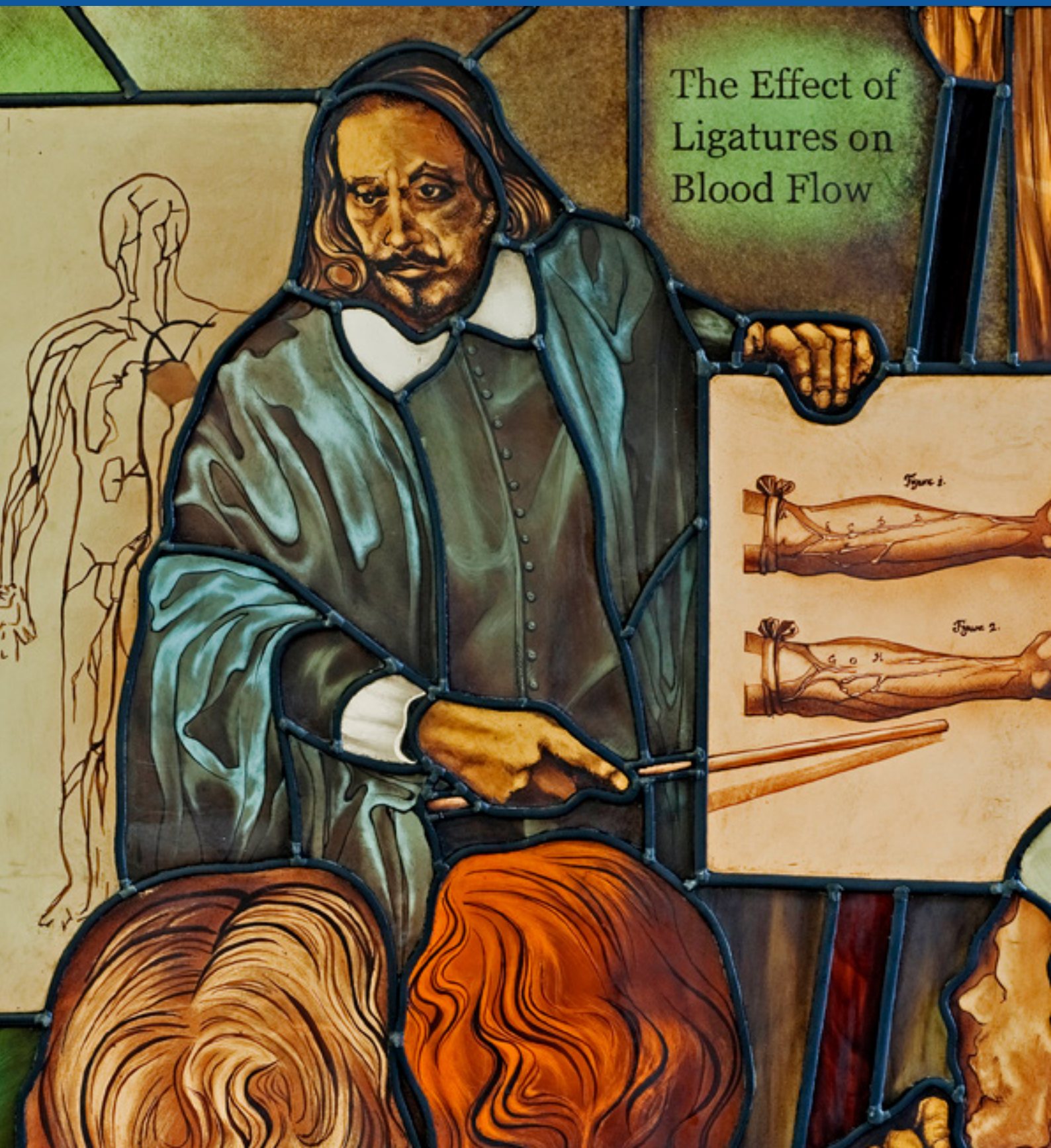
Queen Mary
University of London

Barts & The London

William Harvey Research Institute
Welcome Handbook



Welcome

Welcome to the William Harvey Research Institute. This handbook will give you background information about the history of the WHRI, plans for the future and a range of practical information to make your first few days here as easy as possible. Although this pack aims to answer most of the questions you may have please don't hesitate to ask about anything you feel is not covered in these pages.

