield@bioch.ox.ac.uk if you'd like more information about our NMR facility or to discuss whether NMR might be of use in your research & development projects.



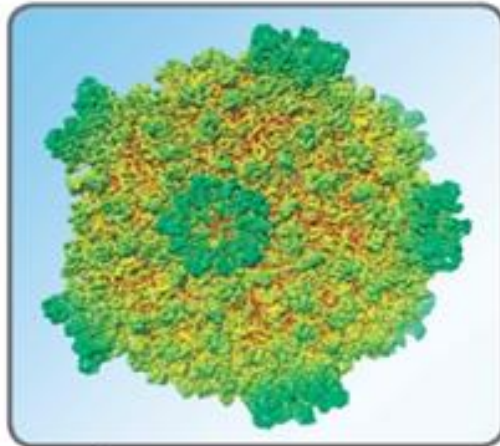
8. COSMIC cryo-Electron Microscopy Facility

Dr Rishi Matadeen

Structural Biology Solutions

Structural Biology Solutions

Visualize life at the 3D
molecular level

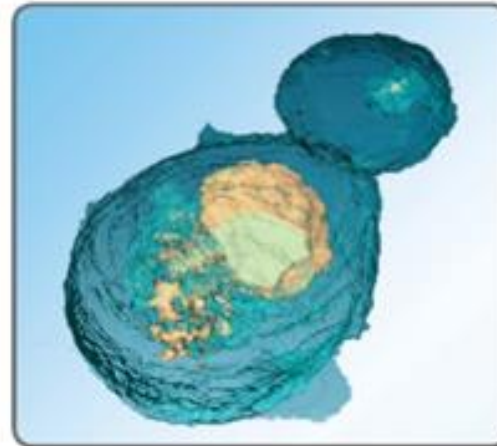


3.88 Å structure of Cytoplasmic
Polyhedrosis virus by cryo-
electron microscopy

*Courtesy of Xuekui Yu, Lei Jin & Z. Hong Zhou,
University of California, Los Angeles, USA*

Cellular Biology Solutions

Discover life's cellular
architecture in 3D



Volume rendering of the three-
dimensional architecture of a
dividing yeast cell

*Courtesy of Sriram Subramaniam, National
Institutes of Health, Bethesda, USA*



Equipment at Cosmic

- 3 Thermo Scientific Mark 4 Vitroblots for rapid freezing of samples
- Dedicated humidity-controlled preparation lab
- Several TEMs and a FIB SEM

TEMs at COSMIC

Talos F200C



Talos Arctica



Titan Krios



Highlights

- Streamlined Single Particle Analysis workflow:
 - β -galactosidase resolved to 1.95Å, 4000 movies, 6 hour data set collection
- Fully Supported Sample Preparation and Data Collection
 - Established Industrial customer pipeline
- Comprehensive Training from Thermo Fisher Scientific and COSMIC Support staff

COSMIC TEAM CONTACTS

Prof Matthew Higgins, COSMIC Scientific Director

matthew.higgins@bioch.ox.ac.uk

Dr Rishi Matadeen, COSMIC Microscope Facility Manager

rishi.matadeen@path.ox.ac.uk

Emma Packard, OUI Project Manager

emma.packard@innovation.ox.ac.uk

[COSMIC cryo-EM facility website.](#)



9. Oxford Particle Imaging Centre (OPIC)

Professor Jon Grimes



PIC

Oxford Particle Imaging Centre

Division of Structural Biology

- OPIC offers a wealth of high resolution imaging resources for structural analysis by electron microscopy
- Single Particle analysis cryo-EM and cryo-electron tomography (cryo-ET) in CL3 containment laboratories
- FIB-SEM microscope for the milling of thin cellular lamella for in-situ cryo-ET in CL3 containment laboratories
- Unique in Europe (and perhaps elsewhere) in having cryo-EM in contained CL3 laboratories.



PIC

Oxford Particle Imaging Centre

Division of Structural Biology

Aquilos2
FIB-SEM



- With integrated fluorescence light microscopy for correlative imaging.
- Within HG3 suite.

Collaborative

projects...from crystals to cell samples; from picorna- to coronaviruses.

To mill thin 120nm Lamella from frozen cells



PIC

Oxford Particle Imaging Centre

Division of Structural Biology

Glacios
TEM



- AFIS.
- Latest EPU, Tomo5.
- HG1-2 pathogens..

Screening of grids to optimise sample preparation



PIC

Oxford Particle Imaging Centre

Division of Structural Biology

Titan
Krios G3i
TEM



- Falcon IVi/Selectris X.
- 550-750 movies an hour
- AFIS, FFI.
- EPU, SerialEM, cryo, Tomo5, PACE-tomo.
- HG1-3.

High resolution SPA cryo-EM and cryo—ET



PIC

Oxford Particle Imaging Centre

Division of Structural Biology

Blot
/plunge-
freezing
devices



- GP2, Leica (HG3).
- 2 Vitrobots.
- 3 manual plunging devices, some at HG3.
- CP3, Gatan (HG3).

Freezing of grids for SPA cryo-EM and cryo—ET



PIC

Oxford Particle Imaging Centre

Division of Structural Biology

To conclude

- OPIC facility offers a **competitive range of equipment** for electron microscopic structural analysis, including a Titan Krios with Falcon-4/SelectrisX detector within a **hazard group 3 level (HG3)** facility – unique in Europe.
- Oxford, UK; website: opic.ox.ac.uk
- Access is open for **both academia and industry**
- Academic users from EU countries have the option to apply for **Instruct funding**
- Extensive collection of equipment and very enthusiastic and research focussed staff
- Email emsupport@strubi.ox.ac.uk with any enquiries!



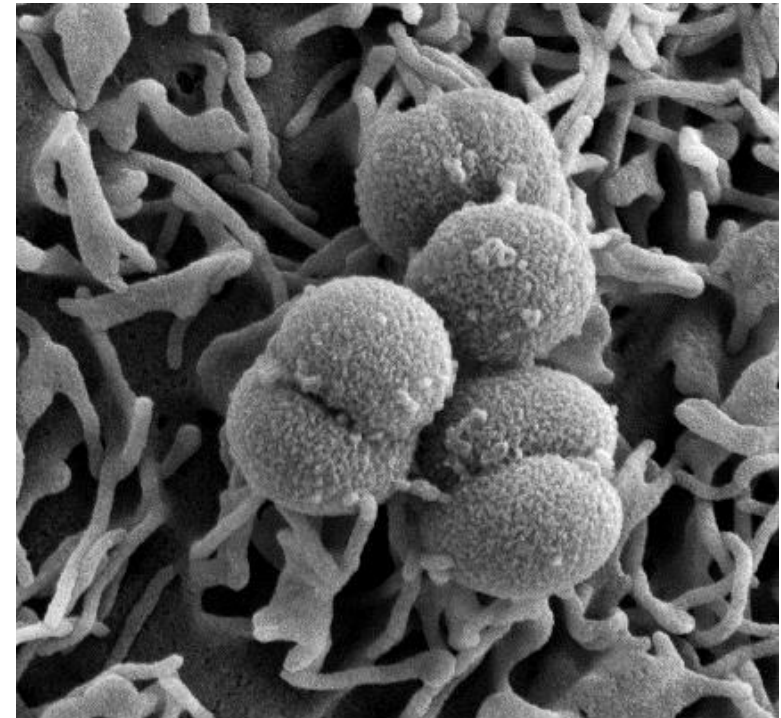
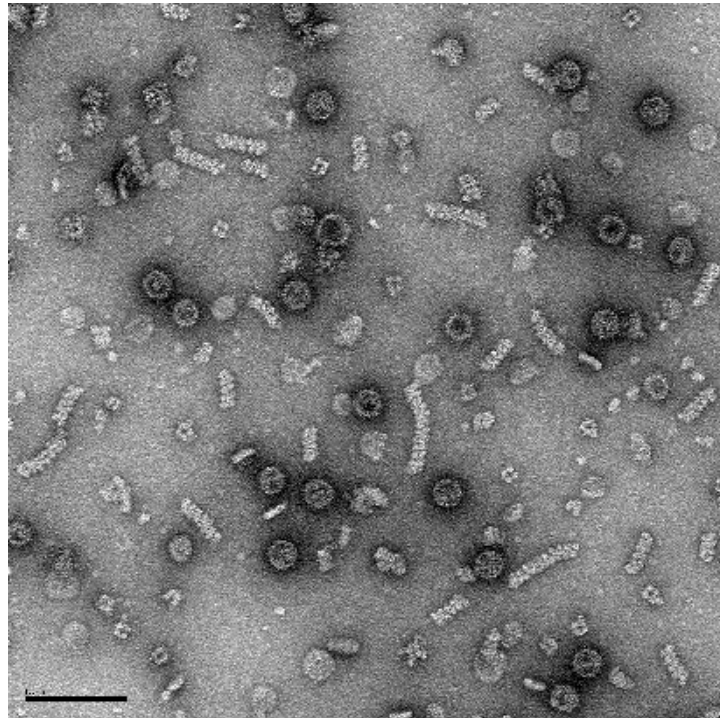
10. Dunn School Electron Microscopy Facility

Dr Errin Johnson

Dunn School Electron Microscopy Facility

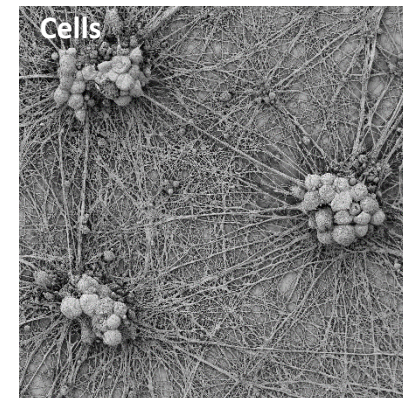
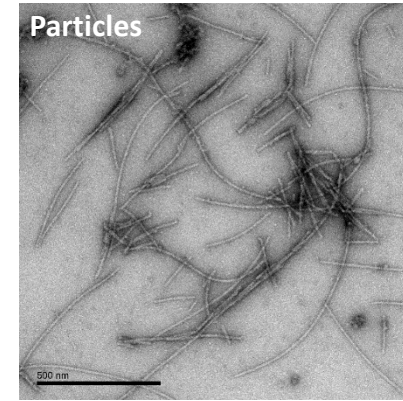
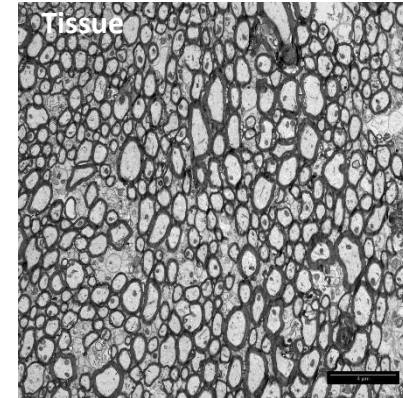
BioEscalator University Services event

Dr Errin Johnson



Dunn School Electron Microscopy (EM) Facility

- Based in the Dunn School of Pathology at Oxford University, the EM Facility has everything you need for any type of biological EM. For example, we offer:
 - Quick turnaround screening & QC checks of purified samples, including extracellular vesicles (EVs), Virus-like Particles (VLPs), proteins and α -synuclein & Amyloid Beta
 - High resolution imaging of cells, tissues and whole organisms to assess morphological and ultrastructural changes due to disease, genetic manipulation or drug treatments
- Advanced EM techniques are also supported, including volume EM, immunogold labelling, elemental mapping and correlative light and electron microscopy (CLEM)
- We provide expert advice on which EM techniques are right for your project, as well as support in image interpretation and troubleshooting
- The EM facility is open to both research and industry users
- We offer training, as well as full service options
- For more details, please visit our website: www.dunnschoolbioimaging.co.uk
- Please get in touch with me to discuss how EM can benefit your work:
errin.johnson@path.ox.ac.uk

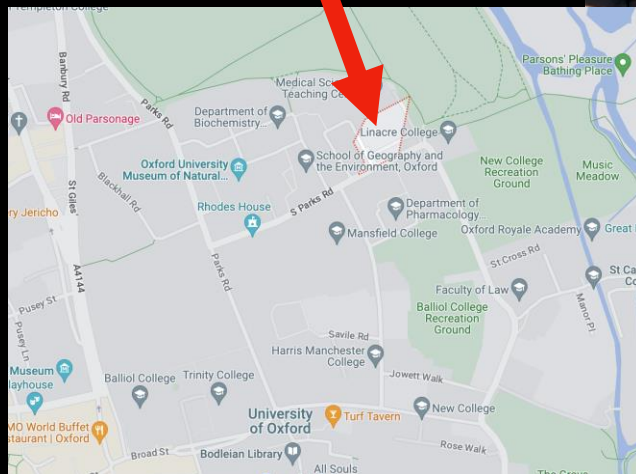
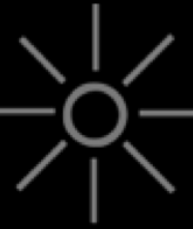




11. Dunn School Light Microscopy Facility

Dr Alan Wainman

dunn school bioimaging facility



Instruments

Fluorescence



Evos M7000
(long time-lapse,
Plate imager, histology)

'Super-res' confocal



Zeiss 880 Airyscan
(Airyscan Fast- FCS)

Confocal



Olympus FV1000
(With B&H FLIM: Pulsed 488nm laser)



Zeiss fluorescence

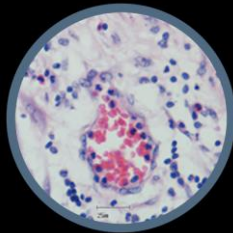


**Olympus SoRa
spinning disc**
(405nm photomanipulation unit)



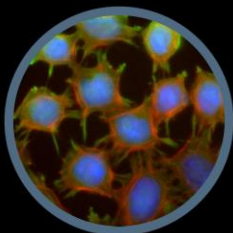
Olympus FV1200
(SIM scanner..DNA damage)

USP



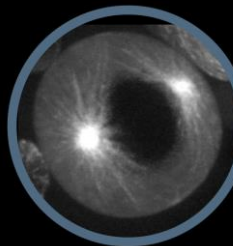
Ease of access

Many commercial users have already used the Dunn School facility. We have experience with many samples and projects.



EM and LM

Both LM and EM work close together and we have a proven track record of successful commercial projects requiring




Parking-


Parking available at Dunn School



www.dunschoolbioimaging.co.uk

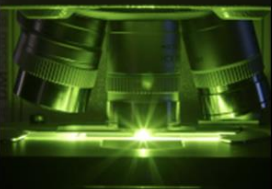
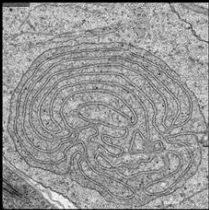
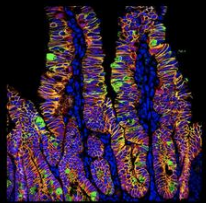
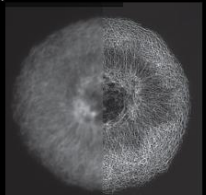



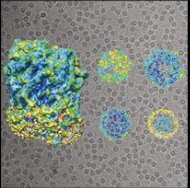
alan.wainman@path.ox.ac.uk



dunn school
bioimaging facility 

Dunn School Bioimaging Facility

Based in the Sir William Dunn School of Pathology, the Dunn School Bioimaging Facility provides Oxford University students and researchers with state-of-the-art preparation, imaging and analysis instrumentation to facilitate their research.

<p>Access</p> 	<p>TEM</p> 	<p>Confocal</p> 	<p>Super-Resolution</p> 
<p>3D-EM</p> 	<p>Live Cell Confocal</p> 	<p>SEM</p> 	<p>Cryo-EM</p> 



12. Cellular Imaging Core Facility

Dr James Bancroft



cellular imaging

Wellcome Centre for Human Genetics

Cellular Imaging Core Facility

James Bancroft, PhD



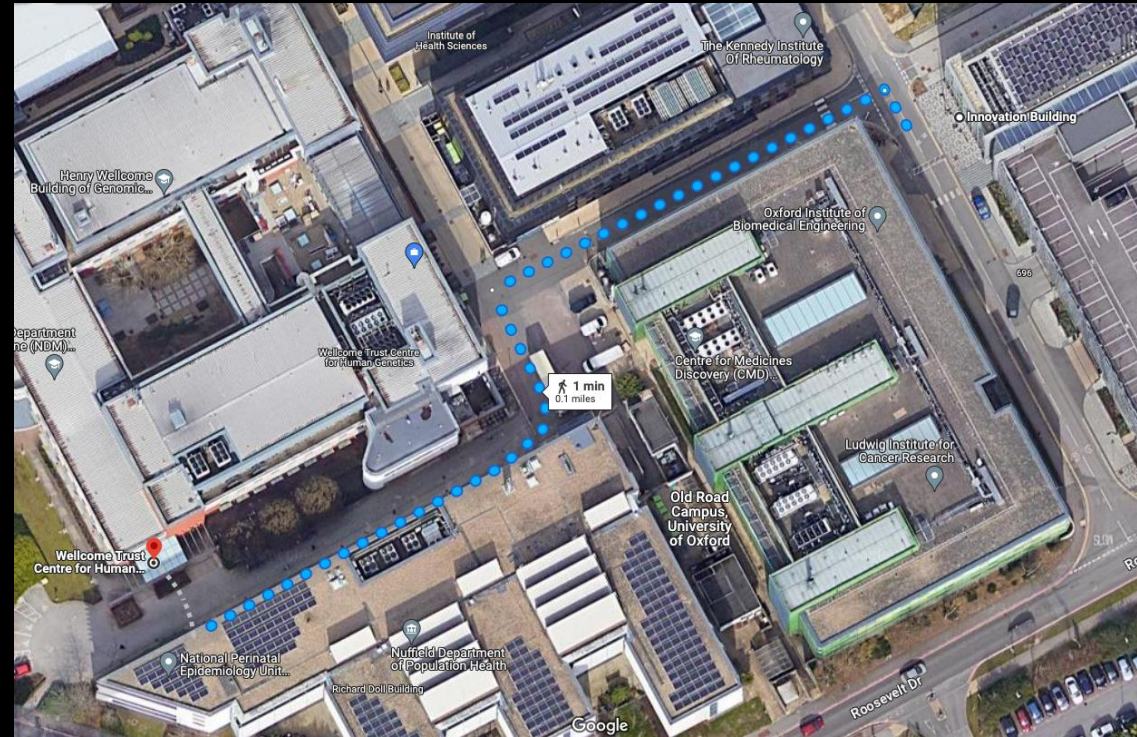
**NUFFIELD
DEPARTMENT
of MEDICINE**



**UNIVERSITY OF
OXFORD**

Who & where?

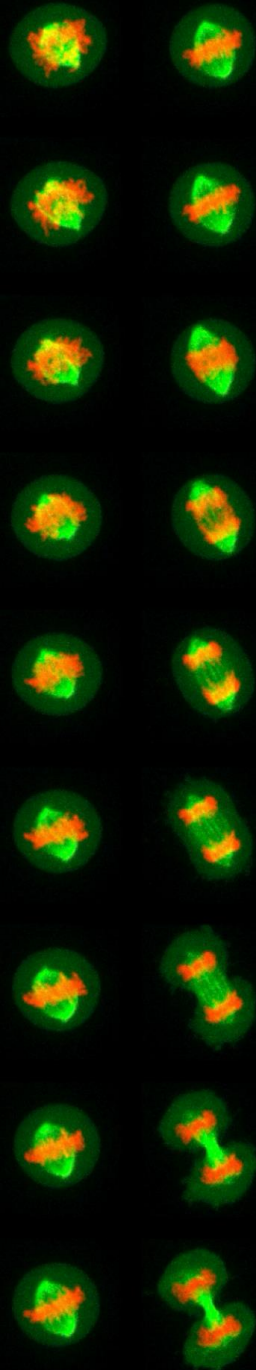
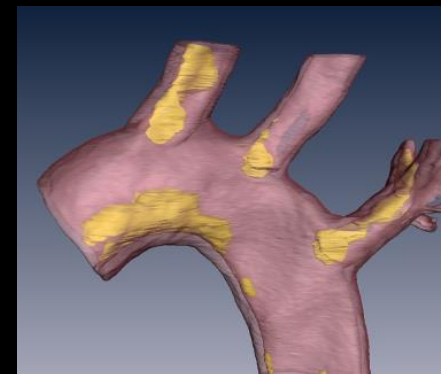
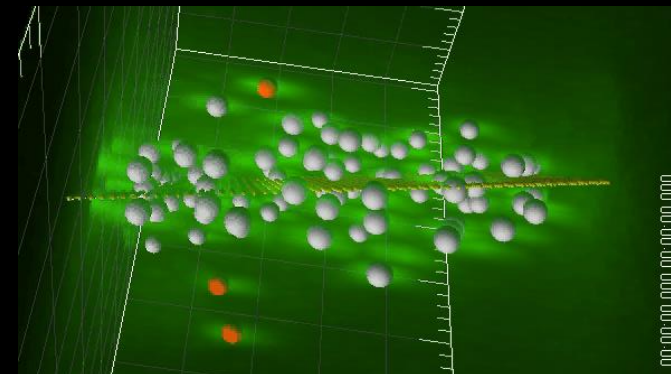
- 1 minute away from the Innovation Building
- Team of 2 (soon to be 3)
- Over 20 years of combined microscopy experience
- Expertise in sample preparation and imaging and analysis from from tissues and cells to single molecule imaging



James Bancroft



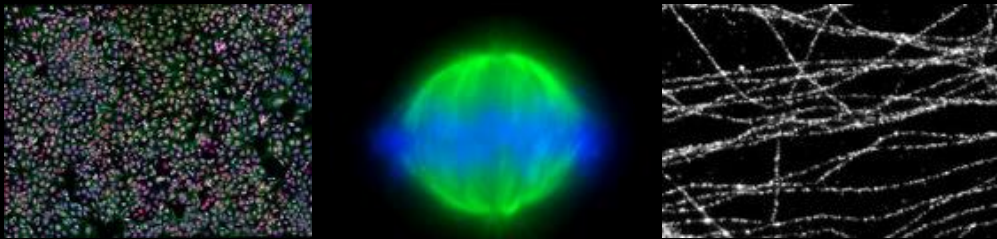
Ed Drydale



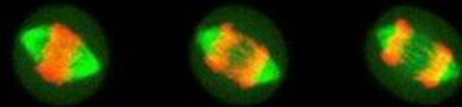
How do we work?

