

St George's University of London

Image Resource Facility Annual Report

2020 - 2021

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Introduction

The reporting period of this annual report (2020-2021) covers a time of both change and opportunity within the Image Resource Facility (IRF), the details of which are communicated in sections within this report. The general picture for the facility is very positive; there is an increase in overall income as compared with previous years, and the integration of the IRF within the teaching, research and professional services support community has been strengthened by the creation of the Imaging Advisory Group (IAG). IRF continues to grow from strength to strength, and has made an excellent start financially in the first seven months of the current financial year. Our initial target was to achieve £20k of internal income, and £25k of external income. In the first seven months, we have already achieved £25k of internal income and £29k of external income. Our reforecast shows we expect to deliver double the planned budget, this is due to increased internal demand and an additional commercial agreement being put in place.

Detailed below is an update and analysis for the period August 2020 to July 2021. This period of time overlaps the phase 1 return to site of staff and students within the research institutes, a decision which proved critical to the sustainability of the IRF. During that period the IRF supported the continuation of PhD laboratory-based research projects as well as providing equipment and service to researchers returning to work in laboratories. A pricing review of facility equipment and services was undertaken during this period, details of which to be outlined on p8. An unexpected beneficial outcome of the review is the establishment of the IRF Research Excellence Fund – an award that provides subsidised access to the facilities equipment and services. Providing opportunities for postgraduate researchers and principal investigators to finalise/strengthen publications or generate data in support of future funding applications.

Developments

NHS Trust

In 2021, after multiple failures of the Transmission Electron Microscope (TEM) and months long delay to delivery of service the decision was made to support the move of the EM Muscle and Nerve Biopsy service to another supplier. This decision was made in the knowledge of the strong ties the university has with the Trust but in the understanding that patient wellbeing must be prioritised. Due to Covid -19 restrictions repair to the aging TEM was unable to be delivered and there was no alternative option. The TEM remained at fault and after cost vs. benefit analysis, the decision was made in February 2021 not to reinvest in the Electron Microscope technology capability in the IRF.

IRF Interactions

IRF staff have membership of the London Light Microscopy Facility Managers Meeting network (LLMFMM), a London-focussed microscopy group set up in 2018 as a forum for London based facility managers to exchange practical knowledge and experience. The IRF has been part of the network for the last three years and in October 2021 hosted a site visit of the network, a first for St George's and the IRF. The visit went extremely well with praise given for IRF leading "a really good discussion which covered quite a few issues, including costing, selecting the right equipment for your user-base, and grant management"

The full article of this visit has been covered in [George's weekly](#) .

The founding members of the network, Dr Dale Moulding (Institute Child Health, UCL), Dr Chris Thrasivoulou (Division of Biosciences, UCL), Dr Kurt Anderson (Crick Institute) and Dr Alex Ball (Natural History Museum, Chair of the Royal Microscopy Society Training and Career Development Focussed Group) have agreed to undertake an informal review of the facility. Using their collective professional experience, they will report within an agreed framework or scope of interest, assessing equipment productivity and suitability, skills, knowledge, operational effectiveness amongst other points. The framework for the review will be drafted towards the end of 2022 with the review itself expected to take place in 2023. The report will be shared with the IAG and Research Committee.

Imaging Advisory Group (IAG)

In December 2020 the IRF launched the Imaging Advisory Group (IAG). The purpose of this group is to provide a focal point for the research and education community to engage with the IRF to ensure the facility is responsive to and capturing the needs of our institutes, broadening our support across the organisation and allowing the IRF to contribute to the strategic goals of the university. The group is chaired by the Head of Facility (IRF) and has [Terms of Reference, minutes and membership](#) available on the St George's website.

From its inception the group has been a barometer for IRF developments working closely with both researchers, educators, professional services and postgraduate students. The IAG membership has successfully contributed to the tailoring of the IRF Research Excellence Fund, the inclusion of student projects within the facility, the successful procurement of facility equipment (LiveCyte Microscope), and the commercialisation aspirations of the IRF. The group is an invaluable asset to the IRF leadership team. Regular updates on IAG activities are communicated to Research Committee.

IRF Research Excellence Fund

The IRF recognises the value of supporting research ideas and activities that have potential to bring benefits to the organisation. We have created the IRF Research Excellence Fund; an annual award that provides low-cost access to currently under-utilised equipment and services in the IRF that is open to academic research staff, postdoctoral scientists and PhD students. The fund is a research stimulation initiative that can help them to either complete/ improve publications, engage with feasibility studies or run pilot studies; all with the expectation to lead to increased income generation for the university. It is expected that there will be two rounds of awards annually, the first application round being in February 2022. Outcomes will be reported to Research Committee.