We hope you settle in easily and enjoy working with us at the WHRI.

Mark Caulfield & Amrita Ahluwalia
Co-Directors, WHRI

Charterhouse Square campus

Sir John Vane and the creation of the WHRI

Sir John Vane founded the William Harvey Research Institute in 1986. Soon after, with his fellow research directors (Professors Erik Änggård, Gustav Born, Rod Flower, Iain MacIntyre, David Tomlinson and Derek Willoughby), together with a team of enthusiastic young scientists and PhD students, he rapidly established the Institute as a centre of excellence for research into the mechanisms of vascular disease and inflammation.

John Vane shared the Nobel Prize in medicine in 1982 for his work on prostaglandins. In part this was in recognition of his discovery of how aspirin blocked the synthesis of prostaglandins through inhibition of the enzyme now widely known as cyclo-oxygenase. His work led to a clear understanding of how aspirin and similar drugs produce pain-relief and anti-inflammatory effects. It also provided an explanation for how aspirin prevents blood clots and helps prevent heart attacks and strokes. John and colleagues also discovered prostacyclin, a key protective factor that helps keep blood vessels healthy. In addition, in the early 1970s John also played a key role in the discovery of captopril - the first member of the angiotensin-converting enzyme (ACE) inhibitor family of medicines.

Born in Worcestershire and educated at King Edward VI School, Birmingham, John Vane obtained a BSc in Chemistry at the University of Birmingham in 1946 before training as a pharmacologist with Professor J. Harold Burn in Oxford. After obtaining his PhD in 1953 John spent two years in the Department of Pharmacology at Yale University with the then chairman Dr Arnold Welch. In 1955 he returned to the UK to work with Professor W. D. M. Paton at the Institute of Basic Medical Sciences of the University of London in the Royal College of Surgeons of England. The next 18 years were scientifically some of John Vane's most productive as it was during this time that he undertook work on both angiotensin-converting enzyme and the actions of aspirin. He progressed from Senior Lecturer in 1955, to Reader in 1961, and then Professor of Experimental Pharmacology in 1966. In 1973 John Vane became R & D Director at the Wellcome Foundation. His research group also moved to Wellcome where they continued their highly successful work on prostaglandins. This soon led to the discovery of prostacyclin. At the William Harvey Research Institute John Vane focused on selective inhibitors of COX-2, and the interplay between nitric oxide and endothelin in the regulation of vascular function.

The creation of WHRI (1984 -1986)

"Retired from earlier tasks, a few friends and colleagues looked 'to have some fun'. With this, their focus, WHRI was conceived. Across the years, its Life of Research has grown, not always painless, but now, with sound leadership and constancy of purpose it has achieved worldwide renown.

John had high regard and some affinity with William Harvey's research. This was stimulated by our happy visits exploring WH's time whilst studying at the University of Padua. These contributed to calling the newly minted Institute, William Harvey. Today, I am proud of its 'strength of being'."

Lady Daphne Vane

WHRI History
1986 - 1995

The WHRI was founded in 1986 when Sir John Vane moved his lab from the Wellcome Laboratories in Beckenham to purpose-built laboratories in Charterhouse Square, the campus of The Medical College of St Bartholomew's Hospital. Gilberto de Nucci came with Sir John who was soon after joined by Erik Änggård. Chris Thiemermann as well as Jane Mitchell, Tim Warner and Daniela Salvemini were early students.