- We offer our services at all project stages, from experimental design to sample preparation, through to image acquisition and analysis
- We generate custom analysis pipelines leveraging the latest AI segmentation tools
- We can image samples for or with users or users can be trained to access systems independently
- We help users achieve the right kind of resolution

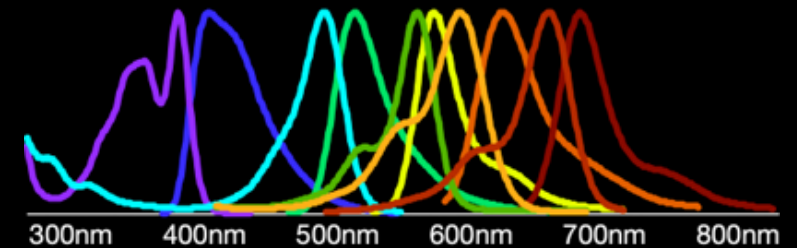
Spatial resolution



Temporal resolution



Spectral resolution



Our systems

Olympus/Evident 2 cam SoRa (super-res spinning disc) with ScanR high content package (image based cytometry)

Zeiss LSM900 with Airyscan2 (super-res point-scanning confocal) + direct processing workstation

Zeiss spinning disc confocal (3 channel)

Zeiss Laser Capture Microdissection (LCM) with fluorescence and colour

Leica SP8 confocal with white light laser

Leica SP8 FALCON - lifetime imaging

Leica widefield with fast filters and colour imaging (x2)

Aperio colourimetric slide scanner (5 slides at a time)

Coming soon - Olympus/Evident VS200 - 200 slide capacity with fluorescence, colour and polarisation imaging

Elyra PS.1 dSTORM/SMLM + TIRF - dual camera

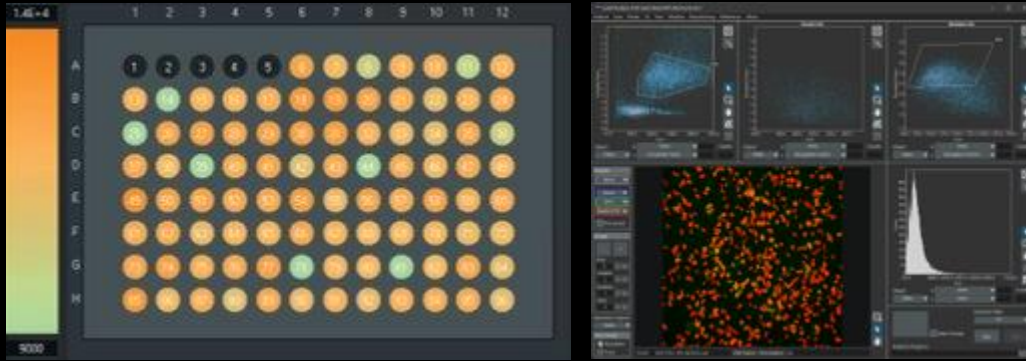
Elyra 7 lattice SIM with 3D dSTORM/SMLM and TIRF - dual camera (Joint acquisition with Zeiss CoE)

EVOS M5000 - bench top fluorescence and colorimetric imaging

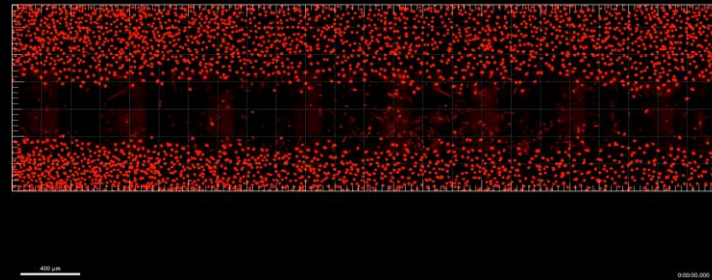
3 X Titan ultra-high spec image analysis workstations with Arivis Vision4D (x2 licences), Imaris, Zen, LasX, ScanR workstation for offline analysis of high content imaging

Example projects

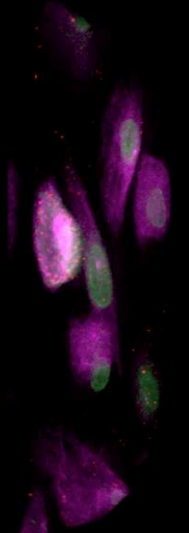
High content imaging & Image based cytometry



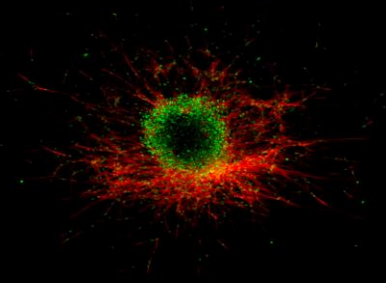
Cell tracking & wound healing



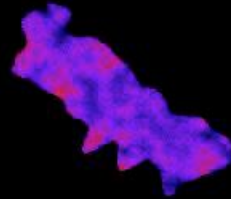
Live cell uptake assays



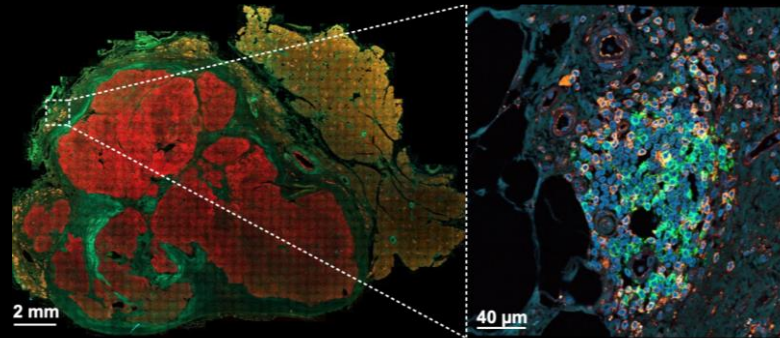
Organoid imaging



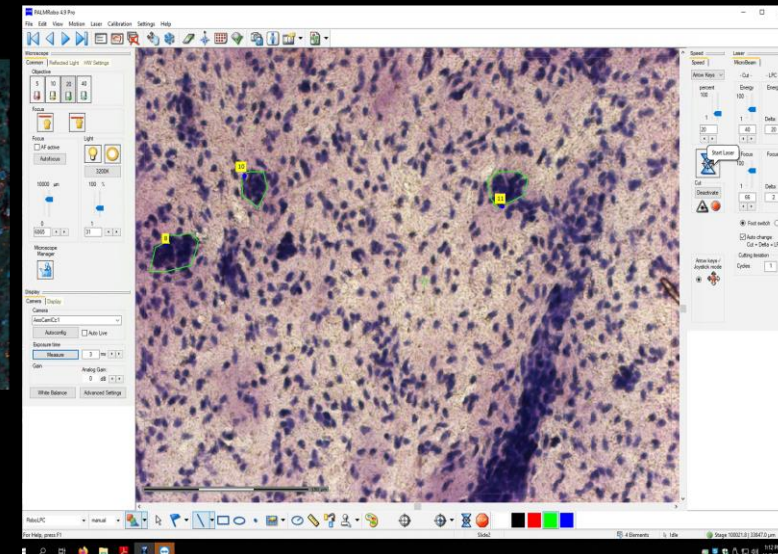
Fluorescence Lifetime Imaging (FLIM)/Biosensors



Tissue imaging



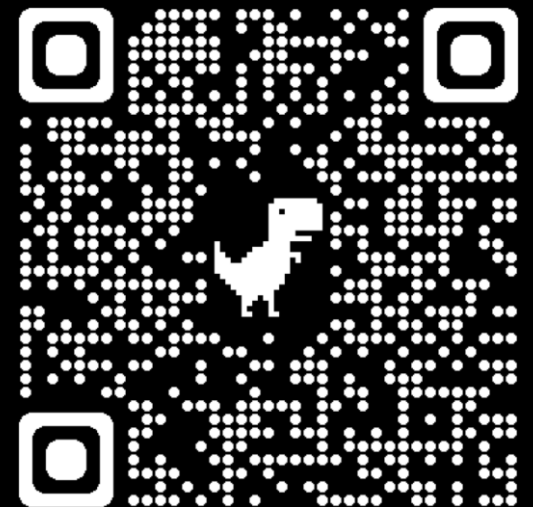
Laser Capture Microdissection





Thank you

Contact cellular-imaging@well.ox.ac.uk





13. Micron Imaging Facility

Dr Deidre Kavanagh



Home

About us >

Our Technology >

Research >

Access >

Education and Outreach >

News and Events



Dorothy
Crowfoot
Hodgkin
Building



micron@bioch.ox.ac.uk

www.micronoxford.com

@MicronOxford

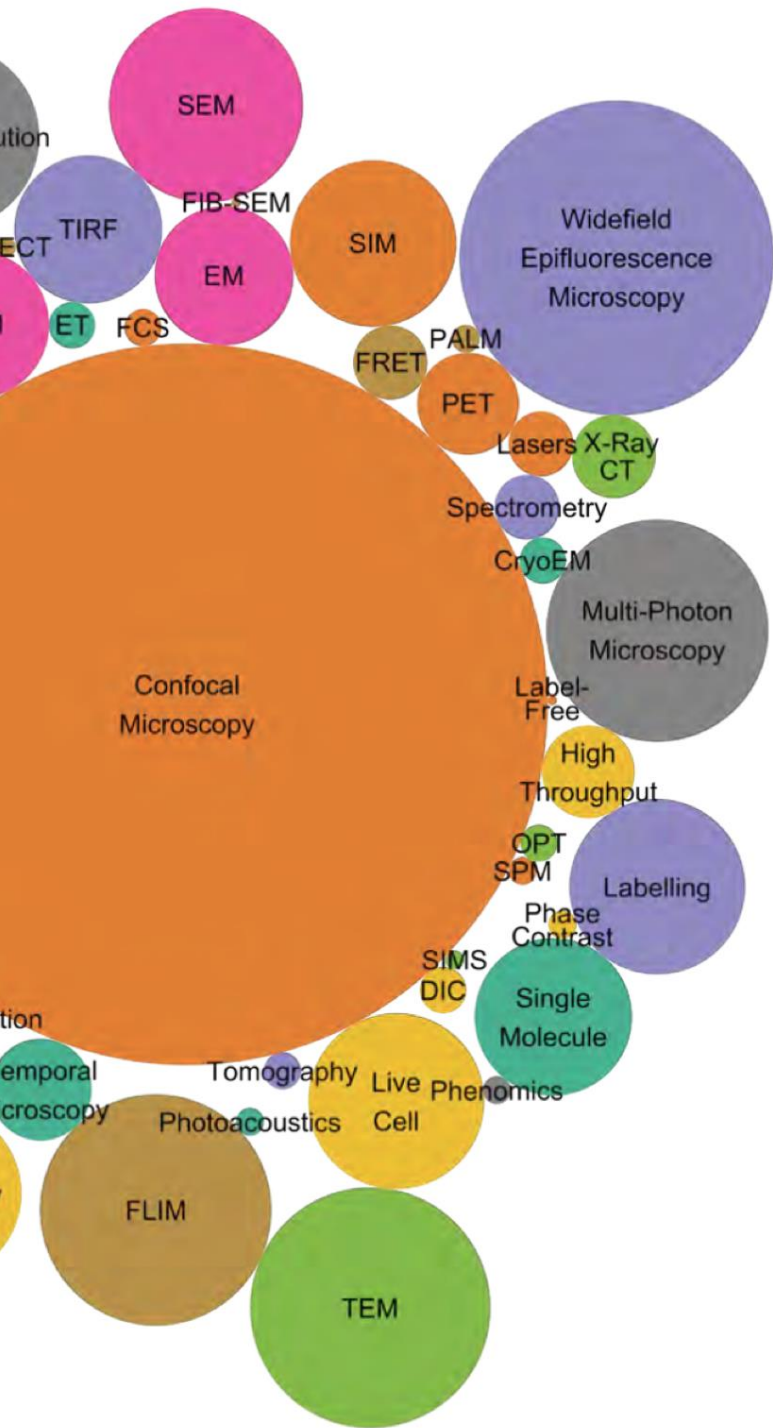
MICRON BIOIMAGING FACILITY

**Access to advanced imaging technology
Including bespoke development systems
With expert guidance and support for your project**

BOOK A MICROSCOPE



The Micron Team



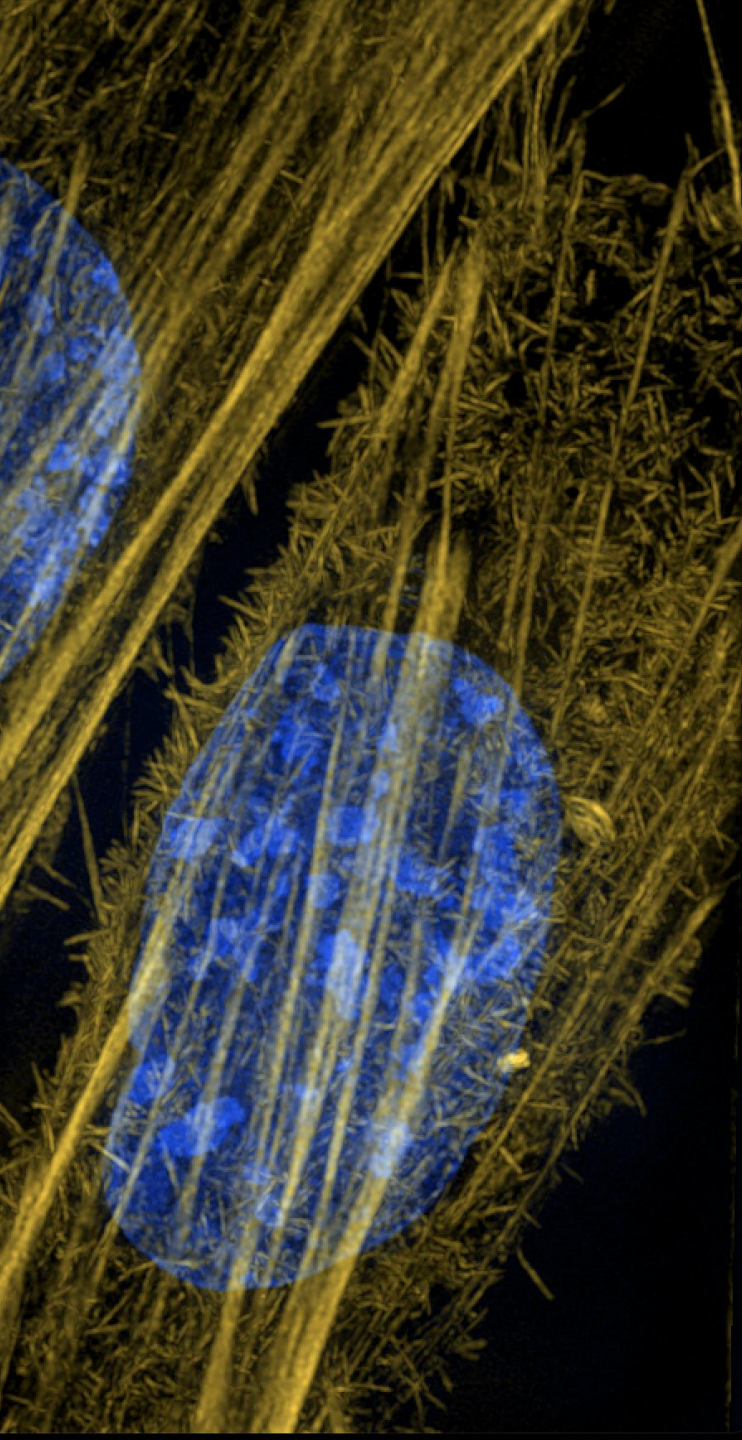
Prof. Lothar Schermelleh
Micron Director & Academic Lead



Dr Deirdre Kavanagh
Micron Manager



Dr Niloufer Irani
Micron Ass. Manager



Micron Technology

- 8 turn-key instruments and 2 development instruments

Access to

Confocal microscopy

Widefield microscopy

High Content imaging

Single Molecule Tracking and Localization

Structured Illumination Microscopy

AI Analysis

Live and fixed imaging

Secure data storage



Localisation



Dynamics

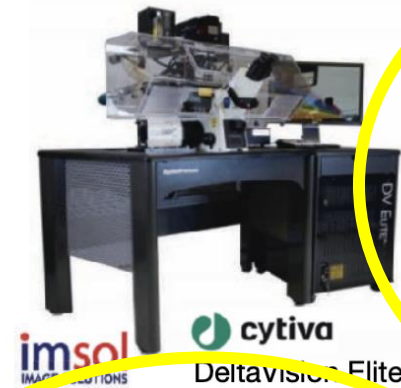


Interactions

Micron Technology

Widefield

Deconvolution



Confocal

Laser scanning confocal



Super-resolution

Super-resolution SIM, TIRF, SMLM, SPT



HCS

OLYMPUS
scanR



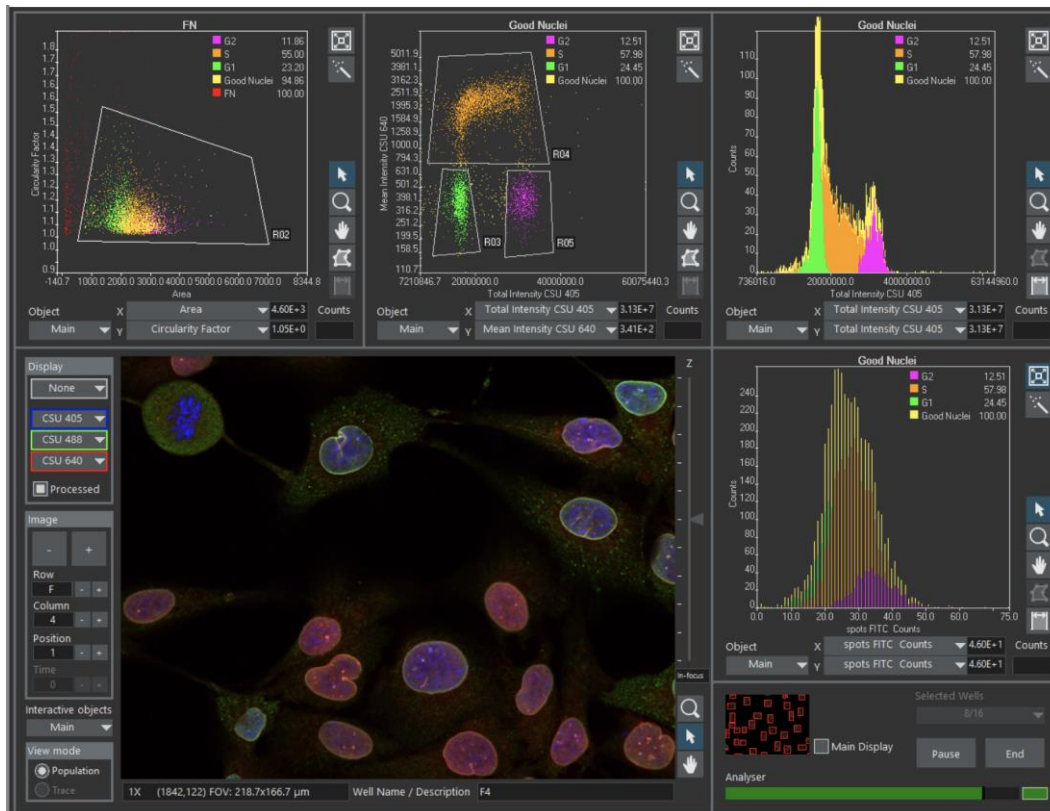
Spinning disk confocal



Micron Technology Focus

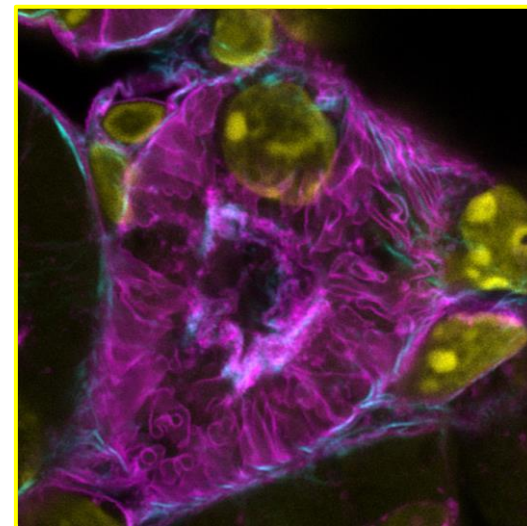
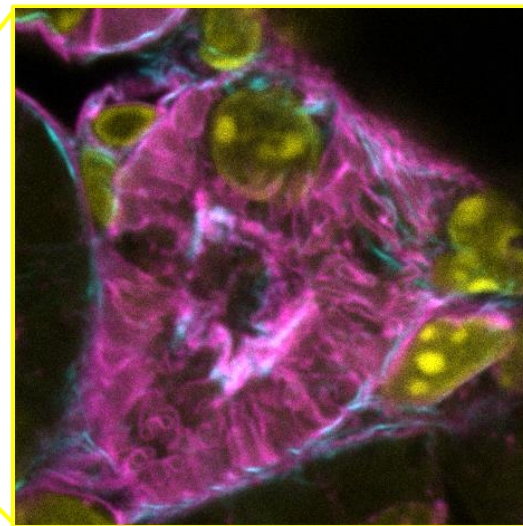
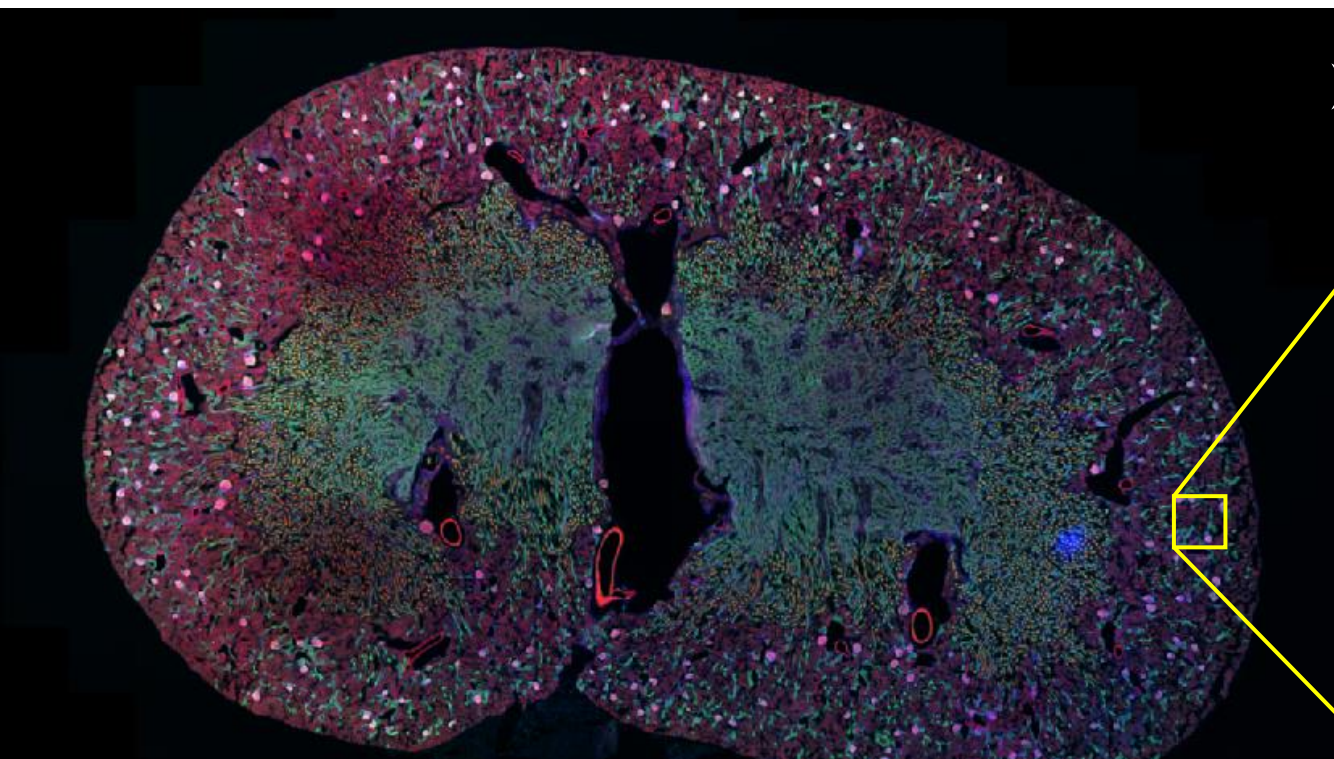
Olympus ScanR