Facility Usage

Figure 1 shows that Molecular and Clinical Sciences Institute (MCS) is the majority user of the IRF – providing 76.93% of facility income in 2020-21, compared with 59.57% in the previous year. Institute of Infection and Immunity (I&I) has reduced its activity within the IRF compared to the previous year at 12.95% to 8.76% of facility income - this reduction may be an additional effect of the loss of the TEM. Institute of Medical and Biomedical Education (IMBE) has also reduced its activity in the facility compared to the previous year at 27.48% to 14.32%. Similar to previous reporting, there is no current support provided to the Population Health Research Institute (PHRI). This may be a missed opportunity, it might be possible that PHRI academics collaborate with researchers who produce samples as part of larger studies. We would encourage those PHRI researchers to be aware that the IRF is accessible for those type of collaborative relationships.

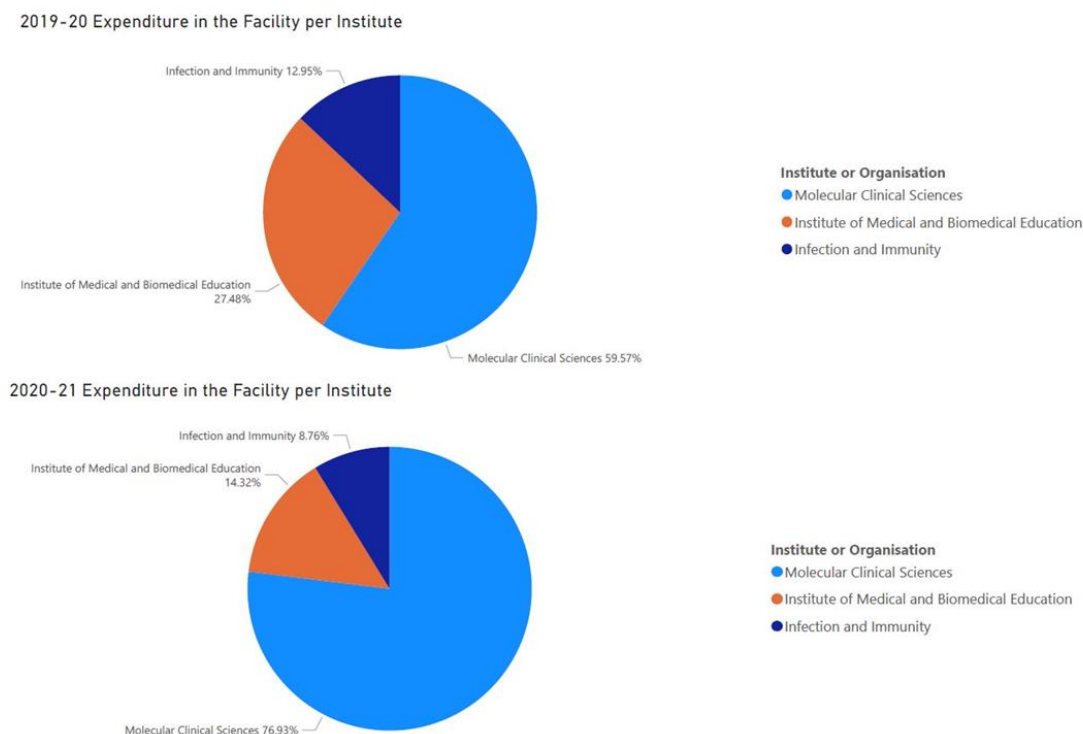


Fig. 1: Percentage of Institute expenditure within the IRF. 2019-20 vs. 2020-21

* Values taken from Stratocore PPMS booking system

As well as equipment, the Facility provides specialist service to researchers that can include access to specialist techniques by individual users. In table 1 are listed the academic research groups who used facility services during 2020-21 pandemic year, in chronological order. October 2020, January 2021 and April 2021 were the only months where service was not required indicating steady use of the Facility. Histology and immunohistochemistry were the most requested services.

Table 1: Use of service by academic staff			
Group	Institute	Service/Consumable	Month (2020-21)
Dr Meijles	Molecular and Clinical Sciences	Slide Scanning	August
Dr Meijles	Molecular and Clinical Sciences	Technician Time	August
Dr Meijles	Molecular and Clinical Sciences	Immunohistochemistry (single slide) - Silver	August
Dr Meijles	Molecular and Clinical Sciences	Slide Scanning	September
Dr Meijles	Molecular and Clinical Sciences	Technician Time	September
Dr Meijles	Molecular and Clinical Sciences	Immunohistochemistry (single slide) - Silver	September
No Service Supplied			October
Dr Kim	Molecular and Clinical Sciences	Nikon A1R Overnight	November
Dr Meijles	Molecular and Clinical Sciences	Technician Time	November
Dr Meijles	Molecular and Clinical Sciences	Immunohistochemistry (single slide) - Silver	November
Dr Meijles	Molecular and Clinical Sciences	APES-coated slides	November
Dr Carroll	Molecular and Clinical Sciences	Wax Embedding: Blocks	December
No Service Supplied			January