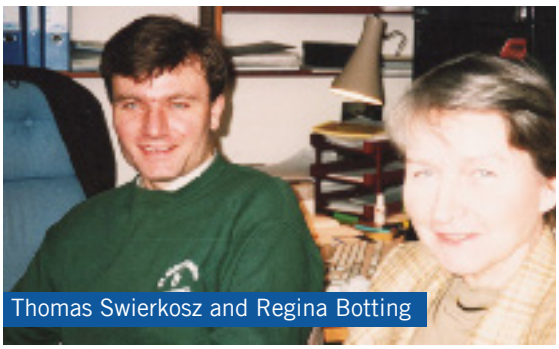
Following a major investment from Ono Pharmaceutical Company (Osaka, Japan; $5m over 5 years) Sir John was able to 'recruit' to WHRI his previous collaborators or mentors hence Profs Rod Flower, Gus Born, Ian McIntyre joined Derek Willoughby (Head of Experimental Pathology Department within the College) who joined with their groups to create under Sir John's leadership a larger vibrant Institute, counting over 70 scientists and students.

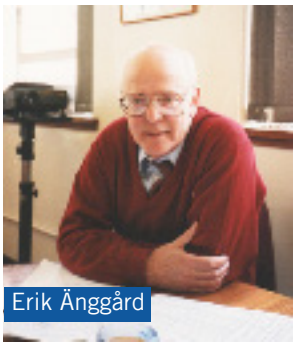
The William Harvey Research Foundation and William Research Limited were created to handle funding from donors and companies. Many top scientists from all over the world spent time working and training within WHRI, including Bill Sessa, Daniela Salvemini, Stephen Gross and Csaba Szabo (too many to recollect here). WHRI was a major performer at meetings of the British Pharmacological Society where sometimes 40% of abstracts came from the Institute.


Erik Änggård and the winning WHRI football team (1993)


Sir John Vane at his office at WHRI


Sir John Vane with Csaba Szabo and Bruno


Thomas Swierkosz and Regina Botting


Erik Änggård


Gustav Born FRS

Most Cited paper of the decade, published 1987

1996 - 2005

Following the merger between The Medical College of St Bartholomew's Hospital with the Royal London School of Medicine and Dentistry, and with Queen Mary and Westfield College, WHRI became the Department of Pharmacology of the newly formed HEI. This provided opportunities for academic contracts and investment into laboratories and office space. Sir John remained at the helm of WHRI until 1996.

Subsequent Directors included Prof Tom Meade and Prof Rod Flower. Important events early in this decade were the relocation of the Department of Clinical Pharmacology from West Smithfield to join the Institute shortly followed by the Bone and Joint Unit from Whitechapel. Finally the academic Department of Endocrinology joined in 2003. WHRI was led by Prof Ben Benjamin from 2002 until 2003 and then by Prof Sir Mark Caulfield. The Institute reached a size of over 200 scientists and students during this time.

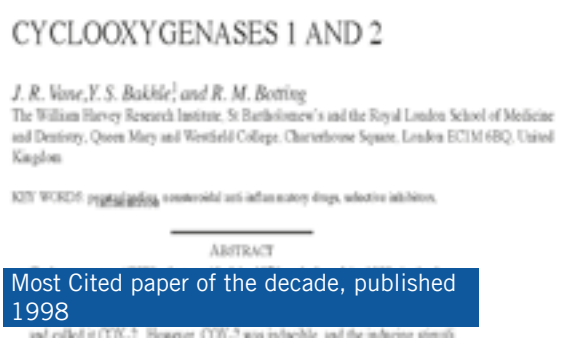
Patients at the Ascot Event in Charterhouse

David Collier at the Ascot Event

Pamela Willoughby and Dan Simmons receiving the Derek Willoughby Award

Students on a conference trip

Prof Rod Flower 60th Birthday Festschrift celebration at the Royal Society



CYCLOOXYGENASES 1 AND 2

J. R. Vane, Y. S. Bakhle and R. M. Botting

The William Harvey Research Institute, St Bartholomew's and the Royal London School of Medicine and Dentistry, Queen Mary and Westfield College, Charterhouse Square, London EC1M 6BQ, United Kingdom