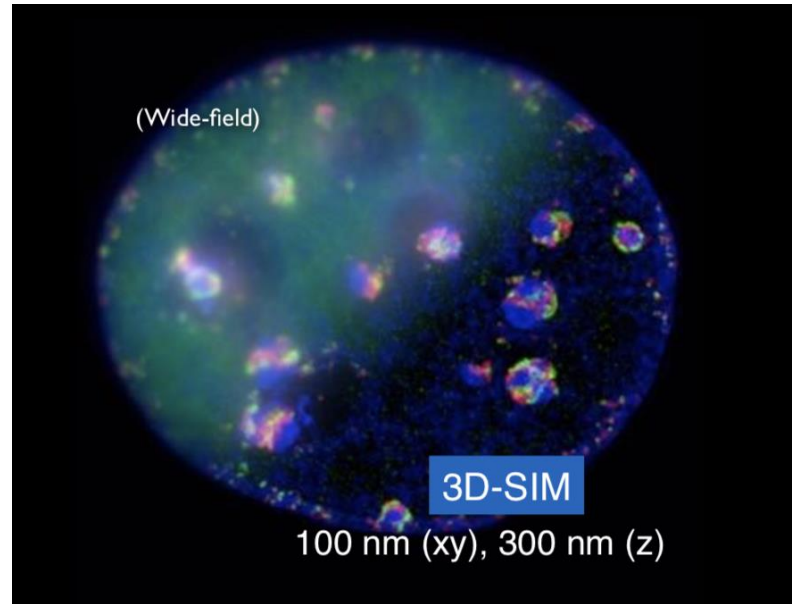
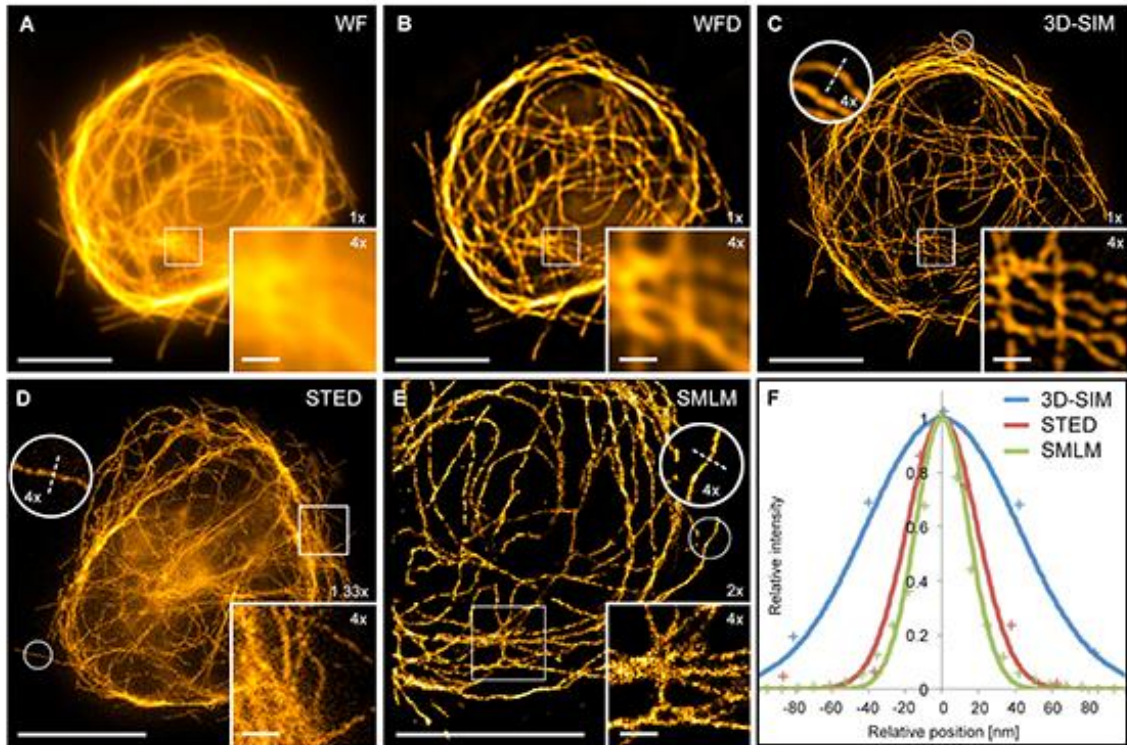
High Content Screening Widefield Microscope



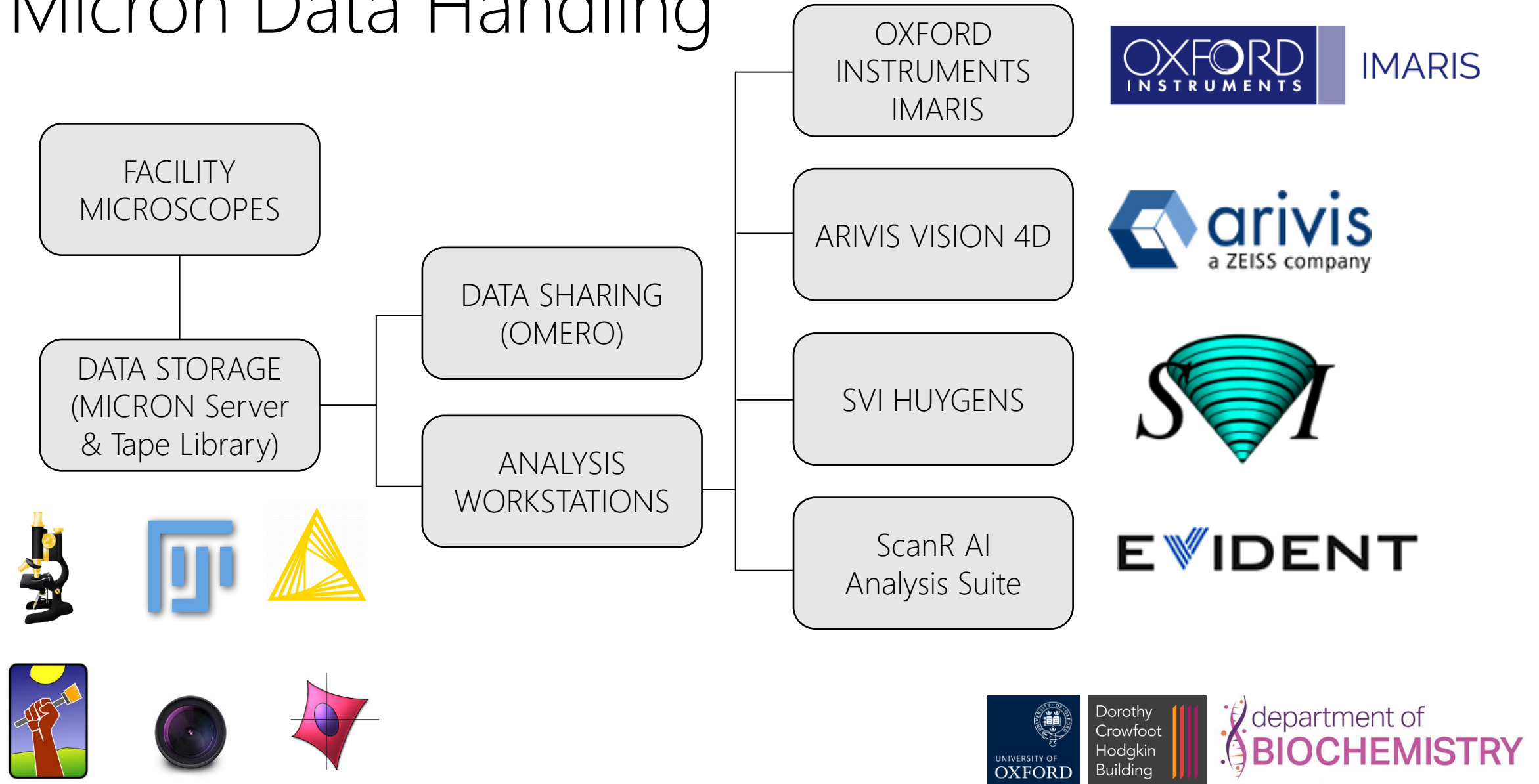
Applications

- Quantitative Image-based Cytometry (QIBC)
- Cell cycle assays
- Protein localization and colocalization
- Gene expression
- Intracellular transport
- Infection assays
- Cell migration assays
- Rare event analysis





Micron Data Handling



Micron Courses



- Annual microscopy workshops and courses including sample preparation and data analysis workshops.
- Bespoke microscopy courses available on request.
- In person and remote courses available.
- Host seminars and taster sessions.
- Late 2022 - 4 day super-resolution course (SIM).

Micron
OXFORD

Dorothy
Crowfoot
Hodgkin
Building

department of
BIOCHEMISTRY

Micron Access

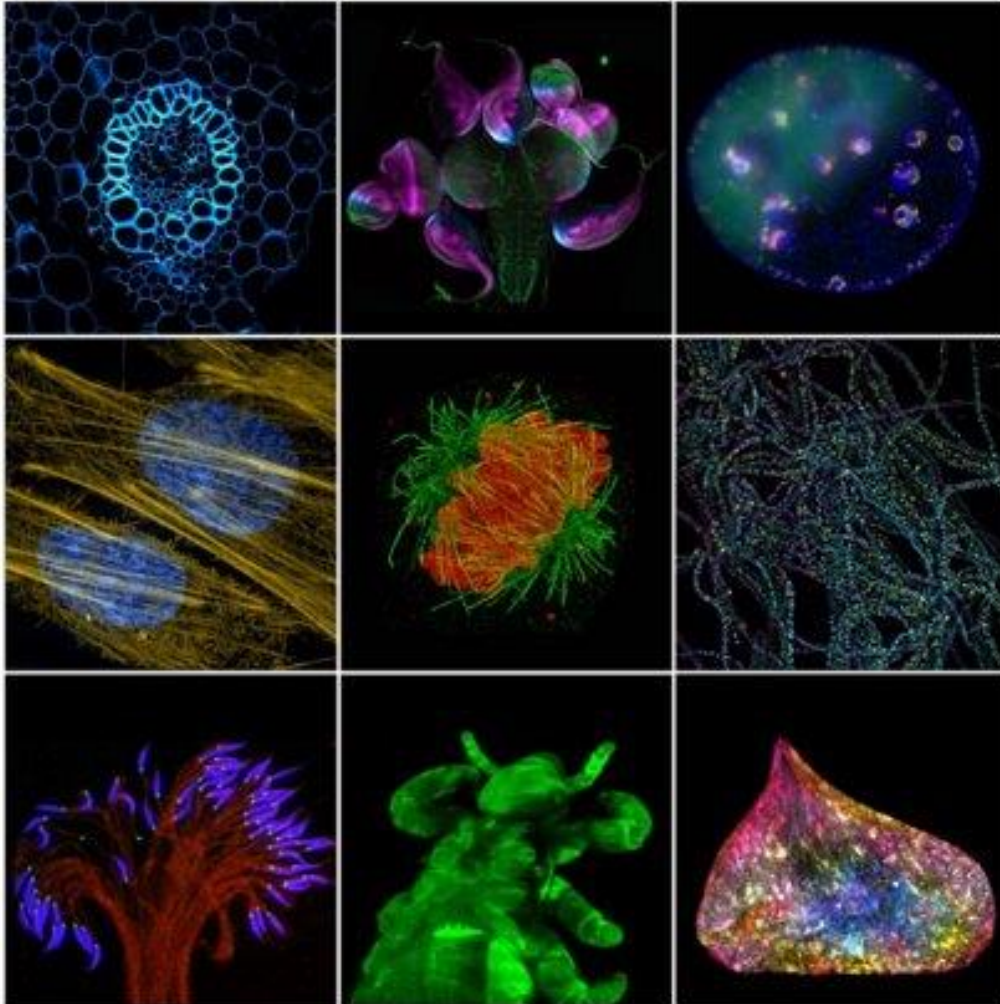
- Access managed through Stratocore PPMS core facility management software.
- Not only user bookings but instrument logging and tracking to ensure minimum down time.
- SRF FastTrack visitor process to the Department of Biochemistry.

- We provide as much training and support as required for your project.
- Independent route following training on the instruments.
- Service route where Micron perform data acquisition and processing.

Access Rates:

- Flat rate per hour or per day depending on your access requirements.
- Options to include data storage (micron server including tape back-up) and consumables.

Thank you for listening

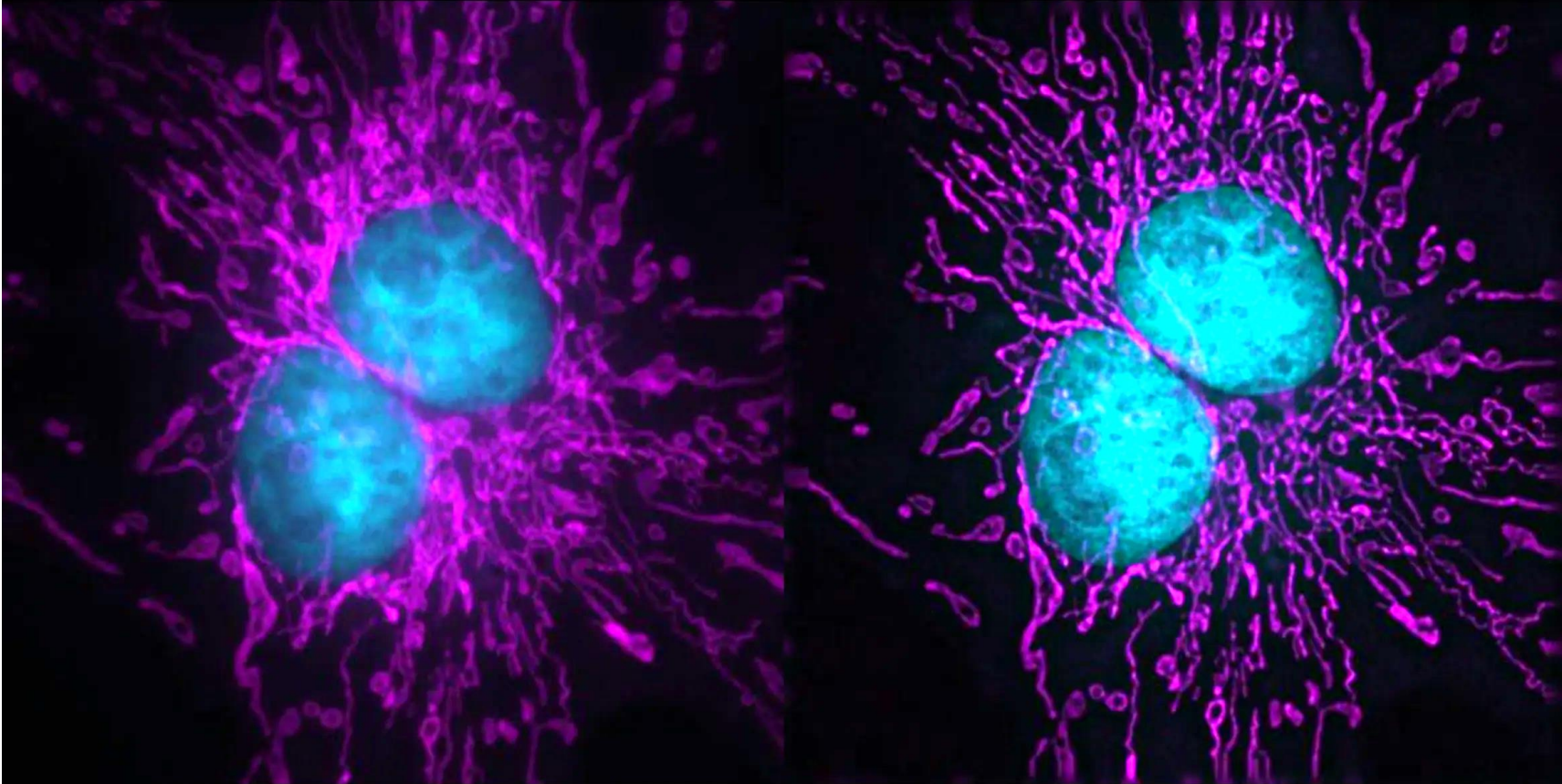


Micron Manager: Deirdre (Dee) Kavanagh
Micron Assistant Manager: Niloufer Irani
Academic Lead: Lothar Schermelleh

Website: www.micronoxford.com
Twitter: [@micronoxford](https://twitter.com/micronoxford)
Email: micron@bioch.ox.ac.uk

Widefield

Deconvolution



BPAE cells Mitochondria (magenta) and nuclei (cyan)



14. Oxford-ZEISS Centre of Excellence

Dr Helena Coker

Microscopy in IDRM, KIR, and Oxford-ZEISS CoE



Institute of
Developmental &
Regenerative
Medicine



KENNEDY
INSTITUTE OF RHEUMATOLOGY | NORDMAN



Helena Coker, PhD
Microscopy
Facility Manager

Expert Skills:
Light Sheet /
Lattice Light Sheet
SIM



Kseniya Korobchevskaya,
PhD
Microscopy Facility
Manager

Expert Skills:
Confocal,
Super-resolution
Airyscan and SIM



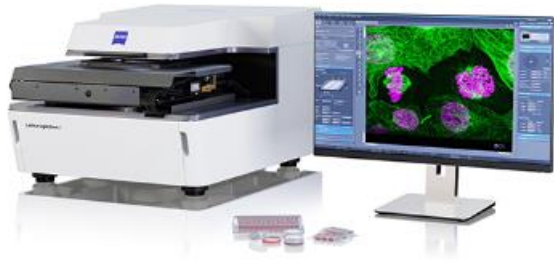
Jacky Ka Long Ko,
PhD
Advanced Image
Analyst

Expert Skills:
3D cell analysis,
Volume tracking
Machine learning

Email us:
imaging-facility@kennedy.ox.ac.uk



Microscopy in IDRMM, KIR, and Oxford-ZEISS CoE



Light Sheet

ZEISS LLS7, Z1 , LaVision UMII

- Low phototoxicity
- (sub)cellular fast live acquisition (LLS7)
- Multiview live or aqueous cleared (Z1)
- Large organically cleared tissues (UMII)



Confocal

ZEISS 980 w/ Airyscan 2

- High spatial resolution
- Live (CO2 and temp control)
- FLIM, FRAP and FCS



Slide Scanner

ZEISS Axioscan 7

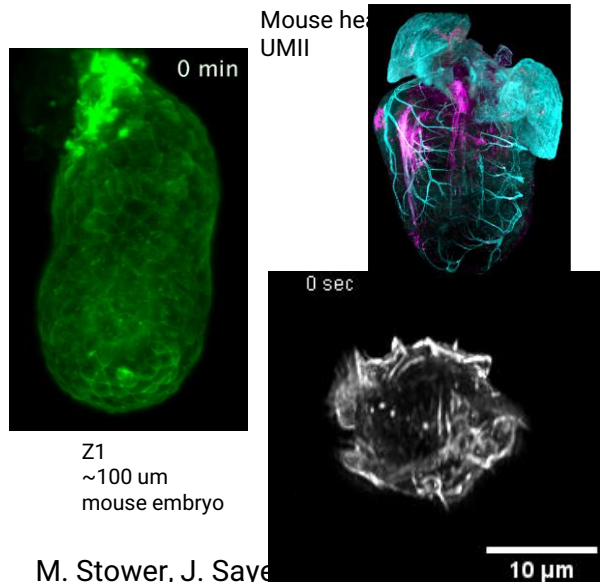
- Brightfield and Fluorescence
- 7 LEDs
- Up to 100 slide automated scanning



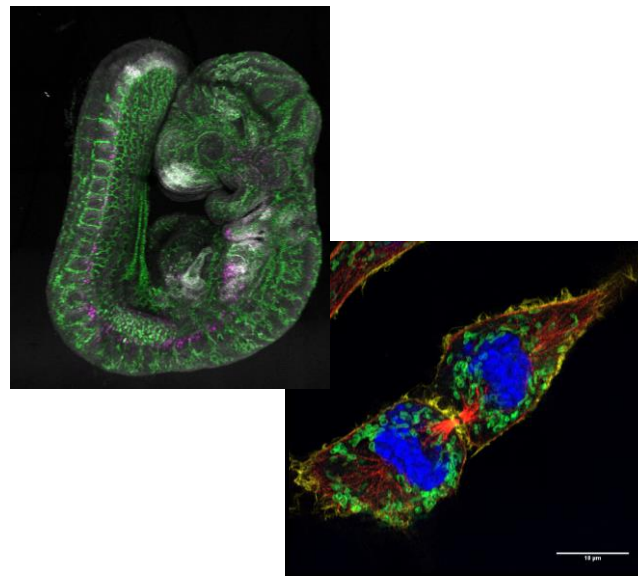
Widefield

Leica w/ Phenocycler (CODEX)

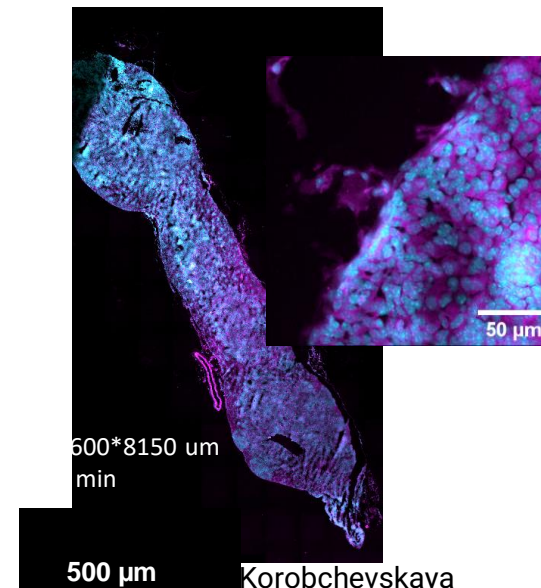
- Easy to use
- Spatial phenotyping up to 100 channels)
- Live (temperature control)