Prof Ma	Infection and Immunity Research Institute	APES-coated slides	February
Dr Carroll	Molecular and Clinical Sciences	Haematoxylin and Eosin (H&E) Stain	March
Dr Carroll	Molecular and Clinical Sciences	Wax Embedding: Blocks (staff)	March
Dr Meijles	Molecular and Clinical Sciences	Technician Time	March
Dr Meijles	Molecular and Clinical Sciences	Immunohistochemistry (single slide) - Silver	March
No Service Supplied			April
Dr Carroll	Molecular and Clinical Sciences	APES-coated slides	May
Prof Ma	Infection and Immunity Research Institute	Immunohistochemistry (single slide) - Bronze	May
Prof Ma	Infection and Immunity Research Institute	Immunohistochemistry (single slide) - Bronze	June
Prof Ma	Infection and Immunity Research Institute	Immunohistochemistry (single slide) - Bronze	July

Equipment acquisition

In early January 2021, the IRF was among other areas of Research Operations to benefit from a windfall source of income, courtesy of Research England. A new microscope, [LiveCyte 2](#), was purchased. This microscope allows the label-free imaging of cells over long periods, without the need for adding visualizing chemicals, which may affect their behaviour. A major advantage of this microscope is that it enables automated tracking and concurrent image analysis. The LiveCyte 2 will track cells in real-time, allowing users to collect their data at the end of the experiment, saving time and extensive analysis training. This functionality makes it an ideal resource for student research projects as part of the universities taught courses programmes.

Income and Expenditure

In January 2021, the Flow Cytometry service was incorporated into the IRF. This move was an outcome of the Research Operations restructuring in 2020. The Flow Cytometry service now reports into the IRF leadership and benefits from the operational productivity and brand of the IRF. Flow Cytometry income data is unavailable in figures 2, 3a and 3b during 2019-20. In that year, prior assimilation into the IRF it is understood that the equipment and services supplied by Flow Cytometry was booked and invoiced using a different system. The IRF has data for the Flow Cytometry service relevant to 2020-21 only – this is in line with the service uptake of the Pasteur Platform Management System (PPMS) Stratocore booking and invoicing system that is used in the facility and St George's.

June 2021 saw the beginning of a first ever commercial enterprise development within St George's that includes access to the IRF equipment and services. [Neophore](#) (a drug discovery company) have engaged in a 24-month contract with a St George's academic staff member (Dr Ferran Valderrama) and IRF to the value of £89,925 per year to the university, with approx. £58,000 of that allocated to the IRF budget. Further information will be reported in the 2021-2022 IRF Annual report.

There was an understandable loss of income during the pandemic-affected financial year 2020-21 for all of the sections within the IRF (Figure 2.). LM suite saw a 11.55% reduction as compared with previous year. The Histology section a 55.35% difference and EM section 79.61% decrease, we have no data for the flow cytometry platform. The reduced demand is to be expected given the above-mentioned circumstances in particular, the malfunction of the TEM negatively impacted on EM service income. The £500 income stated for 2020-21 does not accurately reflect use of the flow cytometry service. The service was subject to a year-long delay in approving and processing

grant recharges for some of the main users of this service, affecting the income received throughout the financial year. We expect that income to be recorded in next year’s annual report.

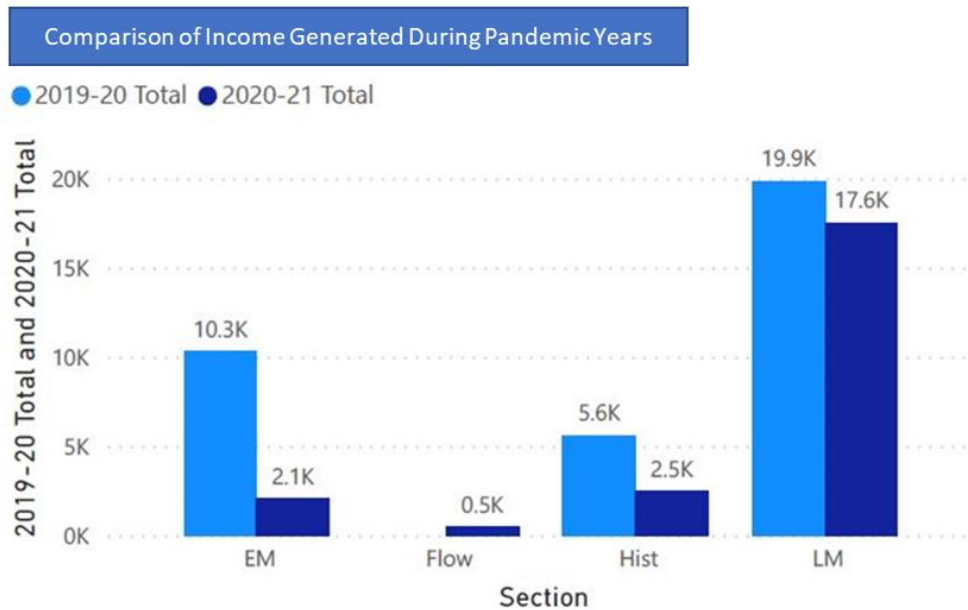
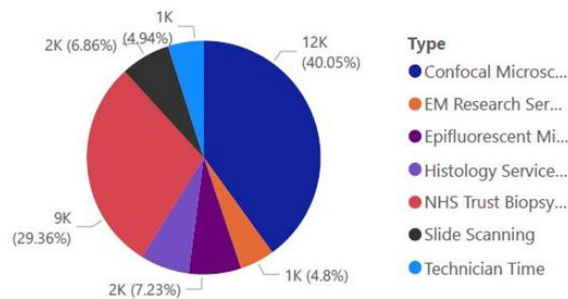