ABSTRACT

Most Cited paper of the decade, published 1998

2006 - 2016

Under Caulfield's leadership and with the support by Sir Nick Wright (Warden of Barts and The London School of Medicine and Dentistry), WHRI grew exponentially. A programme of lab refurbishment was initiated (with SRIF funds from QMUL) and the research/training and then education activities of the Institute begin to align alongside the three main streams of cardiovascular, inflammation and endocrine sciences. Clark and Perretti joined Caulfield as Deputy Directors. In 2013 Perretti then became Co-Director, with Ahluwalia taking the role of Deputy). In October 2016 Perretti became Dean of Research at Barts and The London School of Medcine and Dentistry and Ahluwalia became Co-Director with Caulfield.

The WHRI model of bench-to-bedside was created by ad- hoc recruitment hence Nourshargh, Pitzalis, Suzuki, Dunkel, Tinker, Hobbs, Marelli-Berg, Deloukas and more recently Brown joined the Institute. Caulfield raised around £20M to build the William Harvey Heart Centre, enlarging the footprint of the Institute and enabling expansion in basic and applied research.

The William Harvey Heart Centre opened in 2011. The Clinical Trials Unit moved to the ground floor of the Heart Centre. The Centre is part of the NIHR Cardiovascular Biomedical Research Unit. We are part of the world leading cardiovascular research programme at the Barts Heart Centre which is now the largest tertiary heart hospital in the UK. During this time major awards were gained in the form of programme grants (MRC, BHF, Wellcome Trust), ownership or participation to MRC and AR- UK Centres, EU grants and more. The WHRI grew to a size of more than 410 scientists devoted to basic and translational research in cardiovascular, inflammation and endocrine sciences.

Carlo Patrano receives the William Harvey Medal from Lady Vane (2007)

Parlimentarians pay visit to QMUL researchers Chris Green MP, Stephen Timms MP and Baroness Neville-Jones were welcomed earlier in the year (April 2016) on a visit organised by the British Heart Foundation (BHF)

John L. Wallace receives the William Harvey Medal with Tim Warner, Jane Mitchell and Mauro Perretti

The opening of the Heart Centre with Prof Simon Gaskell, Clive Priestley CBE, Sir Bill Castell KVCO and Mark Caulfield

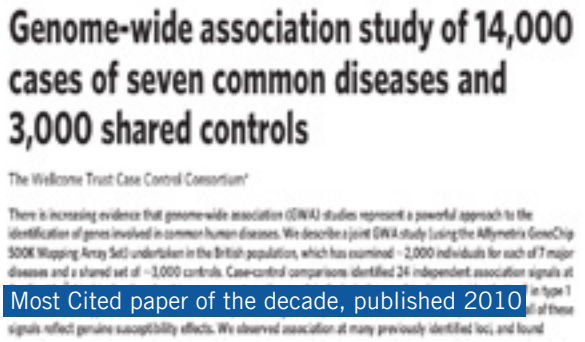
Rupert Pearse, NIHR Professor, introduced by Amrita Ahluwalia, WHRI Co-Director

Jeb Bush visits WHRI and Barts (2007)

Opening of the Centre for Microvascular Research

Alberto Mantovani receives the William Harvey Medal

Charles Serhan (Harvard University) receives the John vane Medal, with Amrita Ahluwalia, Mauro Perretti and Tim Warner at the WHRI review (2008)



Genome-wide association study of 14,000 cases of seven common diseases and 3,000 shared controls

The Wellcome Trust Case Control Consortium*

There is increasing evidence that genome-wide association (GWA) studies represent a powerful approach to the identification of genes involved in common human diseases. We describe a joint GWA study (using the Affymetrix GeneChip 500K Mapping Array Set) undertaken in the British population, which has examined ~2,000 individuals for each of 7 major diseases and a shared set of ~3,000 controls. Case-control comparisons identified 24 independent association signals at in type 1 of these signals reflect genuine susceptibility effects. We observed association at many previously identified loci, and found