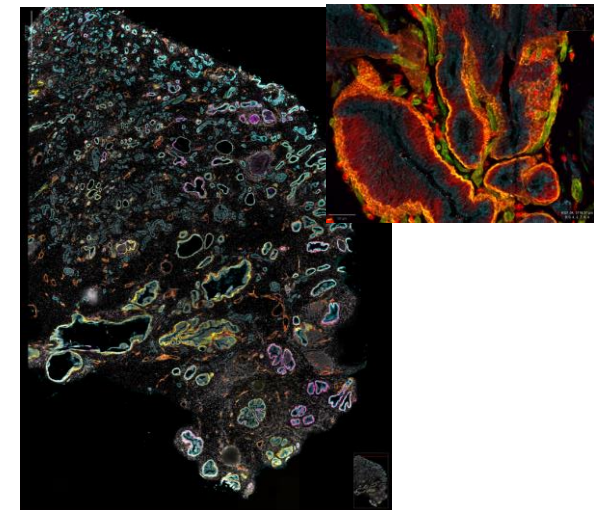
M. Stower, J. Saye



K. Korobchevskaya, C. Lagerholm, I-E. Lupu



Korobchevskaya



K. Korobchevskaya, A. Magnussen

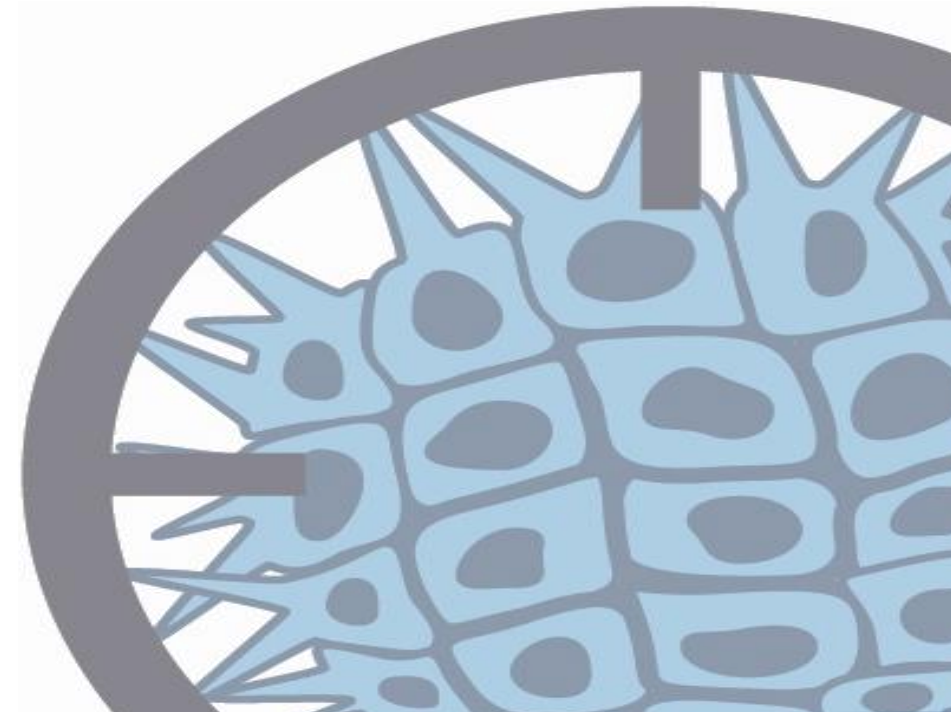


15. Microscopy in the Department of Oncology

Dr Rhod Wilson

Microscopy in the Department of Oncology

Rhod Wilson, Scientific
Technologies Manager



What we offer










AVAILABLE FACILITIES

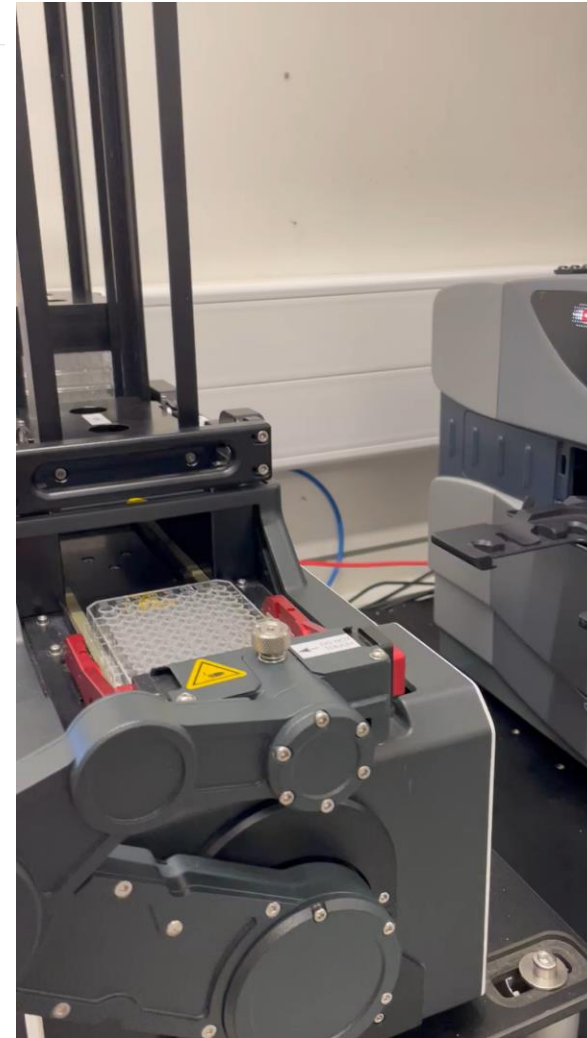
- Andor Dragonfly
- Zeiss LSM 710
- Zeiss LSM 780
- Zeiss LSM 880
- Nexcelom Celigo
- Nikon Ni-E
- Nikon Ti-E
- Nikon 90i
- Nikon TE2000-E
- Imaris Workstation

AVAILABLE TECHNIQUES

- Airyscan Super-Resolution Microscopy
- Laser Scanning Confocal Microscopy
- Spinning Disk Confocal Microscopy
- Multi-photon Excitation Microscopy
- Widefield Microscopy including fluorescence, DIC and Phase-contrast
- Plate Scanning Image Cytometer
- Image Analysis Expertise

Celigo Imaging Cytometer

Features	Applications	Imaging Vessels	Specs	Reagents	Resources
Applications					
 Bright Field Adherent Cell Growth Tracking, Suspension Cell Counting, Embryoid Bodies, Colonies, Spheroids, Wound Healing, Morphology	 Cell Line Development Single Colony Identification, Single Tumor Sphere Identification, Single Cell Per Well Verification, Transfection/Transduction	 iPSC Reprogramming Fibroblast Doubling, iPSC Colony Counting, Embryoid Body Formation, Immunostaining for Differentiation			
 3D Models Invasion into Matrigel, Measure Migration onto ECM, Tumorsphere Formation & Clonogenic Survival, EBs & PDOs, 3D Confrontation Assay	 Immune-Oncology Immuno-Direct Cell Counting, Visualize and Document All Cells, Using Gating Interface, ADCC, Direct NK Cell Killing, CAR-T, CDC	 Migration/Invasion Chemotaxis, Wound Healing, Transwell Invasion, 3D Migration, 3D Invasion			
 Virology Viral Titer, Viral Infection, Antibody Neutralization, Transduction Efficiency, Cytotoxic Effect, CAR T Cell-Mediated Cytotoxicity	 Cell Counting Adherent Cell Counting, Suspension Cell Counting, Fluorescent Cell Counting, T-cells, Splenocytes	 Fluorescent Assays Cell Cycle, Viability/Cell Health, Internalization & Phagocytosis, Co-Culture, Surface Proteins & Antibodies, Cell Secretion, Transfection/Transduction, Apoptosis, Migration			



Contact us

Rhodri Wilson – SRF Manager

Rhodri.wilson@oncology.ox.ac.uk

01865 617421

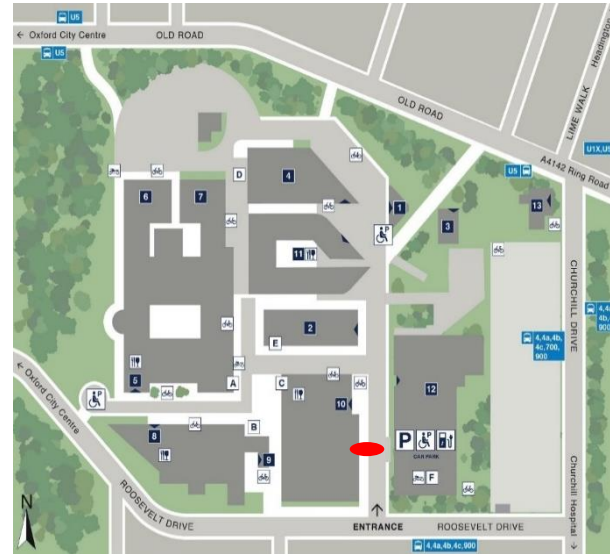
ORCRB, Roosevelt Drive

OX3 7DQ

Visit our website:



www.oncology.ox.ac.uk/research/srf/microscopy





16. The Don Mason Facility of Flow Cytometry

Dr Robert Headley

The Don Mason Facility of Flow Cytometry



DR ROBERT HEDLEY (DPHIL)

Flow Cytometry Facility Manager at the SWDSOP
robert.hedley@path.ox.ac.uk



VASILIKI TSIOLIGKA (MSC)

Flow Cytometry Specialist at the SWDSOP
Vasiliki.tsioligka@path.ox.ac.uk



Cell Sorting Service



Cell analysis



Consultations (Cell prep, panel design, and staining protocols) - Free

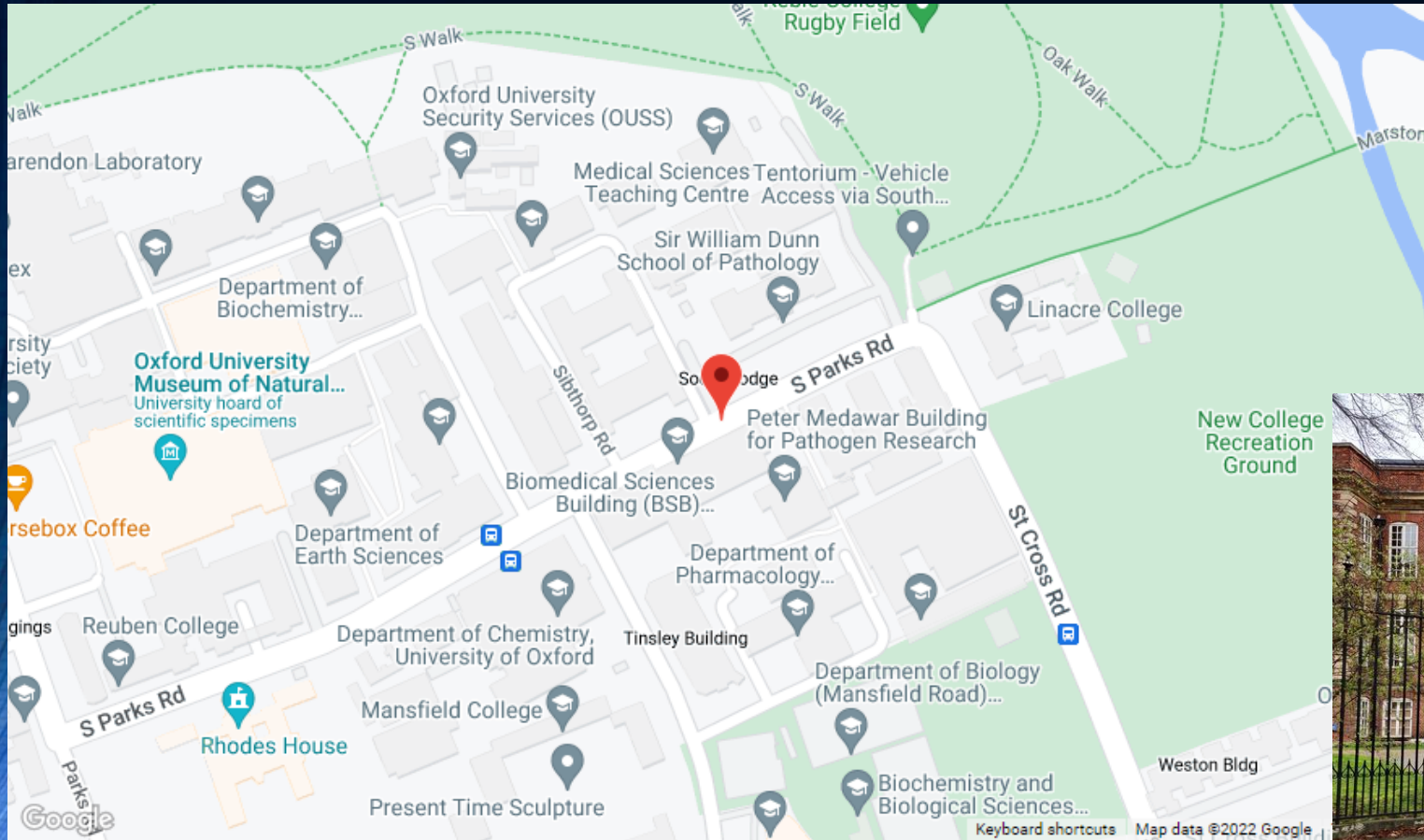


Analyser Training – Free



FlowJo, Cytobank, or IDEAS training - Free

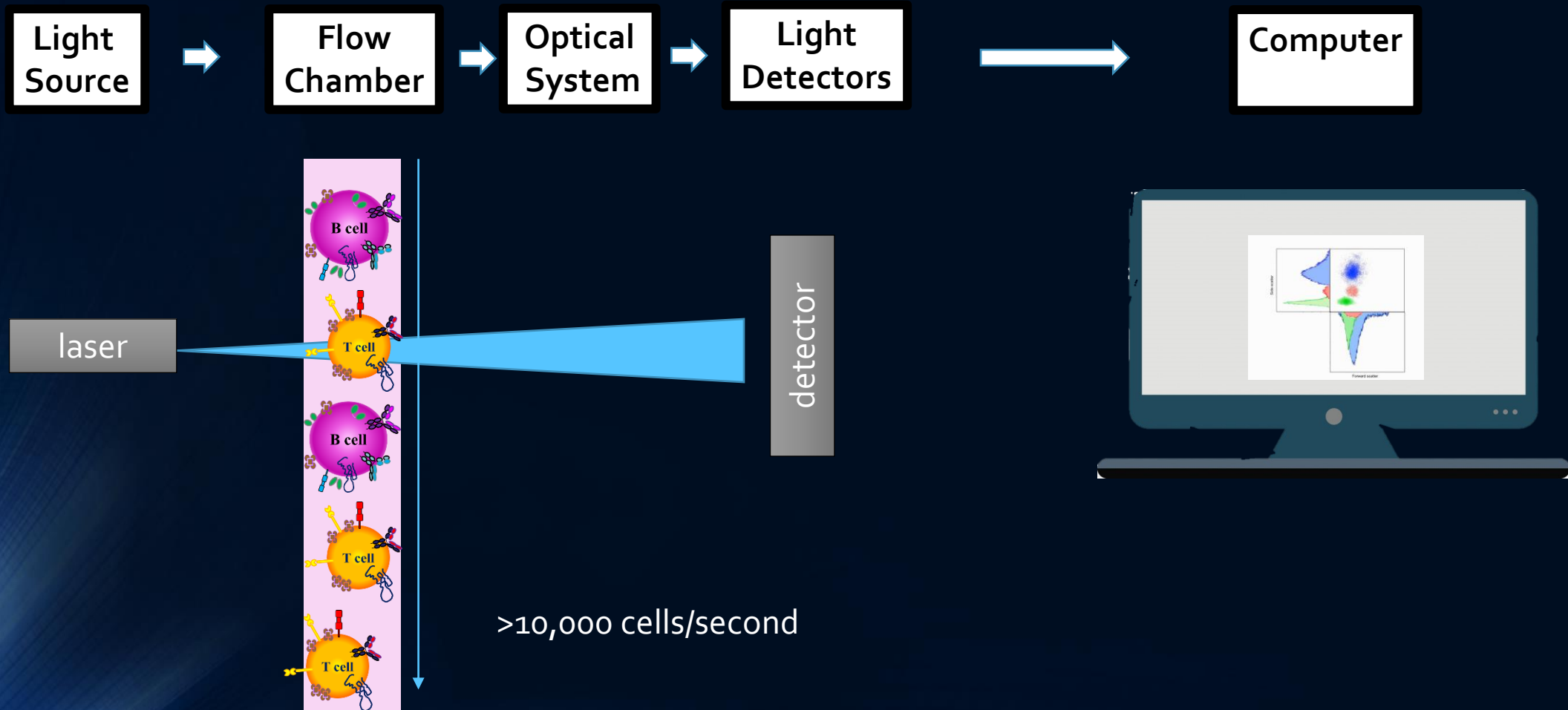
Our Location



Sir William Dunn School of Pathology,
Level 1

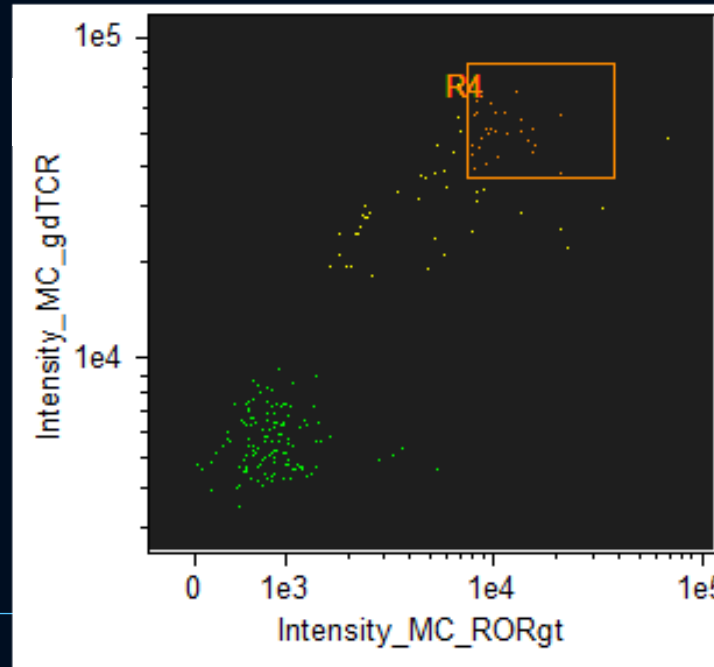


Flow cytometry allows the analysis and/or sorting of single cells or small particles in a liquid suspension, based on their refraction of light or fluorescence.



Our 2023 portfo

- 2 Cell Sorters:



BD FACSAria Fusion (BSL2)

BF

RORgt

gdTCR

CD3

gdTCR/RORgt

68655

7 μm

- 1 Imaging Cytometer:



Amnis Imagestream MKII

Our Extended Support



Jump to:

- Start the X20
- Setting up an experiment (tubes)
- Setting up an experiment (HTS)
- Daily cleaning procedure
- Shut down or standby
- Troubleshooting

Start the X20

To start X20 switch on the green button on the right hand side of the X20. If it is already on, make sure that it is on 'Standby' and 'Low'.



Start the computer

- User: Operator
- Password: facts


Please visit our website for detailed information and booking

The Don Mason Facility of Flow Cytometry

Our Services | Contact | FAQs | [Make a booking](#)

The Don Mason Facility of Flow Cytometry

The Don Mason Facility of Flow Cytometry offers state-of-the-art services to scientists from across the world. We offer comprehensive support on panel design, flow data analysis and cell sorting.



Cell Analysis

Cell sorting

Training


Cytoflex LX

Our most accessible machine for new flow cytometrists, the Cytoflex LX is fitted with APD detectors that specialise in measuring fluorescent emission spectra within the far red scale and offers superior resolution to PMT detectors.

Optics

Sampling

Usage



Use and applications

- + What cells can I run on this machine?
- + How long does data acquisition take?
- + How much does data acquisition cost?



<https://www.oxforddmflowcytometry.com/>



17. Flow Cytometry Facility, Experimental Medicine

Dr Helen Ferry



Experimental Medicine Division, NDM (Translational Gastroenterology Unit)

Flow Cytometry Facility

John Radcliffe Hospital

Helen Ferry (helen.ferry@ndm.ox.ac.uk)



Where are we?



Image credit: OHS NHS Foundation Trust

Experimental Medicine Division: TGU/RMU



Experimental Medicine Division
Nuffield Department of Medicine

Other departments/customers



NUFFIELD DEPARTMENT OF
WOMEN'S &
REPRODUCTIVE HEALTH
Medical Sciences Division



Radcliffe Department of Medicine
Medical Sciences Division
NUFFIELD DIVISION OF CLINICAL
LABORATORY SCIENCES

OXFORD
BROOKES
UNIVERSITY



NUFFIELD DEPARTMENT OF
CLINICAL NEUROSCIENCES
Medical Sciences Division

Other departments/customers



StarBright Dyes

BIO-RAD

Facility equipment – conventional analysers

BD LSRII SORP cell analyser - 18 fluorescent parameters

- 405nm violet laser (100mW) – 8 fluorescent parameters
 - 488nm blue laser (80mW) – 2 fluorescent parameters
 - 532nm blue-green laser (150mW) – 5 fluorescent parameters
 - 642nm red laser (40mW) – 3 fluorescent parameters
- High Throughput Sampler available for sample acquisition from 96- and 384-well plates



BD LSRFortessa cell analyser - 14 fluorescent parameters

- 405nm violet laser (50mW) – 6 fluorescent parameters
- 488nm blue laser (50mW) – 5 fluorescent parameters
- 640nm red laser (40mW) – 3 fluorescent parameters



Facility equipment – cell sorter

BD FACSAriaIII cell sorter - 17 fluorescent parameters

- 405nm violet laser (50mW) – 7 fluorescent parameters
- 488nm blue laser (20mW) – 2 fluorescent parameters
- 561nm yellow-green laser (100mW) – 5 fluorescent parameters
- 633nm red laser (18mW) – 3 fluorescent parameters

- Sorting into tubes (0.2, 0.5, 1.5 and 15ml), plates (TC, PCR, Terasaki), microscope slides etc.
- Housed in a Class I MSC
- Operated by facility staff only



Facility equipment – spectral analyser

Cytek Aurora spectral cell analyser

- 355nm UV laser (20mW)
- 405nm violet laser (100mW)
- 488nm blue laser (50mW)
- 561nm yellow-green laser (50mW)
- 640nm red laser (80mW)



Advantages of Aurora spectral flow cytometry:

- ❖ High-parameter panels (30+ colours) using standard commercially available dyes
- ❖ Autofluorescence (AF) subtraction to improve resolution for cell types with inherently high cellular AF or for applications such as intracellular cytokine staining
- ❖ Violet side-scatter detection for improved small particle detection
- ❖ Exclusion of red blood cell contamination through differential SSC gating
- ❖ Superior detection of red, far-red and infra-red emitting dyes

OMIP-069: Forty-Color Full Spectrum Flow Cytometry Panel for Deep Immunophenotyping of Major Cell Subsets in Human Peripheral Blood. LM, Lannigan J, Jaimes MC. *Cytometry A*. 2020 Oct;97(10):1044-1051

What can we offer you?