Fig. 2: Income received by facility sections. 2019-20 vs. 2020-21
 * Values taken from PPMS Stratocore booking system

2019-20 Total income by Type of Facility use



2020-21 Total Income by Type of Facility use

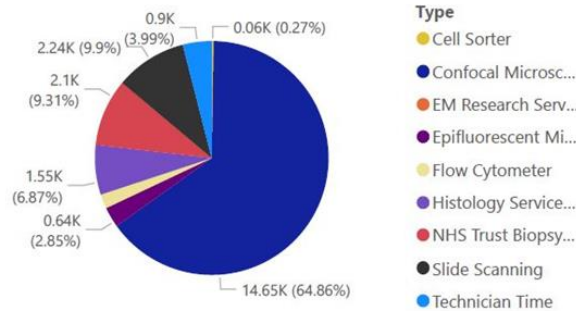


Fig. 3a: Income generated by the different facility technology platforms. 2019-20 vs. 2020-21
 * Values taken from PPMS Stratocore booking system

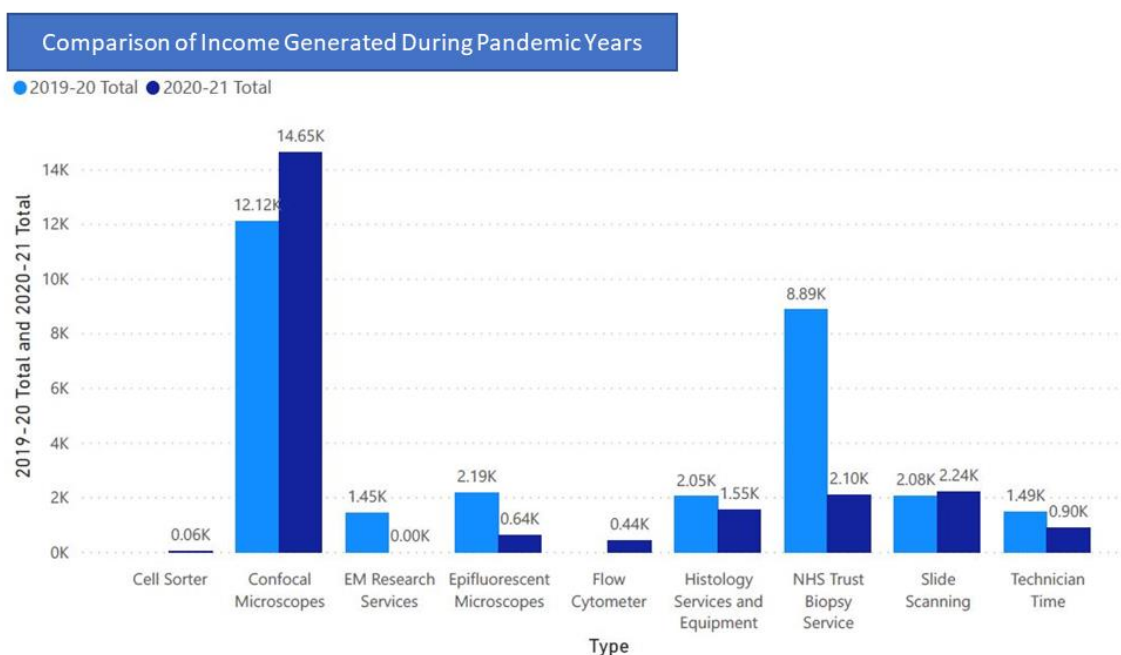


Fig. 3b: Income generated by the different facility technology platforms. 2019-20 vs. 2020-21

* Values taken from Stratocore PPMS booking system

The confocal microscope is still the breadwinner of the facility equipment portfolio (Figure 3a and 3b above) bringing in £14,650 in last financial year, an increase of 20.87% over the previous year. The slide scanner is the 2nd most popular piece of equipment in the facility, with a 7.69% increase in use compared to the previous year and bringing in an income of £2240. All other technologies and services within the IRF were subject to a reduction in income, as explained above. The confocal microscope and slide scanner are predominately used by PhD students and postdoctoral scientist who were amongst the first researchers to return to site in phase 1.

Figure 3b evidences that there was no EM research service in the facility during 2020-21 and the NHS Trust biopsy service was compromised due to malfunctioning equipment.