- High quality sorting service from operator with > 15 years experience sorting a range of tissue and cell types (PBMCs, bone marrow, spleen, colon, lymph node FNA, cerebral spinal fluid, liver FNA, bronchial alveolar lavage, lung, sputum, endometrium, spider caccoons, sputum, breast milk, various cell lines etc.)
- Training for new users including theory and practical
- Help and advice with panel design (more than 4 years experience designing panels specifically for spectral flow cytometry)
- Help troubleshooting experiments
- Acquisition of samples on the Aurora

Contact details

Facility Manager: Dr Helen Ferry (she/her)

helen.ferry@ndm.ox.ac.uk

<http://www.expmedndm.ox.ac.uk/flow-cytometry-facility>

TGU/Experimental Medicine Division NDM
Level 5, Room 5605
John Radcliffe Hospital
Headington
Oxford
OX3 9DU



If you would like to know more about the facility, I am very happy to discuss your requirements and answer your questions, so please drop me an email

OUI contact: Sally.Sheard@innovation.ox.ac.uk



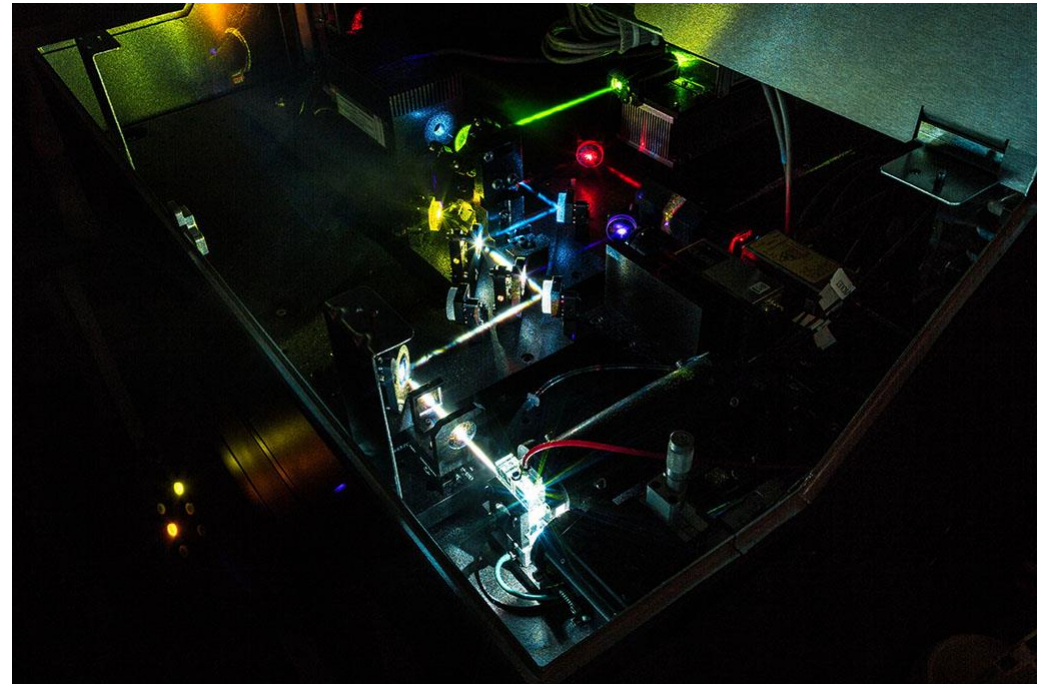
18. The WIMM Flow Cytometry Facility

Dr Paul Sopp

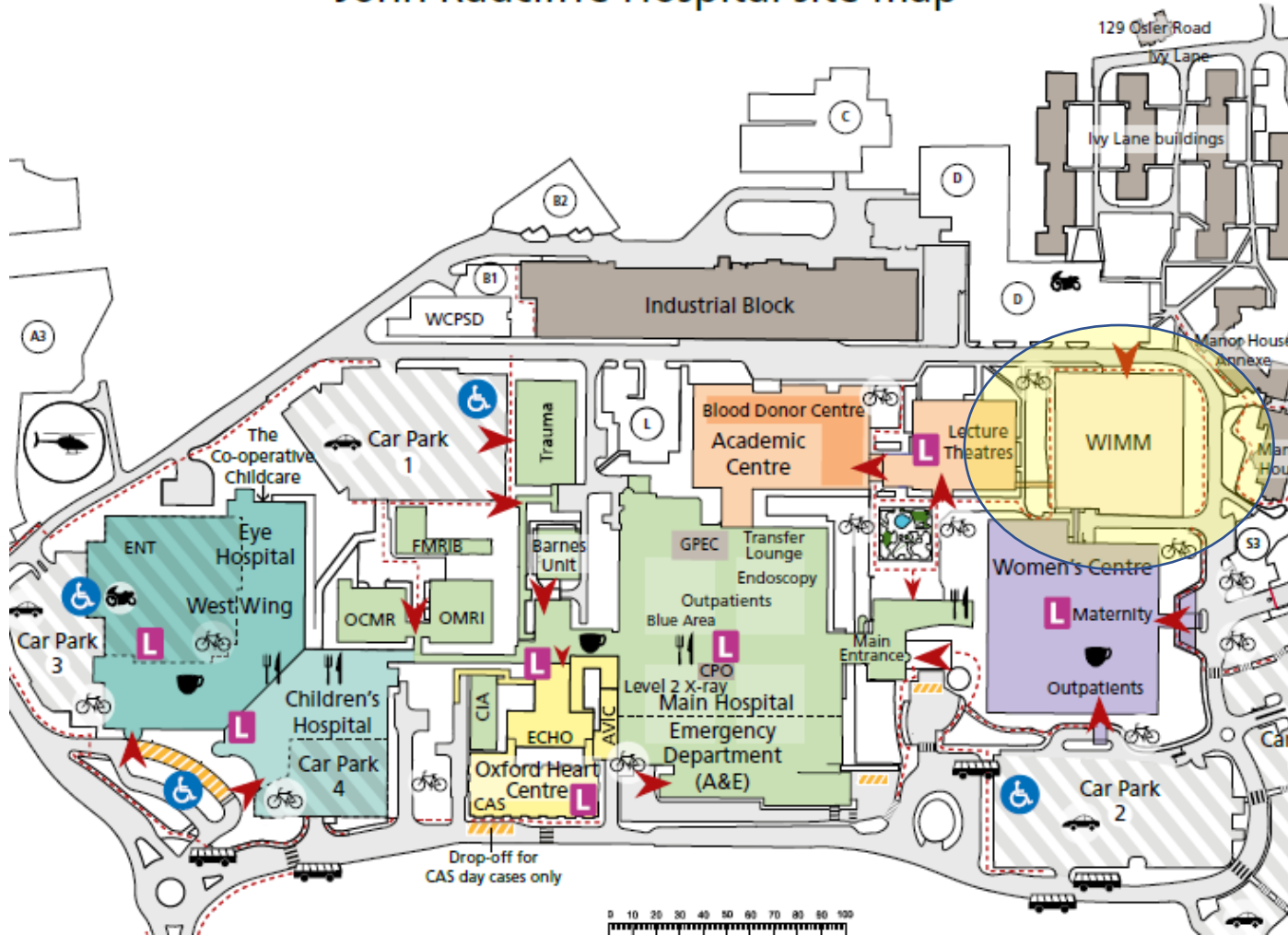


The WIMM Flow Cytometry Facility

MRC Weatherall Institute of Molecular
Medicine, John Radcliffe Hospital,
Headington, Oxford, OX3 9DS



John Radcliffe Hospital site map



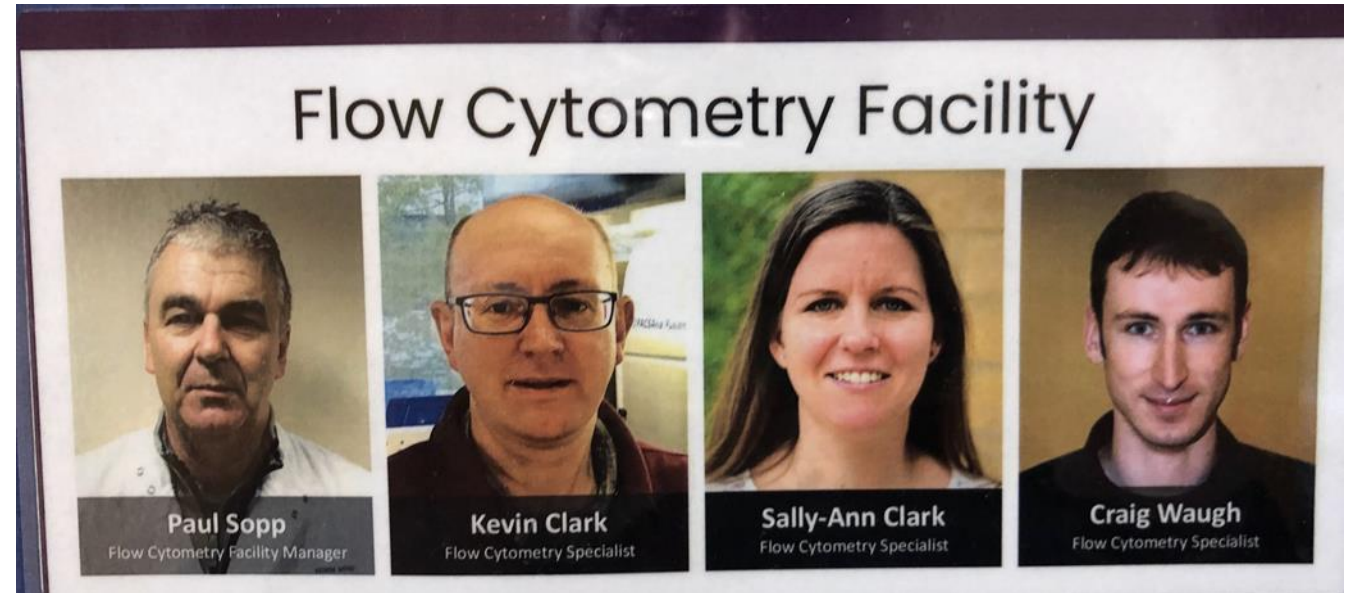
The Team

Paul Sopp

Kevin Clark

Sally- Ann Clark

Craig Waugh



Medical
Research
Council



Cell Analysers

Analyser	Lasers	Parameters
3 x Attune NxT	4	14
Fortessa	4	15
Fortessa X20	4	16
Fortessa X20	5	18
Symphony A5	5	30



Cell Sorters

Analyser	Lasers	Parameters
Aria III	4	15
2 x Fusion	4	16
Symphony S6	5	30
Sony MA900	4	12



What we can offer

- Cell sorting into tubes and microplates including single cell sorting for cloning
 - Self-assisted and assisted cell analysis
 - Training – theory and practical
 - Panel design advice and testing
 - Large scale cell sorting – using 2 or more sorters for very large samples
-
- Collaborator access into the Facility (24h access)
 - Projects including use of other WIMM Facilities including the Single Cell Facility services
-
- Formal service agreements facilitated by OUI (sally.sheard@innovation.ox.ac.uk)



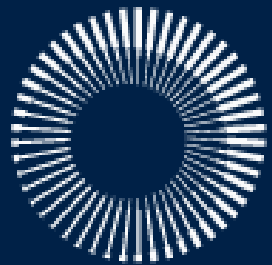
Medical
Research
Council





19. Flow Cytometry Facility IDRMs

Dr Jesus Reine



Institute of
Developmental &
Regenerative
Medicine

IMS-TETSUYA NAKAMURA BUILDING

FLOW CYTOMETRY FACILITY IDRIM

Old Road Campus, Roosevelt Drive, Oxford OX3 7TY

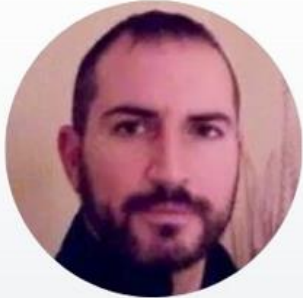
Contact: Jesus.Reine@paediatrics.ox.ac.uk



UNIVERSITY OF
OXFORD

FLOW CYTOMETRY FACILITY IDRM – Who we are

Superusers Committee – Team highly trained in flow cytometry



Jesus
Reine



Fatima
Dhalla



Cameron
Bissett



Amir
Khan



Mary
Deadman



Barbara
Dema

Superusers competences

- Flow cytometry (conventional and/or spectral)
- Laser safety training
- Laboratory safety induction
- Collaborations and expertise
- Access to our facilities and instruments



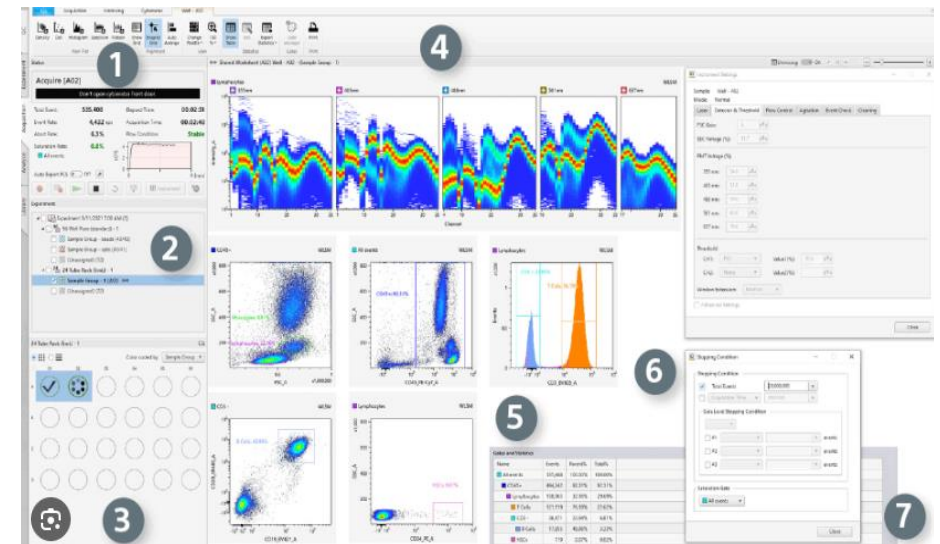
We have 11 instruments with 4 available to the public.

Details about our service and instruments can be found in the QR brochure.

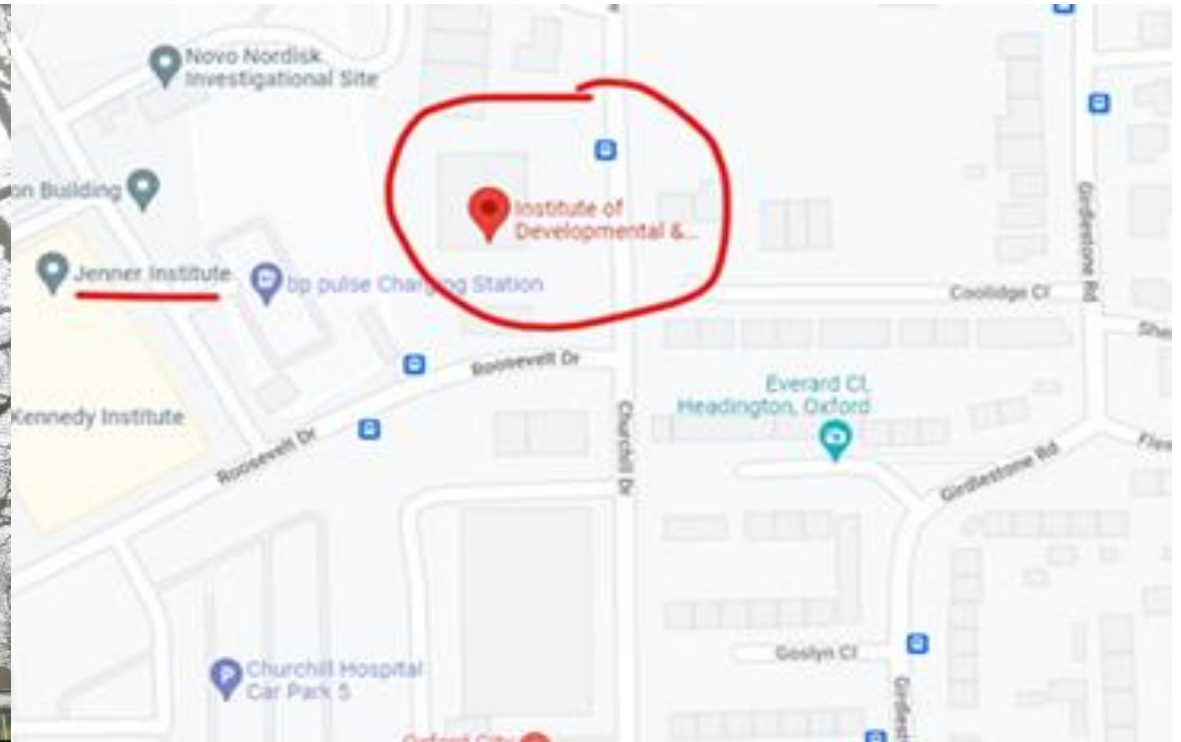
FLOW CYTOMETRY FACILITY IDRMM – What we offer

Acquisition services with Sony spectral cytometer ID7000

Instrument	Location	Lasers	Ex wavelength (nm)	Detectors	Sample loading options
ID7000	Ground floor	5	355/405/488/561/637	147	24 tubes rack, 96 and 384 well plate
ID7000	Level 1	4	405/488/561/637	112	24 tubes rack, 96 and 384 well plate
ID7000	Level 2	5	355/405/488/561/637	147	24 tubes rack, 96 and 384 well plate



FLOW CYTOMETRY FACILITY IDRMM – Where we are



FLOW CYTOMETRY FACILITY IDRMM

Old Road Campus, Roosevelt Drive, Oxford OX3 7TY

Contact: Jesus.Reine@paediatrics.ox.ac.uk





20. Genome Engineering Oxford (GEO)

Dr Joey Riepsaame

An introduction to the Genome Engineering Oxford (GEO) Facility



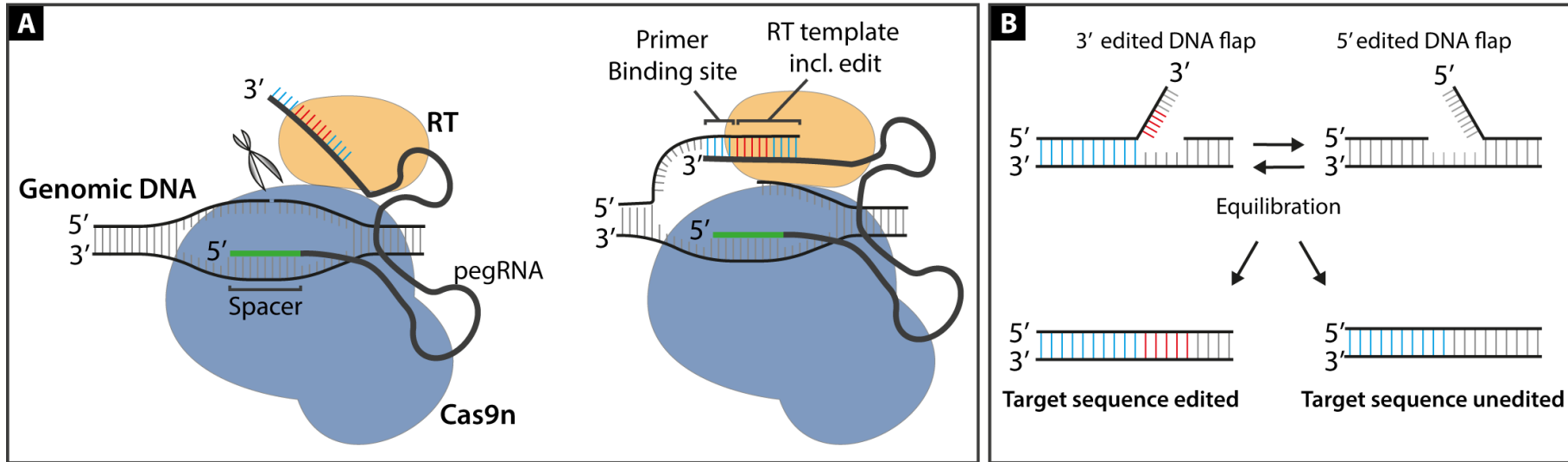
Joey Riepsaame

☎ 01865 285489

joey.riepsaame@path.ox.ac.uk

Dunn School of Pathology – OMPI 3

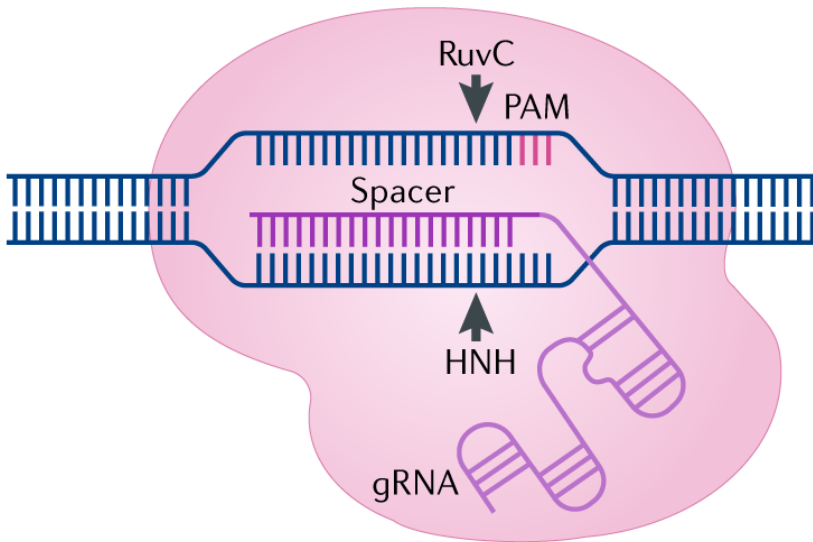
Next-Gen DNA editing: Prime Editing



- Editing without introducing double-stranded DNA breaks!
- Suitable for knock-outs, knock-ins and SNPS
- DNA repair template is incorporated into the prime editing guide RNA (pegRNA)
- Specificity: +++

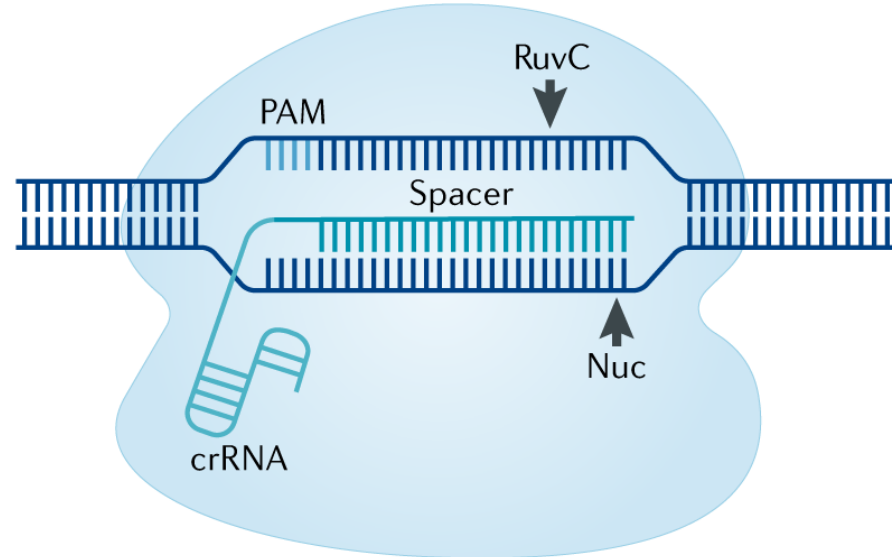
Conventional DNA editing: Cas9 vs Cas12a

a Cas9 nuclease



- Recognizes NGG PAM
- 2-component guide (crRNA + tracrRNA)
- Multiplexed guides? **NO**
- Specificity: +
- Generates blunt-ended cuts