The EM service was the biggest expenditure in 2020-21 a cost vs. benefit analysis demonstrated that year on year this service cost the university more than income received (excluding the salary costs at grade 7). In 2020-21 due to the pandemic restrictions affecting the planned site visit and repair of the TEM a return of service contract was successfully negotiated and returned to the IRF finances* (Table 2.) Together, the LM suite and Histology section generated the most income in 2020-21. Due to the way the monthly recharging is processed within the university, whilst it is possible to identify and separate expenditure for the different services, we are unable to differentiate income streams. However, it is clear from the PPMS booking system data (Figure 3b) that the LM suite is the biggest income generator, together with the Histology section – workloads prepared in the Histology laboratory mostly feed into the LM suite.

Table 2: expenditure vs. income. 2020-21 * Values taken from Agresso IRF subproject code		
	Expenditure (£)	Income (£)
EM	-14772.78	2880
FLOW Cytometry	-884.55	4213.03
LM	-6079.71	30549.74
Histology	-1074.94	
Service contract refund*		11290
Facility Operations	-5245.95	
IRF staff CPD	-600	
Grand Total	-28657.93	48932.77
2019-2020 values	-22583.57	31687.9

Costing review

During 2020-21 and 2021-22 period the IRF has undertaken a systematic review of costs for equipment and services with the intention to deliver to the research community value for money and to the university, increased income through appropriate pricing for use of our facilities. Accurate costing for equipment and services is crucial to the universities' ability to maximise the research grant income, be in line with financial regulations and help towards sustaining facilities and infrastructure. Together with the Deputy Director of Finance and JRES, an auditable formula, process and system for annual calculation of costs for services has been generated. Resulting in a set of prices that will differentiate between charges appropriate for researchers with different categories of funders:

- those that provide overheads
- those that do not provide overheads
- external and commercial users

At the time of writing this report the new set of costs has been implemented, a more detailed explanation will be reported in the 2021-22 Annual report.

Support for St George's Education Programmes

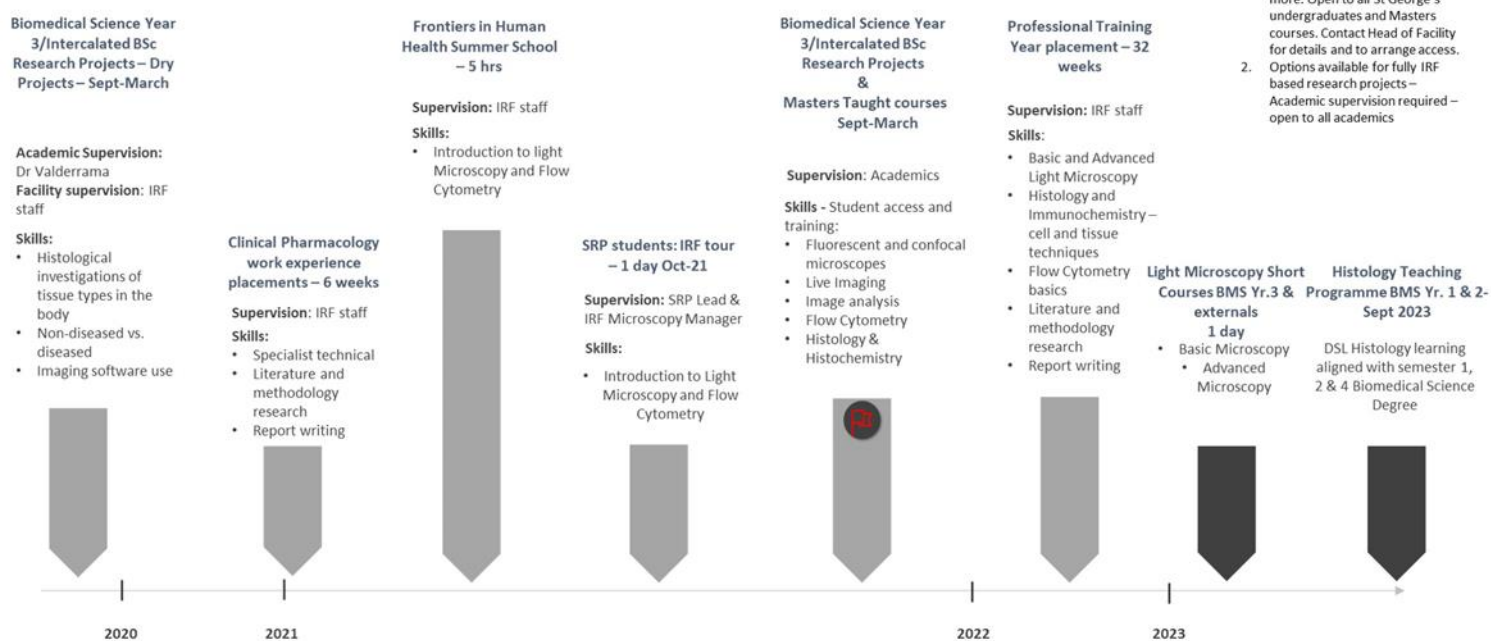
A developing area of strengthening and growth in the IRF is the facilities support for SGUL's teaching programmes; supporting the concept of research led education. During 2020-21 we have consolidated the presence of an introduction to microscopy and facility resources into five streams of academic teaching provision annually (Figure 4 below). Those being, the Cell and Molecular Biology (CMB603), Structured Research Projects (CBS601), and the MSci Yr.4 (RES702) modules of the Biomedical Science Programme, (PHA507) of the Clinical Pharmacology programme, the MSc in Translational Medicine and the Frontiers in Human Health Summer School. There are further activities in preparation, in 2022 the IRF is expected to host its first Professional Training Year (PTY) student and we are currently developing ways to re-introduce histology and microscopy

into the education portfolio with support from the Head of Centre for Technology in Education. It is expected that there can be progress with a view to implementation in 2023-24.

All of the above teaching activities and work experience provision allows the IRF to acknowledge and stand in support of the understanding that student participation in scholarship, research and professional practice is one of the criteria against which universities are reviewed for the Teaching Excellence and Student Outcomes Framework (TEF).

Scientifically rewarding laboratory - based research projects can greatly impact the measure of success / outcomes for student programmes. Maximising the amount of time and access that students have with the Facility's equipment and services can strengthen the quality of their research projects and contribute towards greater skills training for St George's graduates. The IRF has introduced student access bundles that allow all St George's Biomedical Science and Intercalated BSc students, Masters students and summer students to use the facility at 50% rate as compared with standard access charge. Increased use of equipment by students improves student engagement with technologies, with benefits for student experience and training. Additionally, academic staff can plan more extensive research projects, secure in resources and imaging capabilities.

Image Resource Facility: Teaching Support



IRF Annual Report 2020-21 SA v1.0

Fig. 4: Distribution of regular teaching support activities supplied by the IRF – including activities currently in development

Public Engagement, Outreach and Widening Participation

The IRF has been participating in number of university activities that directly or indirectly impact the Access Participation Plan and any strategic goals associated with it. Our contribution to knowledge exchange and outreach and widening participation (OWP) is strong and a source of pride for the facility.

During the reporting period, we were establishing a collaborative relationship with OWP working towards our vision within the IRF; which is to demonstrate the potential that the facility has to not only facilitate experimental research capabilities in support of our laboratories, but also to highlight and showcase the breadth of research and healthcare orientated careers. Additionally, to share with young people and the public the diversity of St George’s researchers and support staff, as well as the satisfaction of the scientific research process. We have two programmes that were created during the reporting period and are now in implementation. Documented below is a description of the specific activities that were planned in 2020 - 21 and how they will operate. Metrics made available and the impact of these activities with regard to the IRF and Access Participation Plan are expected to be reported in the 2021-22 Annual report.

“Small World... Brighter Futures” part of St George’s Healthcare Dissected Programme for 14-16 year-old pupils.

Targeted toward students with low progression rates into higher education, or from low socio-economic backgrounds, in this eight-week programme (Table 3) the IRF encourages young people to view the organs of the body (macro-world) through its cell and tissue components (micro-world). Practicing critical thinking and group discussion, week by week, the students gain an understanding of how the body works and an awareness of scientific process, research and potential careers. An example being a microscopic view of the gastrointestinal tract, looking at the structure of the tissue (Figure 4) and how that relates to its function; linking that to a St George’s academic whose research focusses on epidemiological examination of different medications and fortifications consumed during pregnancy, and the impact that can have on society and health. This programme is an easy vehicle for St George’s researchers to include public engagement activities into their research portfolio, which can be useful for external research funding and other applications.

Date	Time	Topic	Researcher	Research video topic
Thursday 20th January 2022	4-5pm	Skeletal Muscle	Dr Dan Osborn	Muscular dystrophy
Thursday 27th January 2022	4-5pm	Brain	Dr Atticus Hainsworth	Dementia
Thursday 3rd February 2022	4-5pm	Gastro/Intestines	Prof Joan Morris	Food and drink dietary supplementation in effect on diseases
Thursday 10th February 2022	4-5pm	Heart	Dr Daniel Meijles	Hypertension
Thursday 10th March 2022	4-5pm	Cancer	Dr Clara Cieza-Borella	Cancer

Thursday 17th March 2022	4-5pm	Lungs	Dr Deborah Chong	Tuberculosis
Thursday 24th March 2022	4-5pm	Joints	Prof Nidhi Sofat and Ms Soraya Koushesh	Osteoarthritis
Thursday 31st March 2022	4-5pm	Blood Vessels	Prof Tom Carter	Clotting