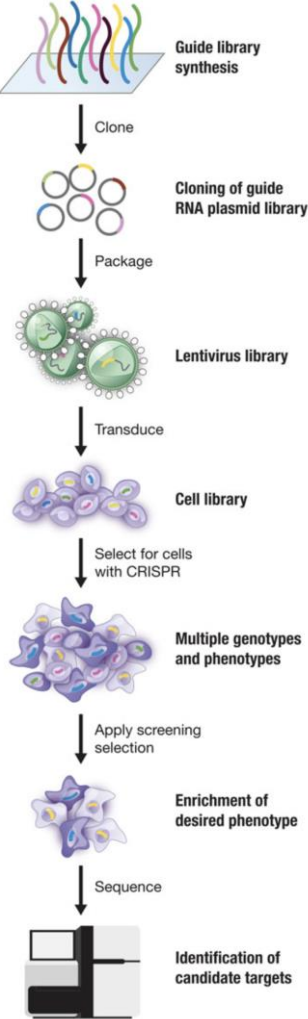
b Cas12a nuclease



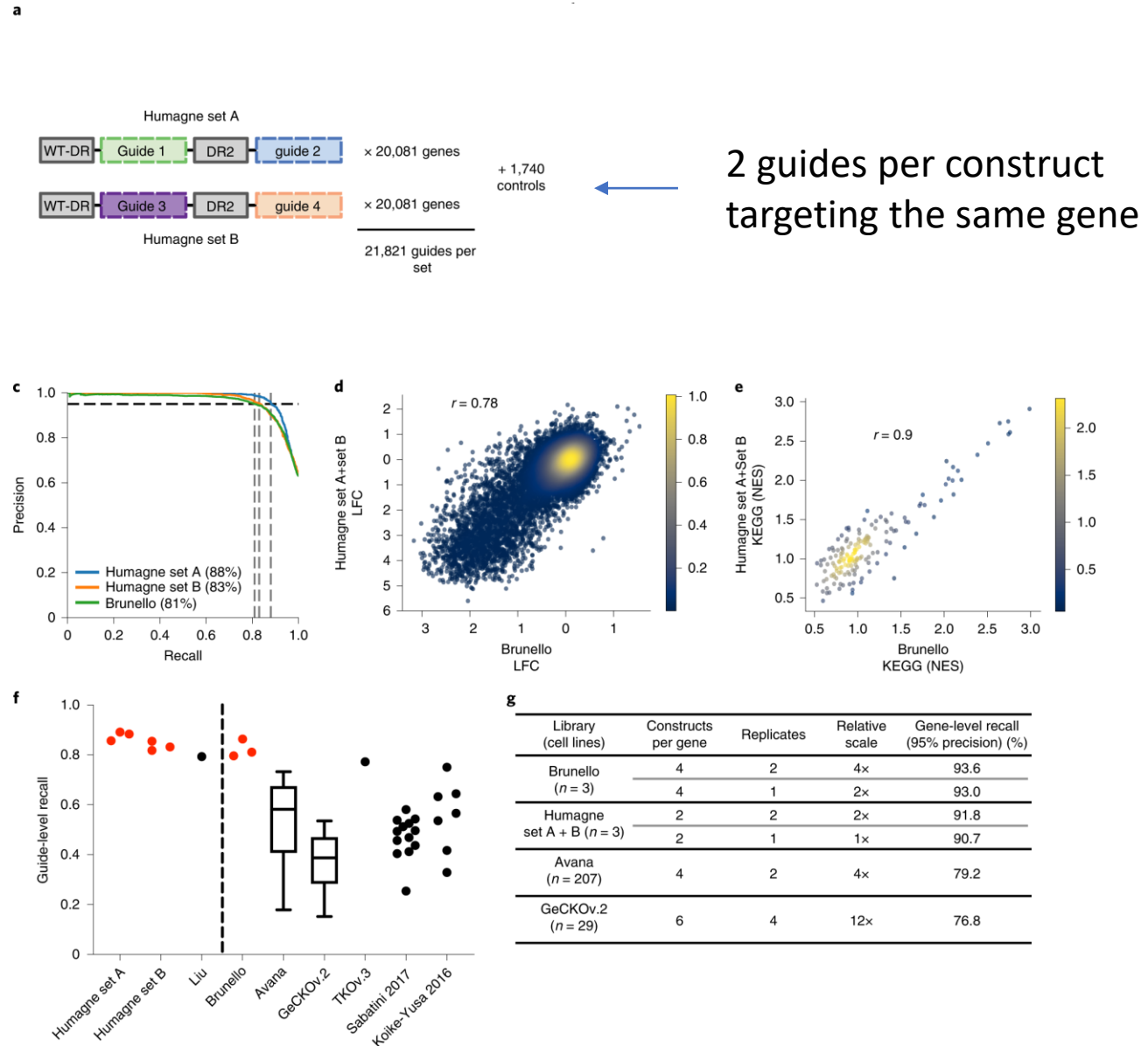
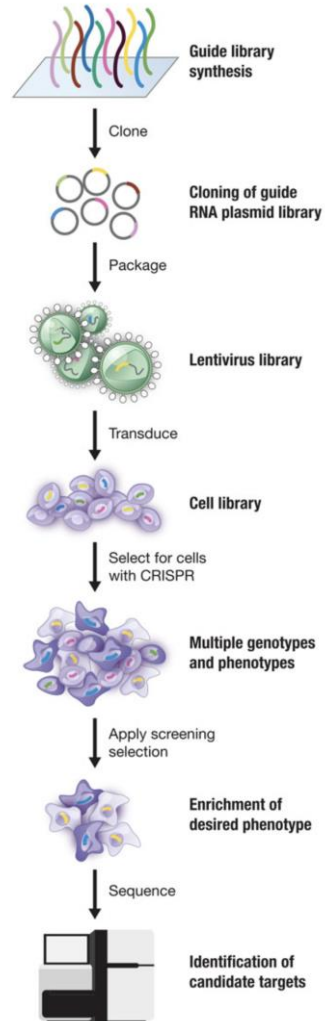
- Recognizes TTTV PAM
- 1-component guide (crRNA only)
- Multiplexed guides? **YES**
- Specificity: ++
- Generates staggered ("sticky") overhangs

NB: DNA editing occurs through introducing double-stranded DNA breaks

Genome-Wide CRISPR Library Screens



Genome-Wide CRISPR Library Screens: Humagne Platform



GEO Services provided

Current services:

Advice on gene editing strategies	Free
Custom-made <u>clonal</u> cell lines: knock-outs	Starting at £3000 per line
Custom-made <u>clonal</u> cell lines: point mutations, knock-ins	Starting at £4000 per line
<u>Pooled</u> gene edited cells custom knock-outs, SNPs/knock-ins*	Starting at £750 per line

Upcoming services (summer 2023):

Multiplexed genome-wide CRISPR library screening**	Starting at £10K / sample
CRISPR library prepping and NGS validation	Starting at £2K / library

*Price does not include the costs of HDR template

** Platform: Multiplex Humagne C and D libraries (John Doench, Broad Institute)



See you soon at the GEO Facility!

Location: Dunn School of Pathology – OMPI 3



Joey Riepsaame (PhD)
Head of GEO
joey.riepsaame@path.ox.ac.uk



Georgie Fisher (MSc)
Cell line engineering
georgie.fisher@wolfson.ox.ac.uk



Richard Wallbank (PhD)
CRISPR library screening
richard.wallbank@path.ox.ac.uk

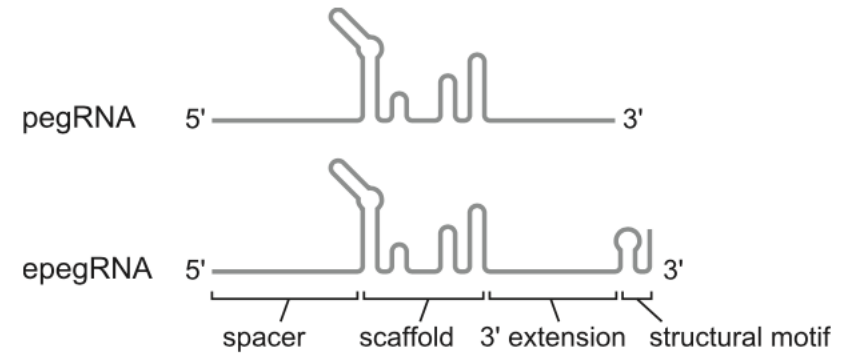
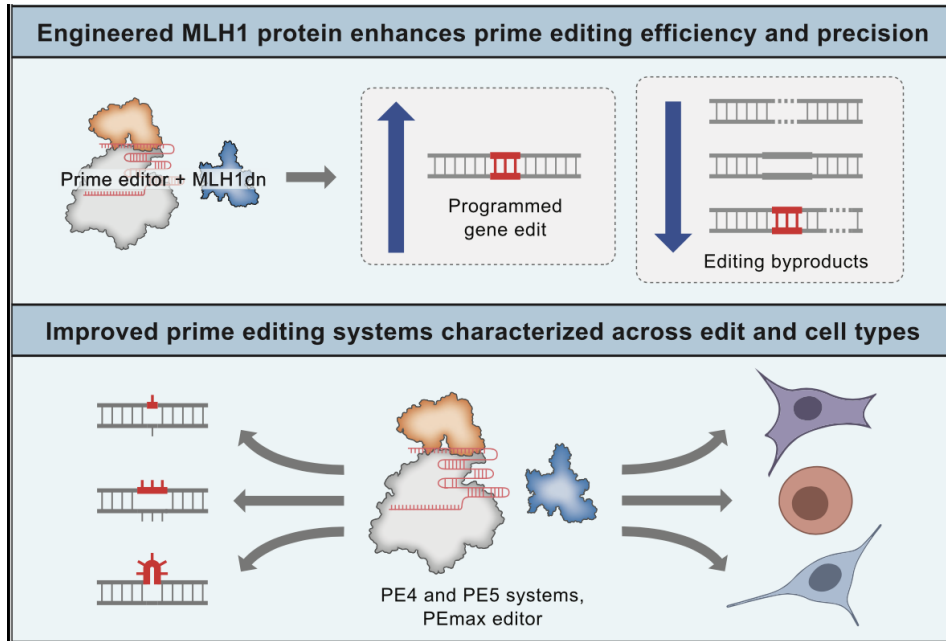
For more info, please visit:

<http://www.path.ox.ac.uk/content/genome-engineering-oxford-geo>

☎ 1865 285489



Next-Gen DNA editing: Prime Editing

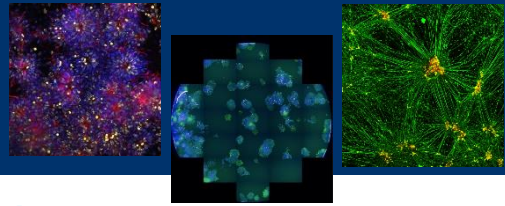


- Editing without introducing double-stranded DNA breaks!
- Suitable for knock-outs, knock-ins and SNPS
- DNA repair template is incorporated into the prime editing guide RNA (pegRNA)
- Engineered pegRNAs and PEmax systems now available at GEO

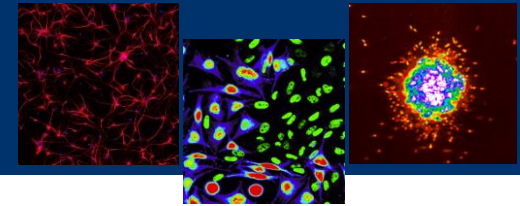


21. Cellular High Throughput Screening

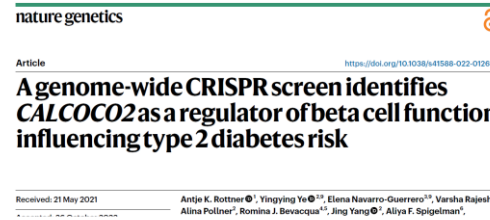
Dr Daniel Ebner



CMD – TDI Cellular High Throughput Screening Facility



1.

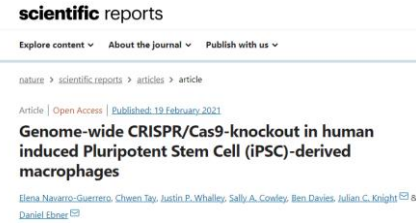


<https://www.cmd.ox.ac.uk/research/high-throughput-screening>

2.



Genome-wide CRISPR/Cas9 loss & gain of function screening (CRISPRn, CRISPRi and CRISPRa)



“Classic” microtiter plate-based, phenotypic screening using arrayed

- 1) small molecule (Anti-cancer, FDA Approved, Active and 50K Diverse Set Libraries)
- 2) CRISPR libraries (CRISPRn, CRISPRi and CRISPRa)
- 3) siRNA libraries (Yes, siRNA is still a thing)

3.



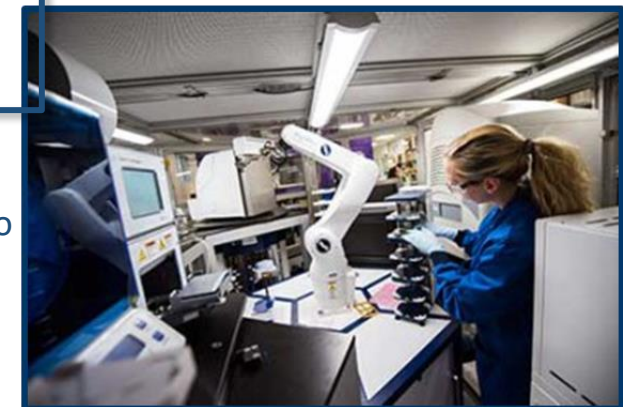
Ebner Lab research focusses on identifying novel combinatorial targets in GBM, specifically, Glioblastoma Stem Cells

4.



Collaboration between Exscientia/CMD – TDI to accelerate early-stage drug discovery research in academia and then partner with industry

<https://www.xcellomics.com/>



CMD – TDI Cellular High Throughput Screening Facility

Phenotypic Screening; Automated Microscopes

IN Cell Analyzer 6000 (Cytiva)

Line scanning confocal



405 UV
488 BLUE
561 GREEN
642 RED
BRIGHTFIELD
Simulated Phase & DIC
Temp control/CO2/Humidity
Time series; many modes, fast to slow
Liquid Handling (add drug then image)
HWAF/SWAF
2X, 4X, 10X, 20X075, 40X075, 60X095
DEVELOPER TOOLBOX image analysis

Opera Phenix (Perkin Elmer)

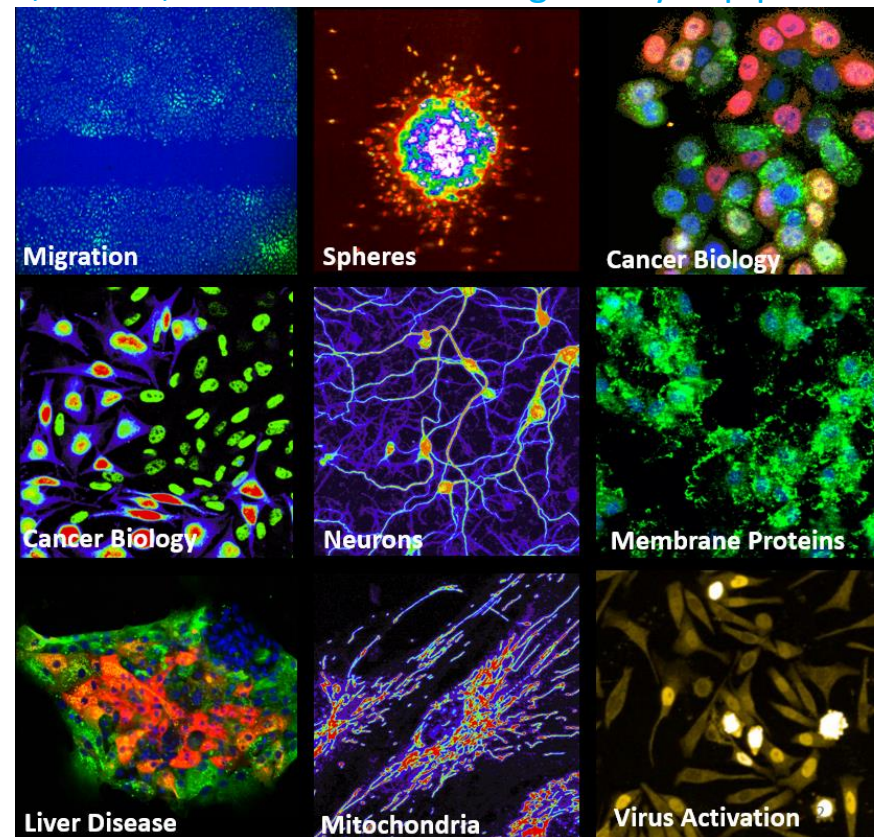
Spinning Disc Confocal



405 UV
488 BLUE
561 GREEN
640 RED
BRIGHTFIELD
Simulated Phase
Temp control/CO2
Time series
HWAF
1.25X, 5X, 10X, 20X, 40X, 63X
Including water immersion objectives
4 Cameras for speed
HARMONY image analysis software

Complimentary Instruments & Image Analysis Software

Enabling a wide range of applications; 2D, 3D, fixed, live, plates, slides, dishes, basic or custom image analysis pipelines;



Throughput

Many plates can be loaded automatically using robotic arms

Experience

>20yrs experience of High content/throughput imaging & analysis applications

CMD – TDI Cellular High Throughput Screening Facility

Functional Genomics

Toronto KnockOut (TKO) CRISPR Library - Version 3
(Pooled Library #90294)

LIBRARY DETAILS

Species: Human

Genes targeted: 18,053

gRNAs: 70,948

Controls: 142 guides targeting LacZ, EGFP, and luciferase

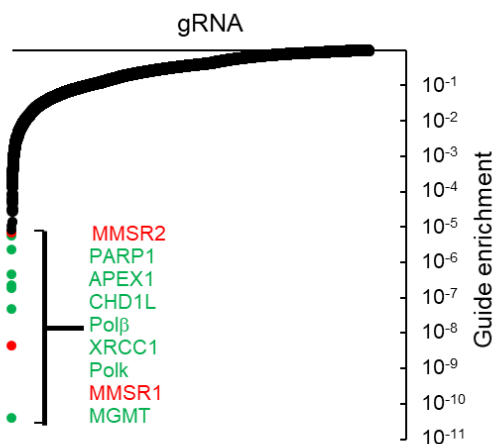
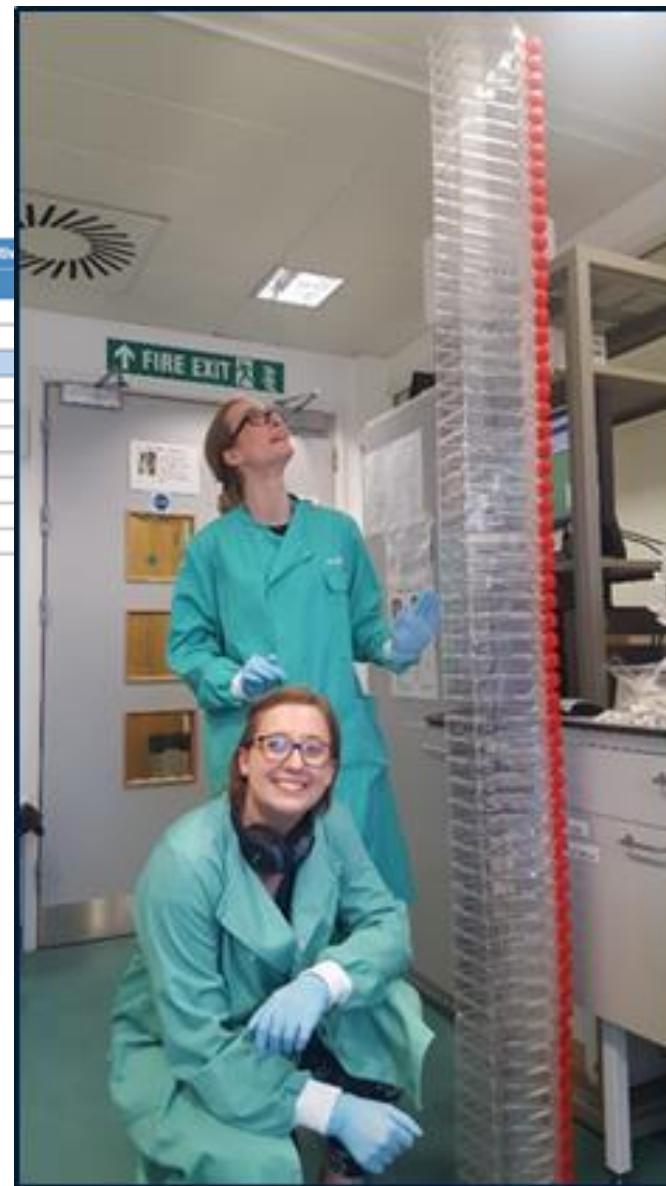
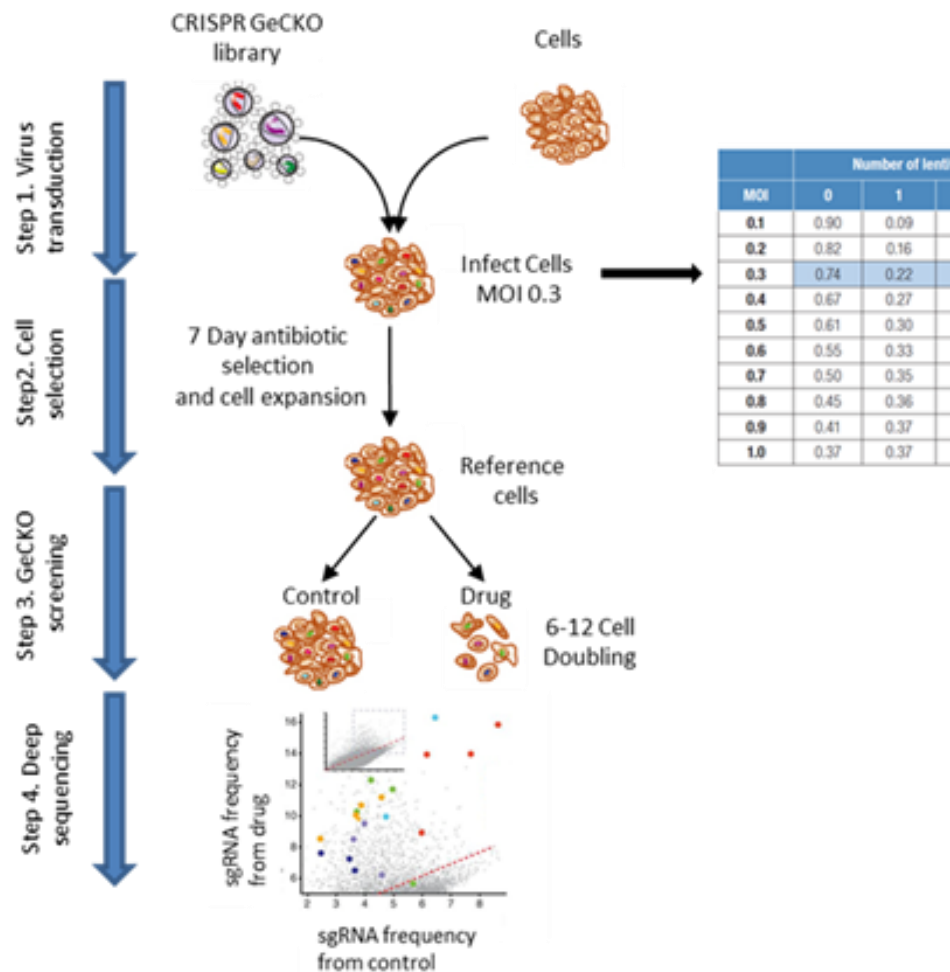
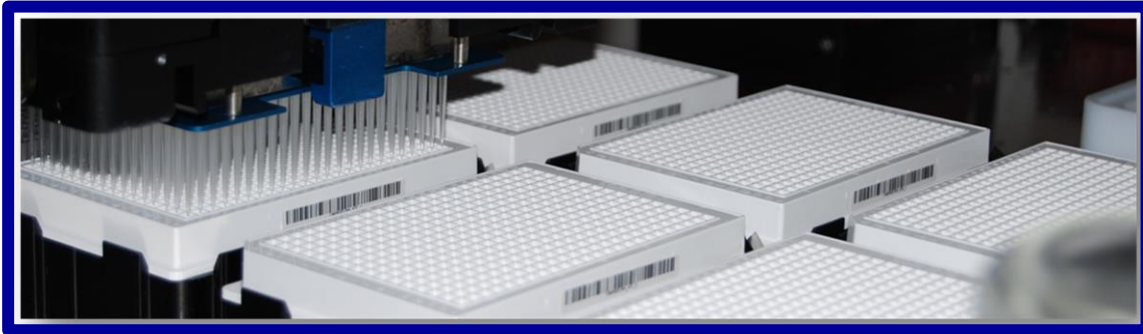


Fig. 10: A CRISPR based drop out screen to identify novel genes required for cells to tolerate MMS. Known (green) and novel (red) base repair genes are indicated.