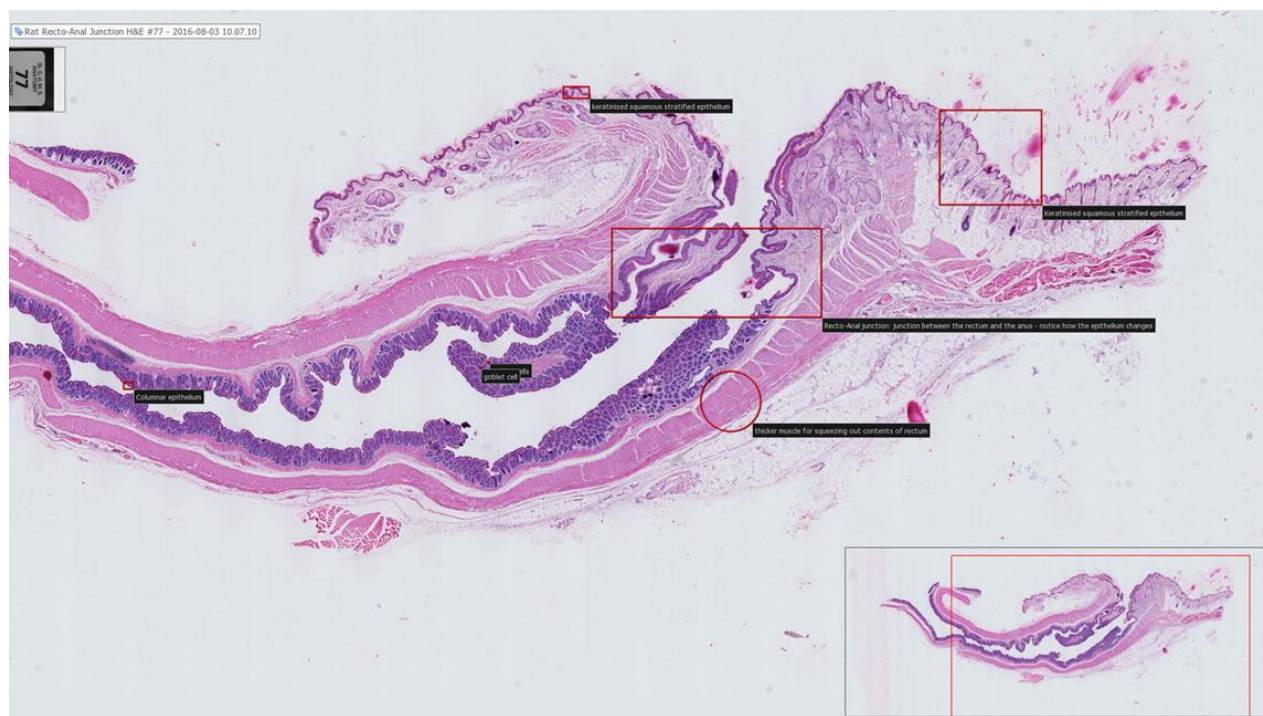


Fig. 4: Example image of IRF provision and use of digital online microscopy to deliver outreach and widening participation sessions. Example shown is tissue from the recto – anal junction, used during gastrointestinal tract session Thursday 3rd February 2022.

“Small World... Big Minds” IRF microscopy-based Art Workshops, part of Primary Practice Programme for 11 year old pupils.

Supporting young people during transition to secondary school, in this three-day summer school the IRF encourages young people to view a world of familiar objects or creatures from a microscopic perspective. Surprising and often beautiful, the microscopic world can challenge our perception of “what something is”. Using that mindfulness to stimulate an artistic interpretation of what has been viewed microscopically may embed an appreciation for the complexities of biology, nature, science and technology. We plan to provide the students with microscopes, samples and art supplies; collaborating with OWP and a member of St George’s research staff (and part-time artist) to facilitate three days of art workshops culminating in a site visit for families of attending students to showcase the artwork and the facility, please see Figure 5 and Table 4.



Fig. 5: Example microscopy samples to be provided to students during summer school. Students can view specimens from biology and natural world. **Panel A** – female mosquito, red blood cells, body parts and anatomy visible. **Panel B** – plant Corn Stem stained with Toluidine Blue O. Image shows clusters of vascular bundles.

Date	Time	Group	Number of pupils (max)
Thursday 28th July 2022	13.00-14.30	1&2	12
Friday 29th July 2022	10.30-12.00	3&4	12
Friday 29th July 2022	13.00-14.30	5&6	12
Saturday 30 th July 2022 (TBC)	TBC	Parents/ Carers	approx. 30

Recognising the synergy of the relationship, OWP and IRF have agreed to monitor and share any measurements of the collaborative activities impact. The IRF also works with the STEM Ambassadors network and has membership of the university’s Public Engagement Advisory Board (PEAB) to support academic and research staff who are invited to use the Facility teaching space to hold STEM or Public Engagement events.

Publications 2018 -2021

How we can measure a facility’s worth is a difficult metric to identify. From a research perspective, we can make some analyses by interrogation of the St George’s Online Research Archive (SORA) database held within St George’s, and this annual interrogation will be a standing item in the IRF annual report going forward. To give some context for continued review using this metric, this analysis has been undertaken (Table 5), looking back over the last three years, identifying how many publications, which journals and at what level of impact factor has the IRF directly contributed to, via its equipment and services. It is worth noting that of 44 publications, 34 are in journals with an impact factor greater than 4.