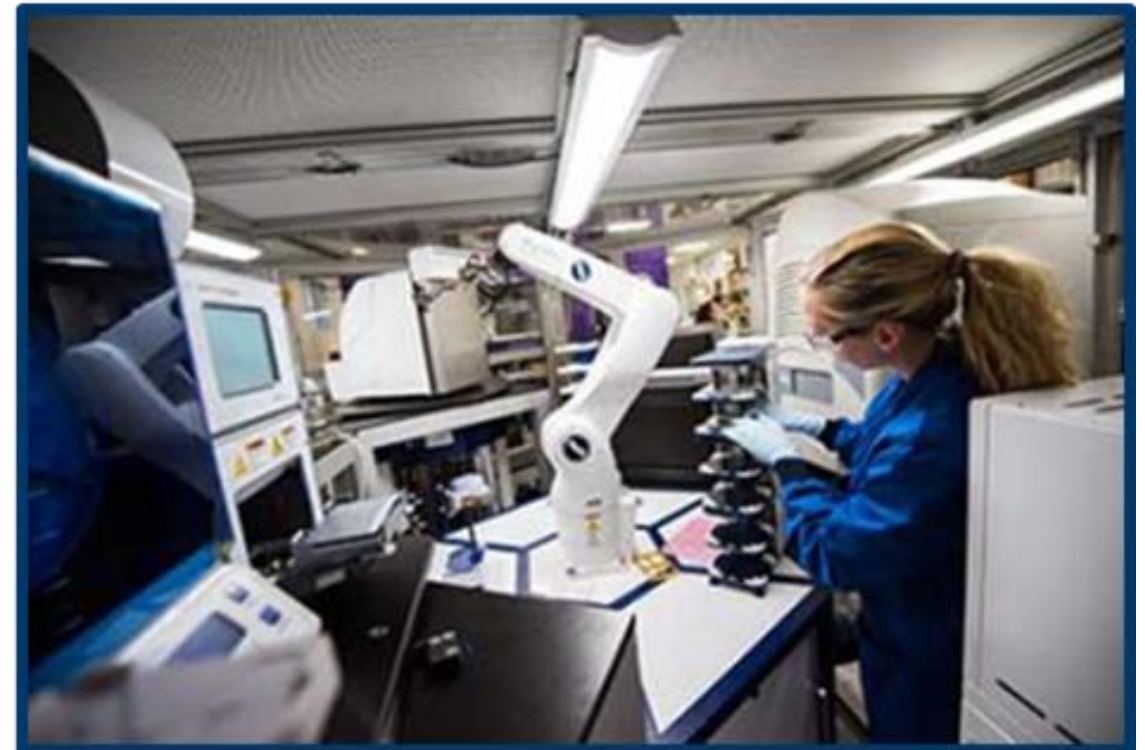
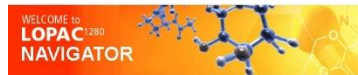
CMD – TDI Cellular High Throughput Screening Facility

Chemogenomics and Drug Screening



Any assay that can be miniaturised to 96, 384, or 1536-well plates can be automated on one of our three liquid-handling workstations.

Compound libraries we hold include chemogenomic sets, chemical probes, FDA- and EU-approved drugs, and compound fragments.





22. Dunn School Surface Plasmon Resonance (SPR) Facility

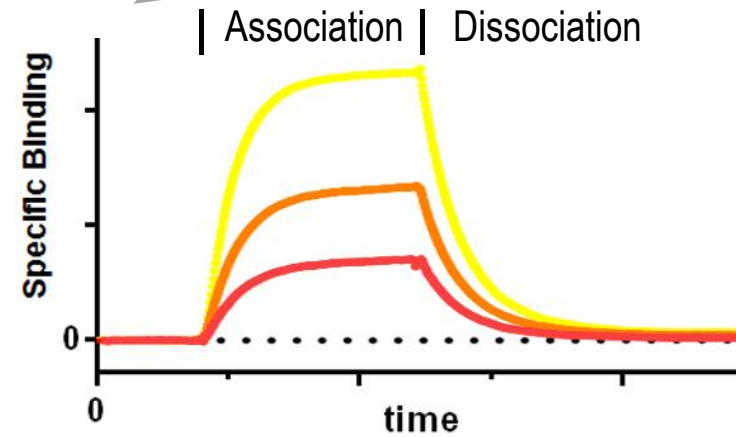
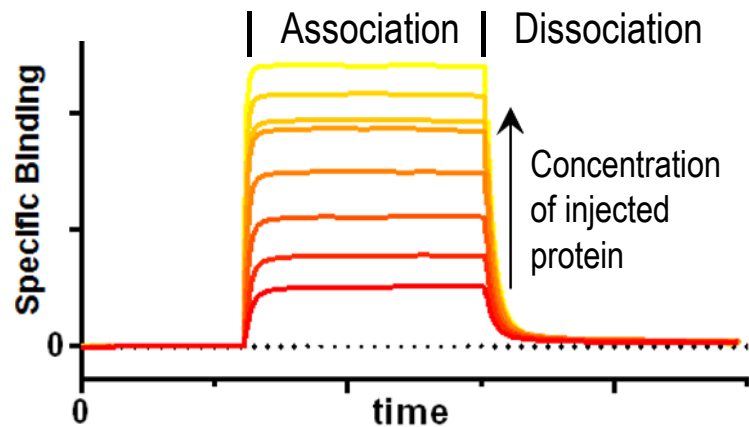
Dr Mikhail Kutuzov

Dunn School Surface Plasmon Resonance (SPR) Facility

Located on the 3rd floor of the OMPI building, Dunn School (South Parks Road)

Biacore T200: one of the most widely used SPR instruments.

Provides highly reproducible equilibrium and kinetic binding data with good temporal resolution.



Only very small amounts (few micrograms) of protein are needed to be immobilized on a chip.

Accessible to academic and commercial users

Contact: spr@path.ox.ac.uk

➤ Canonical analysis of 1:1 molecular interactions

➤ Experience in development and application of mathematical models for the analyses of specific cases:

- Enzymatic catalysis (dephosphorylation by SH2-domain-containing phosphatases)

Goyette et al. (2017) *Sci. Adv.* 2017;3:e1601692
Clemens et al. (2021) *Biophys. J.* 120, 2054–2066

- Ultra-low-affinity interactions (TCR–pMHC)

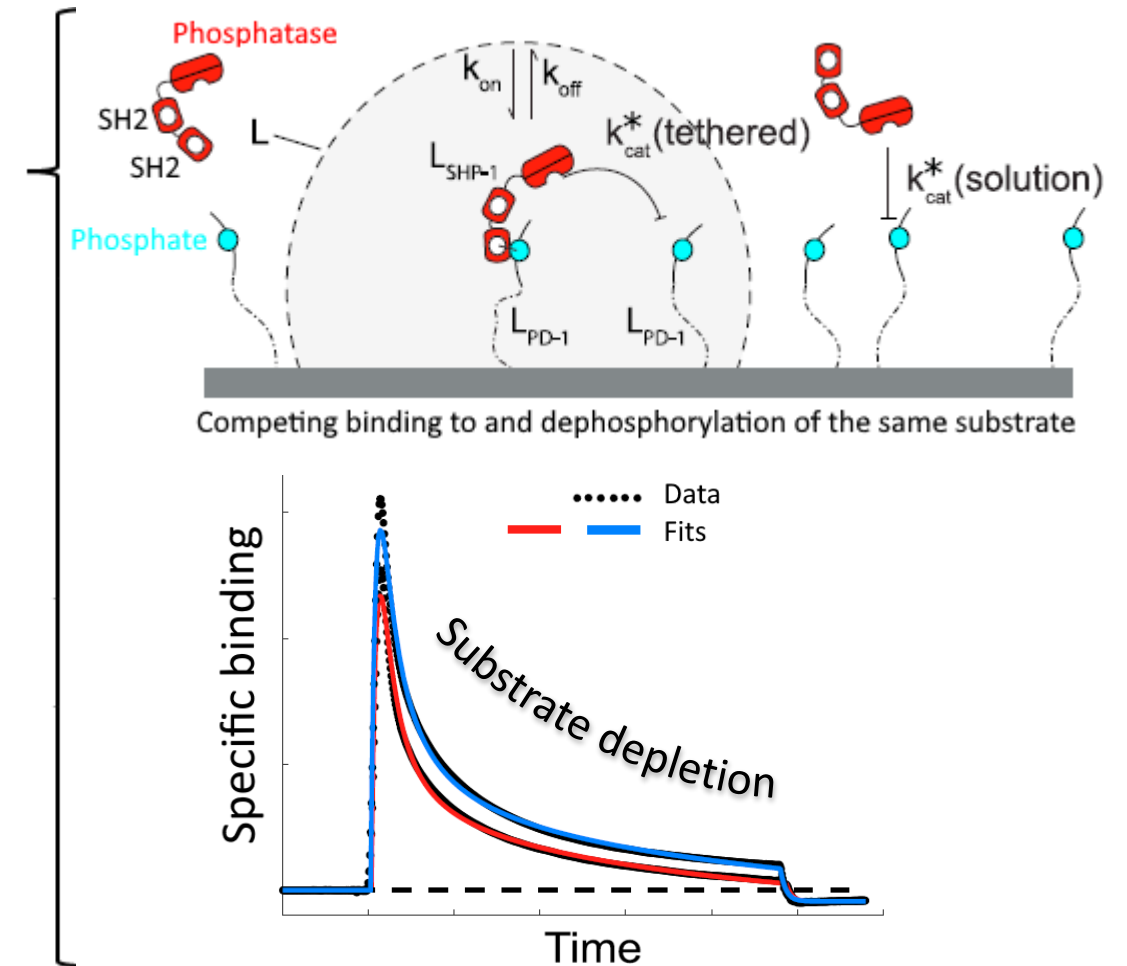
Pettmann et al. (2021) *eLife* 10:e67092

- Protein polymerisation (RAD51 recombinase on DNA)

Paoletti (2020) *EMBO J.* 39:e103002

- Bivalent interactions (e.g., antibodies interacting with immobilised antigens)

Work in progress

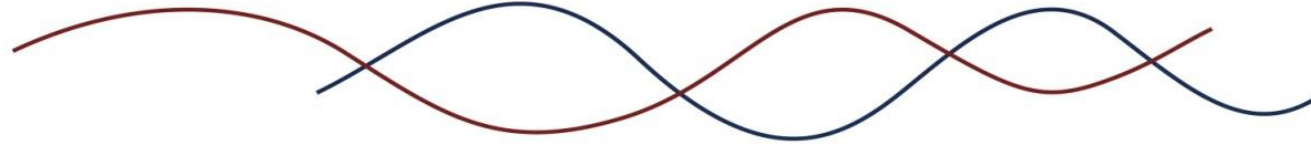




23. Molecular Biophysics Suite

Dr David Staunton

MOLECULAR BIOPHYSICS SUITE
DEPARTMENT OF BIOCHEMISTRY
UNIVERSITY OF OXFORD



BioEscalator Facilities Showcase

David Staunton

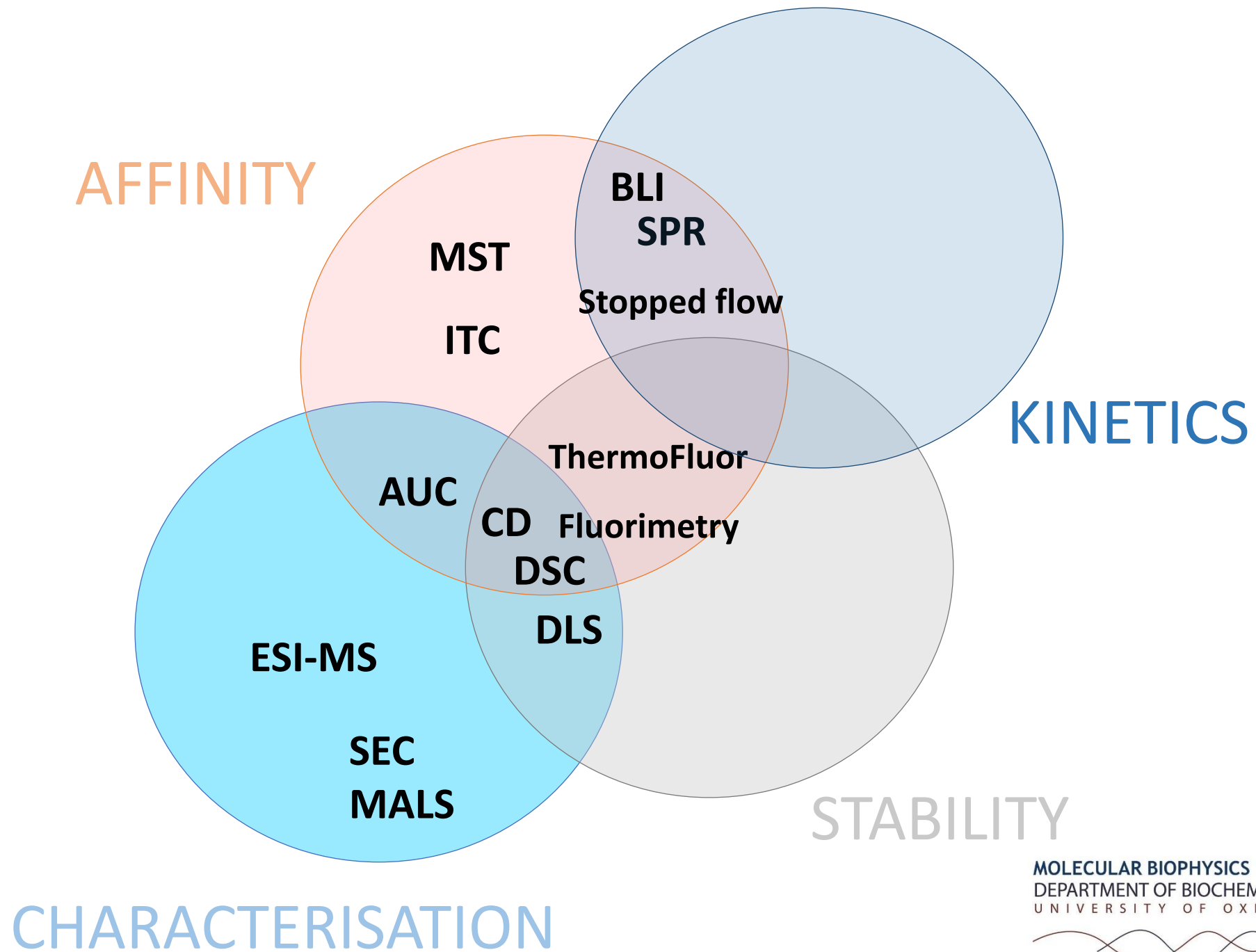
18 May 2023

Molecular Biophysics Suite

- Organised by Dept and STRUBI and funded by Fell Fund in 2008
- Brought together equipment from various sites to one location in New Biochemistry
- Set up booking system and charging
- Maintenance and servicing
- Training and workshops



Instrument	Technique	Abbreviation
Wyatt HELEOS	Size exclusion chromatography Multiple Angle Light Scatter	SEC MALS
Beckman XL-I	Analytical ultracentrifugation	AUC
Viscotek 802	Dynamic light scatter	DLS
Malvern Vcap	Differential scanning calorimetry	DSC
JASCO 815	Circular Dichroism	CD
Stratagene MC3005PCR	Differential scanning fluorimetry	Thermofluor
Monolith 11.5	Microscale Thermophoresis	MST
Biacore T200	Surface plasmon resonance	SPR
Malvern PEAQ ITC	Isothermal titration calorimetry	ITC
Horiba FluoroMax 4	Fluorimetry	Fluorimetry
Applied Photophysics SX	Stopped flow	Stopped flow
OctetRed 384	Biolayer interferometry	BLI
Agilent Q-TOF	Electrospray ionisation mass spectrometry	ESI-MS



Contact David Staunton

david.staunton@bioch.ox.ac.uk





24. Radiation Biophysics

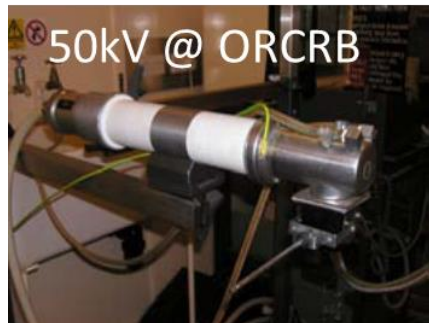
Dr Mark Hill

Radiation Biophysics: Irradiators

Dr Mark A. Hill



X-ray irradiators: *in vitro* & *in vivo*

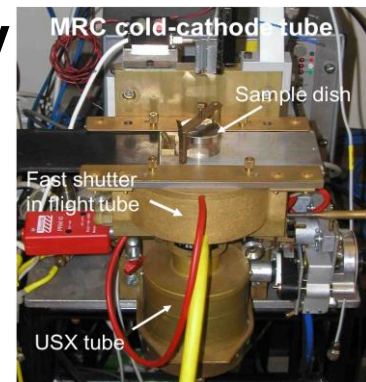


^{137}Cs gamma-irradiator
(*In vitro*)



^{238}Pu high-LET
alpha-particle
irradiator
(*In vitro*)

Ultrasoft X-ray
irradiator
(*In vitro*)



Dosimetry



DEPARTMENT OF
ONCOLOGY
Medical Sciences Division



Radiation Biophysics



¹³⁷Cs irradiators *in vitro*

0.662 MeV γ -rays

Dose rate:
~0.8 to 10 Gy/min

Used for:

- Radiobiology studies
- Feeder cells
- Hypoxia studies
- (sterilisation)



320kV X-ray irradiator *in vivo*

Variable filtration

Dose rate: ~1-2 Gy/min

Mouse environment:

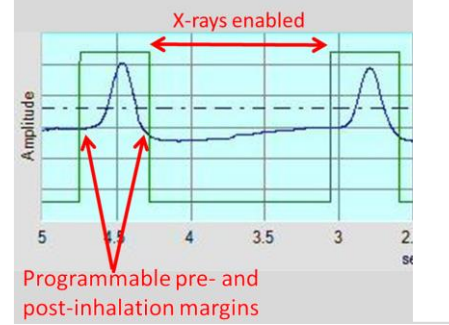
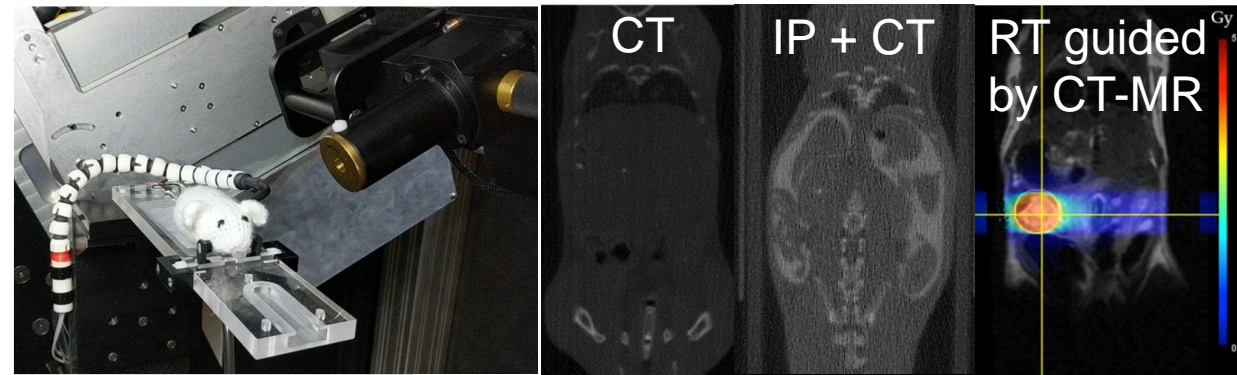
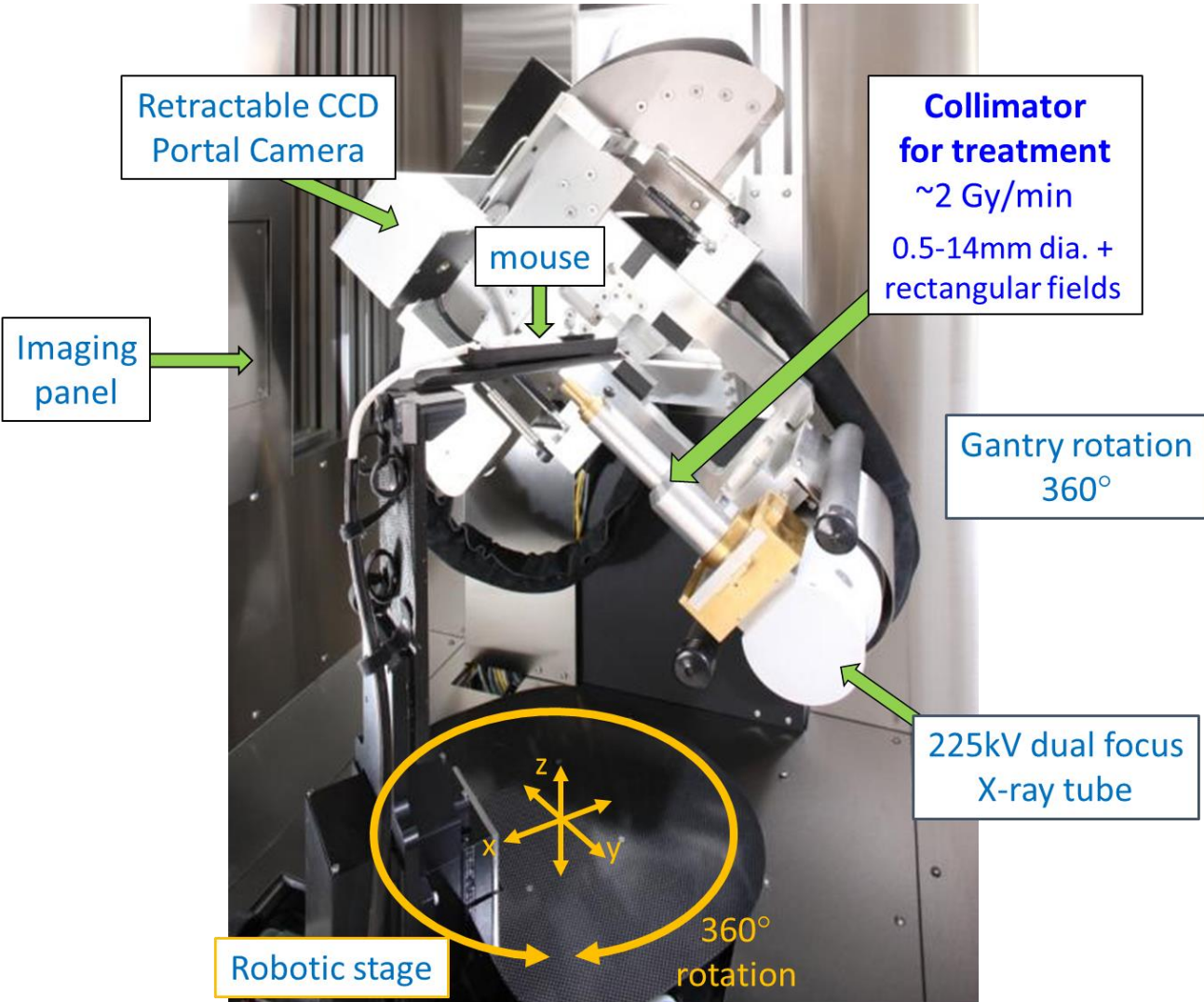
- Anesthetised using isoflurane
- Heated
- Breathing and temperature monitored