Table 5. Publications generated with use of facility equipment and services 2018 - 2021		
Journal	Impact Factor	Principle Investigators
Circulation	29.69	Prof Mary Sheppard
Journal of the American College of Cardiology	24.093	Dr Angeliki Asimaki
Human Reproduction Update	15.61	Prof Judith Cartwright, Prof Guy Whitley
Nature Communications	14.919	Dr Alexis Bailey
Nature Communications	14.919	Dr Dan Osborn, Dr Yalda Jamshidi
Nature Communications	14.919	Dr Soo-Hyun Kim
Journal of Clinical Investigation	14.808	Dr Angeliki Asimaki
Cardiovascular Research	10.787	Dr Ingrid Dumitriu
Cardiovascular Research	10.787	Dr Ingrid Dumitriu
Cardiovascular Research	10.787	Prof Juan Carlos Kaski, Dr Ingrid Dumitriu
Hypertension	10.19	Dr Daniel Meijles
Hypertension	10.19	Prof Iain Greenwood
Cell Reports	9.423	Prof Derek Macallan
EMBO Reports	8.807	Dr Paris Ataliotis, Prof Nigel Brown, Dr Soo-Hyun Kim, Dr Francisco Miralles, Dr Daniel Osborn
British Journal of Pharmacology	8.74	Dr Alexis Bailey
British Journal of Pharmacology	8.74	Prof Iain Greenwood
British Journal of Pharmacology	8.74	Prof Iain Greenwood
Journal of Investigative Dermatology	8.551	Dr Elena Sviderskaya,
Arteriosclerosis, Thrombosis and Vascular Biology	8.313	Prof Iain Greenwood
Arteriosclerosis, Thrombosis and Vascular Biology	8.313	Prof Iain Greenwood
Stroke	7.914	Dr Atticus Hainsworth
Frontiers in Immunology	7.561	Dr Ingrid Dumitriu
Frontiers in Pharmacology	5.811	Dr Kai Hilpert
Vascular Pharmacology	5.773	Prof Anthony Albert, Prof Iain Greenwood
Vascular Pharmacology	5.773	Prof Iain Greenwood, Prof Anthony Albert
Laboratory Investigations	5.662	Prof Judith Cartwright, Prof Guy Whitley
Journal of Cellular and Molecular Medicine	5.31	Prof Deborah Baines
FASEB Journal	5.192	Prof Asma Khalil, Prof Judith Cartwright, Prof Guy Whitley
Journal of Physiology	5.182	Prof Anthony Albert
Frontiers in Physiology	4.566	Prof Iain Greenwood
Annals of Clinical and Translational Neurology	4.511	Dr Atticus Hainsworth
Scientific Reports	4.38	Dr Daniel Meijles
American Journal of Physiology - Cell Physiology	4.249	Prof Deborah Baines
Journal of Reproductive Immunology	4.054	Prof Guy Whitley, Prof Judith Cartwright,
Developmental Neurobiology	3.964	Dr Alexis Bailey
Journal of General Virology	3.891	Dr Blair Strang
Journal of General Virology	3.891	Dr Blair Strang
Biochemical Journal	3.857	Dr Daniel Meijles
Journal of Neuropathology and Experimental Neurology	3.685	Dr Atticus Hainsworth
Journal of Neuropathology and Experimental Neurology	3.685	Prof Dorothy Bennet, Dr Atticus Hainsworth
European Journal of Neuroscience	3.386	Dr Alexis Bailey

Journal of Human Hypertension	3.012	Dr Daniel Meijles, Prof Elijah Behr, Prof Mary Sheppard,
Channels	2.581	Prof Anthony Albert
Cardiovascular Pathology	2.185	Dr Angeliki Asimaki, Prof Elijah Behr, Prof Mary Sheppard

SWOT analysis

Table 6 details a SWOT analysis of the Facility at present date.

Table 6. SWOT analysis 2020-21	
INTERNAL FACTORS	
STRENGTHS (+)	WEAKNESSES (-)
<ul style="list-style-type: none"> • Imaging Advisory Group (IAG) • Good service provision per capita • Technical support staff in-house and available for support • Only Imaging Center in the South West of London • Engagement with schools and colleges for outreach and widening participation activities – in support of the St George’s strategic goals 	<ul style="list-style-type: none"> • Single point of failures in different sections of light microscopy, histology and flow cytometry. Plans are being implemented to cross-train our technical staff to provide aspects of business continuity and prevent disruption to services.
EXTERNAL FACTORS	
OPPORTUNITIES (+)	THREATS (-)
<ul style="list-style-type: none"> • Creation of a South London hub for imaging – collaboration with Kingston University and Roehampton University. • Work with Public Engagement (PE) team to support researchers and the PE strategy • Commercialisation of IRF equipment and services – strategy under development in collaboration with Enterprise and Innovation • Provision of histology service for IMBE academic staff – cheaper and more resilient resource than currently available post retirement of histology technician 	<ul style="list-style-type: none"> • External academic staff purchasing their own equipment and sharing with our academics

Recommendations

1. IRF to work with Research Operations staff and ECRM to create and maintain a social media Instagram account. A useful way to showcase facility activities, outreach events and research support.

2. Research committee gives support to and receives a review of the facility services, equipment and operations by the LLMFMM network (pg. 2)