Irradiations:

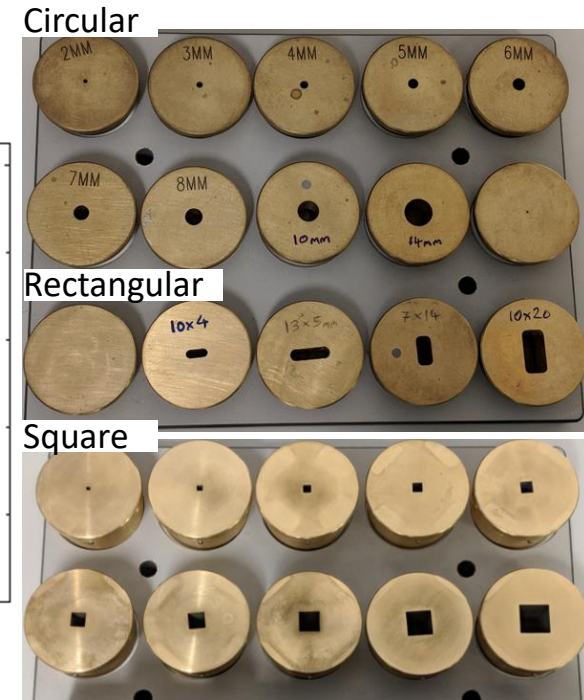
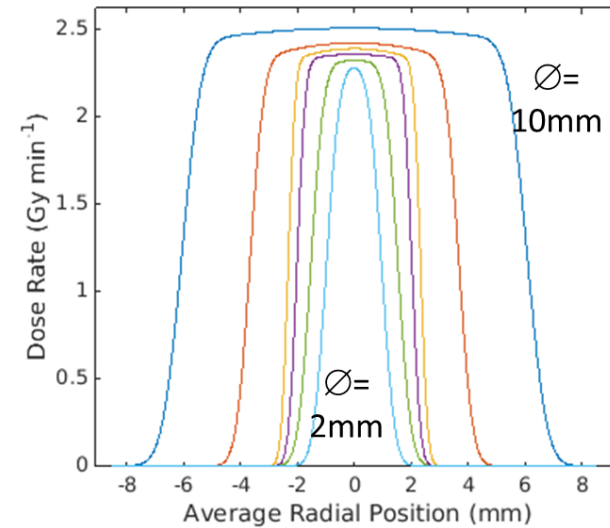
- up to 4 mice irradiated
- Lead used for partial irradiation

Radiation Biophysics

SARRP: Image-guided preclinical irradiator



Wide range of beam sizes:



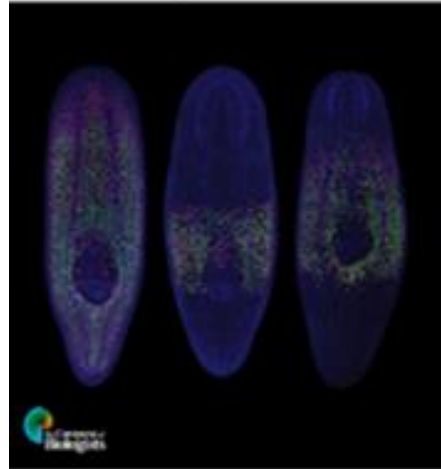
Radiation Biophysics

Gantry mounted X-ray set

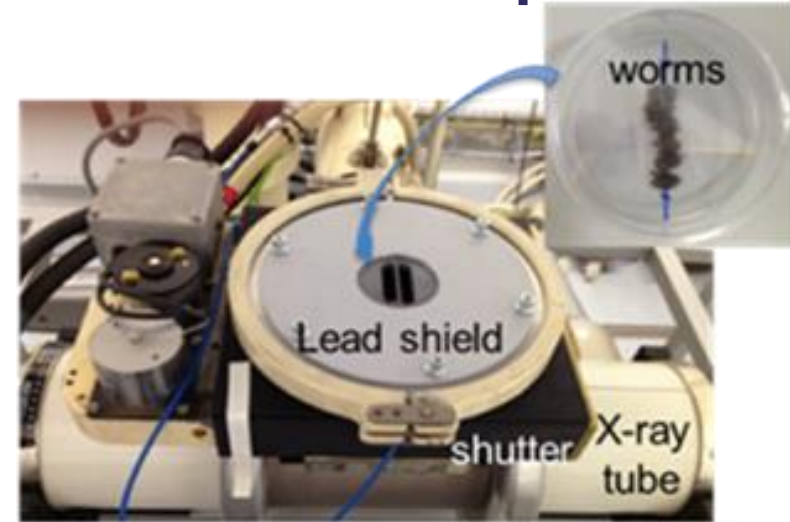
Used for:

- Control of cell environment
 - e.g. temp / gassing
- Low dose rate irradiations
- Partial irradiations

Development



Stem cell IR of planarian worms

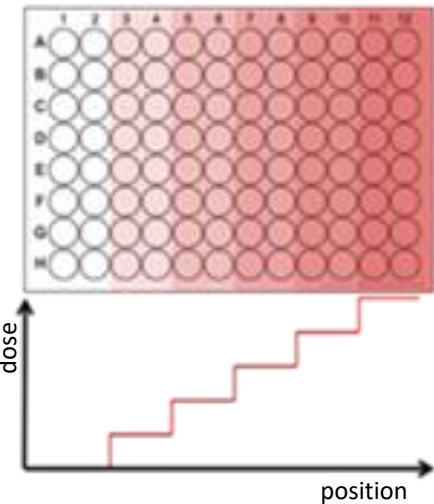
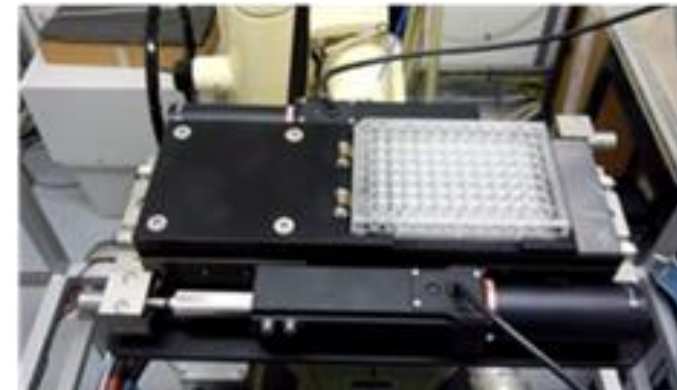
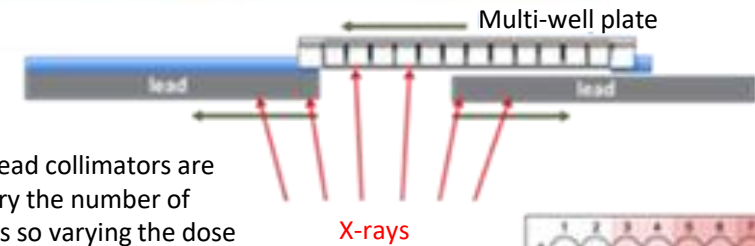


320kV @ ORCRB



Multi-dose, multi-well IR

Computer controlled lead collimators are remotely moved to vary the number of wells exposed to x-rays so varying the dose across the plate



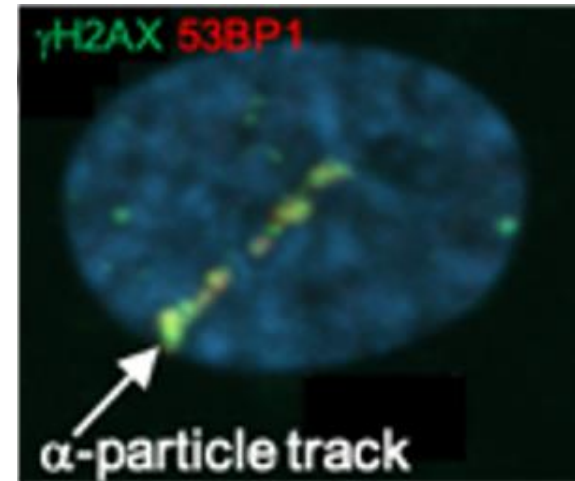
Radiation Biophysics



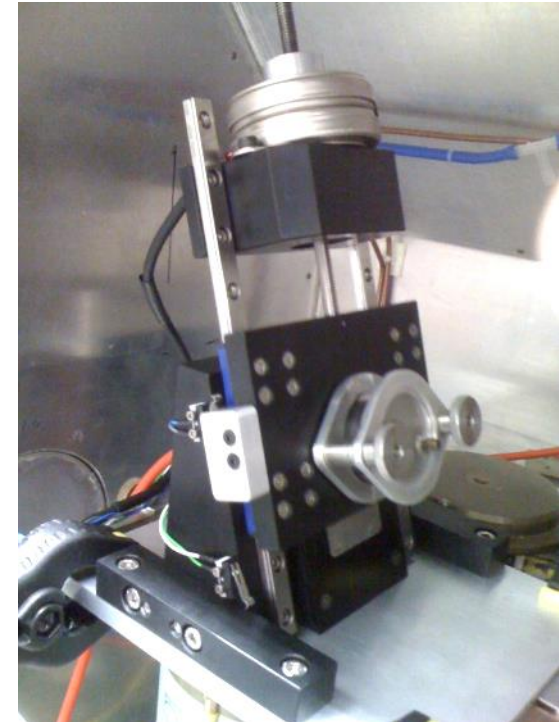
^{238}Pu high-LET α -particle irradiator

Standard conditions:

- Irradiated cells: 3.3MeV (121 keV/ μm) alpha-particles
- Dose rate: 20 Gy/min down to $<10^{-4}$ Gy/min
- Can vary energy: 4.2 MeV down to <1 MeV

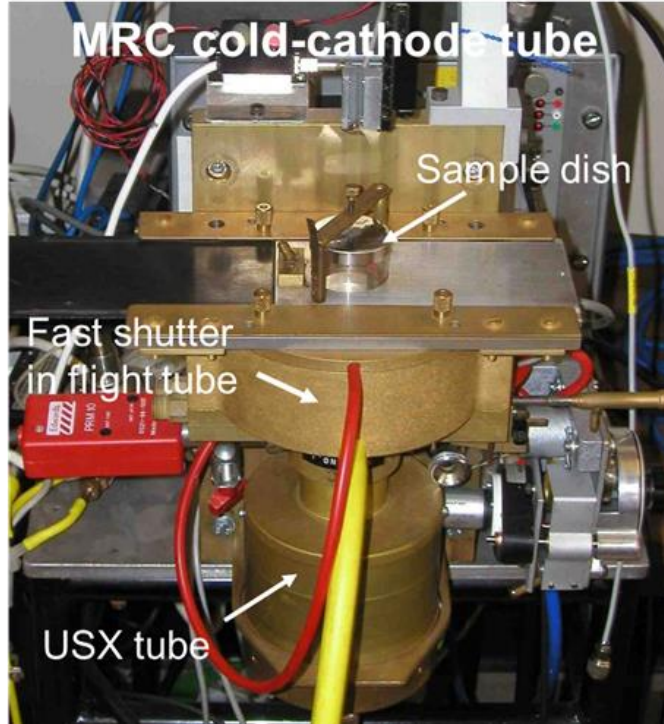


DNA damage and subsequent repair along an α -particle track can be view by irradiating cells at 20 $^\circ$



Radiation Biophysics

Ultrasoft x-ray irradiator



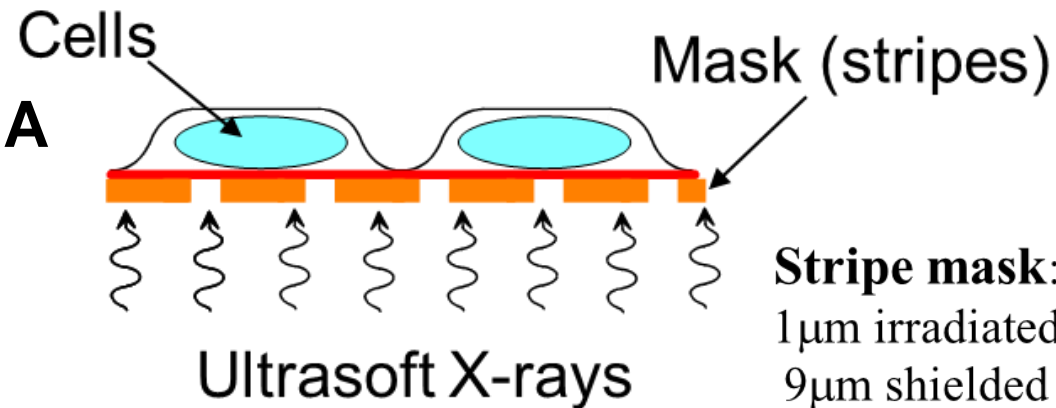
Standard conditions:

- 1.5 keV X-rays

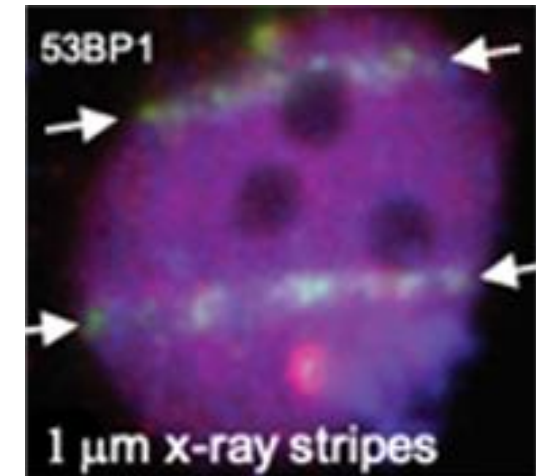
Can be modified to produce:

- 4.5 keV x-rays
- 0.3 keV x-rays (electron range ~ 4nm)

Partially irradiate cells for DNA damage and repair studies



Stripe mask:
1 μm irradiated
9 μm shielded



Dr Mark A. Hill - Radiation Biophysics



More information:

Tel: 01865 617056

Email: mark.hill@oncology.ox.ac.uk

Web: <https://www.oncology.ox.ac.uk/research/srf/radiation-biophysics>

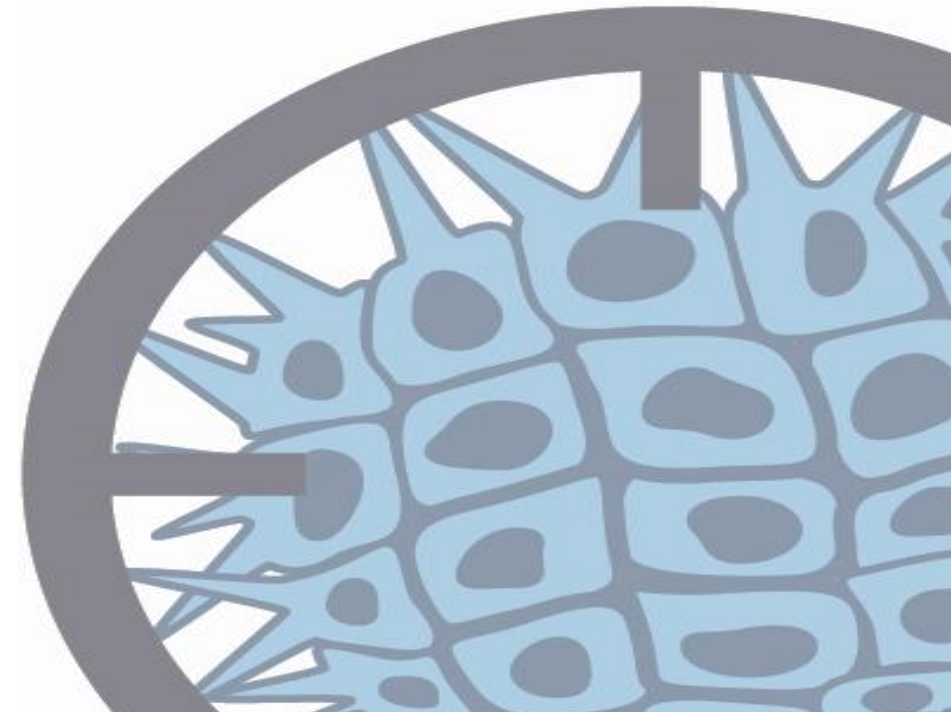


25. Old Road Campus Mechanical Workshop

John Prentice

Old Road Campus Mechanical Workshop

John Prentice and Kyle Hallett
Department of Oncology, University of
Oxford



About our Facility



- Located in the basement of the Green building (ORCRB), the Department of Oncology mechanical workshop provides support for the research projects within the Old Road Campus, across the other University Departments and beyond.
- We offer a total package from design consultation, computer CAD drawings, material sourcing, manufacture and assembly.
- Our facilities are equipped with state-of-the-art machinery.



What we do



Overview of Workshop

Our modern, fully equipped mechanical workshop enables us to carry out a range of services throughout the course of your project from design to manufacturing. Services include:

- Design services (CAD)
- Manufacture bespoke items
- Repair and maintenance
- Prototyping
- Reverse engineering
- Measurement services
- Material sourcing
- Technical advice

<p>Cost Savings</p>	<p>Quick Turnaround</p>	<p>Quality</p>	<p>Experienced</p>
<p>Typically cheaper than industry</p> <ul style="list-style-type: none"> • Money is reinvested into facilities. • Will direct you to other places if cheaper. 	<p>Rapid turnaround times</p> <ul style="list-style-type: none"> • Typical 2 week completion time. • Locally based workshop. 	<p>Modern, high quality precision workshop</p> <ul style="list-style-type: none"> • Latest machinery • Manufacture to appropriate standards. • Ongoing support 	<p>Team of experienced personnel</p> <ul style="list-style-type: none"> • 40+ years of experience. • Over 150+ projects completed annually, includes assemblies of 100s of components.

Work flow

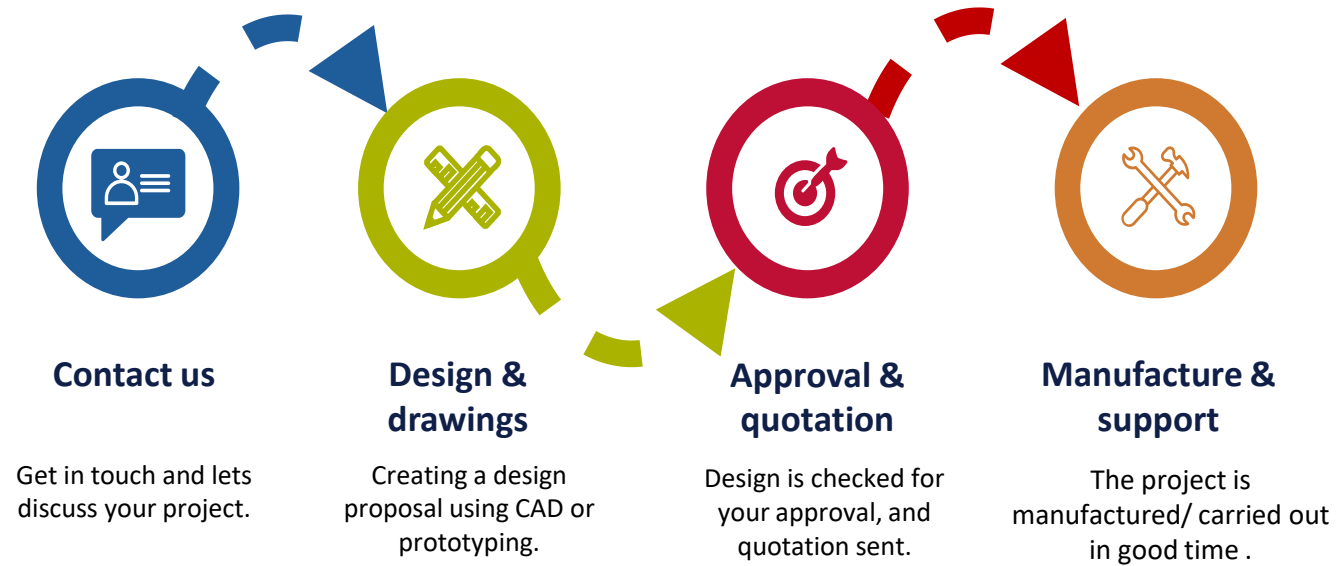


Examples of work:

- Medical sciences
- Imaging – microscopes, MRI, etc.
- Radiation
- Cryogenics
- Fluidics
- Equipment repair and maintenance
- Enclosures and shielding
- Research support



The Process



Contact us



John Prentice
John.prentice@oncology.ox.ac.uk
01865 617369
ORCRB, Roosevelt Drive
OX3 7DQ

Visit our website:



www.oncology.ox.ac.uk/research/srf/mechanical-workshop





Thank you for you attention.



Contact details



OUI

- [Oxford University Innovation](#)
- emma.packard@innovation.ox.ac.uk
- sally.sheard@innovation.ox.ac.uk
- enquiries@innovation.ox.ac.uk

BioEscalator

- www.bioescalator.ox.ac.uk
- <https://www.bioescalator.ox.ac.uk/contact/contact-us>
- Business Manager claire.shingler@medsci.ox.ac.uk