Most Cited paper of the decade, published 2010

Chris Thiemermann and Martine Rothblatt at the John Vane Conference

WHRI Milestones

2004 - 2008

2 FMed Sci and 2 FRS
From 140 to 240 with 3 new groups
3 Programme Grants
Lab refurbishment
1 new Wellcome Programme Oliver Bird PhD scheme (with KCL)
RAE2008 - 28 FTE were returned; 65% of outputs valued 3* and 4*

2009 - 2013

5 FMedSci and FRS
Grown to 350 with 5 new groups
11 Programme Grants and 2 EU grants MRC Centre - e-Health (the Farr Institute at UCLP)
MRC Bioinformatics Award (UCLP, Sanger and Crick)
1 Wellcome Senior Investigator Award 1 EU Marie Curie Cofund 6.5m
2 NIHR Translational Research Partnership
1 BHF and 2 MRC MRes/PhD schemes
Renewed Oliver Bird PhD sceme
REF2014 - 46 FTE were returned 90% of outputs judged 3* or 4*

2014 - 2016

Grown to 510 with 2 new groups
1 BHF Chair
5 BHF Programmes
MRC Matura Award
1 Sir Henry Dale
1 ERC Starting Award
1 EU Marie Curie ITN
Renewal of AR-UK Arthritis Centre
Establishment of a Lipid Mediator Unit
New BSc in Pharmacology and Innovative Therapeutics
REF2020 - multiple 4* publications
(Nature and Science journals, JCI, Lancet, Circulation, Blood, JEM, JCI)

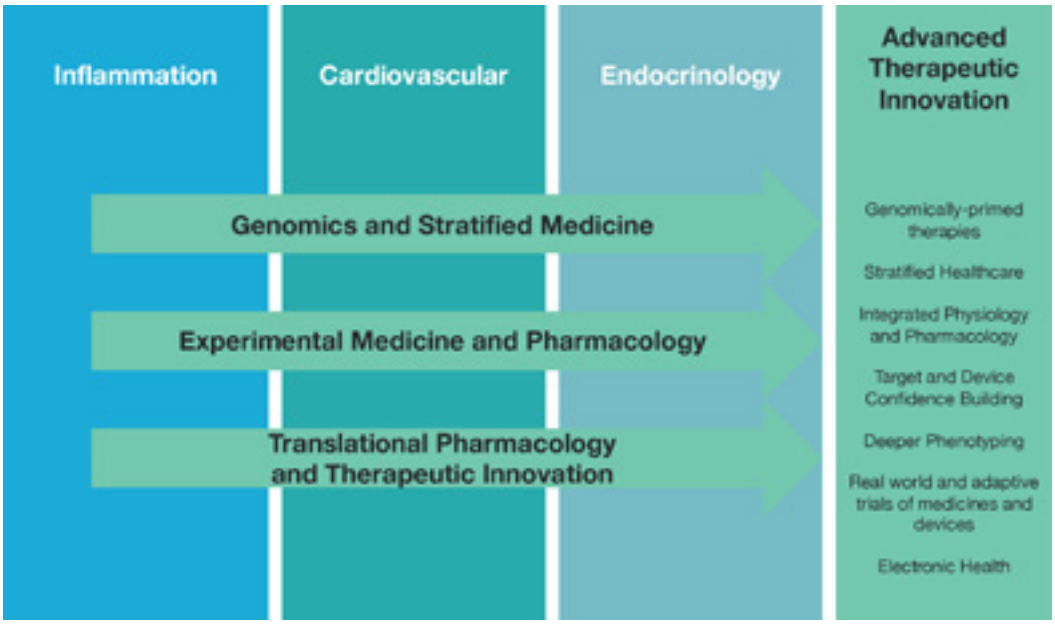
2016 - Present

628 Researchers, PGR students and Honorary staff
6 new independent PI's and groups
1 BHF Chair
5 BHF Programme Grant
1 ERC Advanced Award
1 Sir Henry Dale
1 EU Marie Curie ITN
1 BHF Accelerator Award
1 BHF 4 Year MRes/PhD Scheme
2 NIHR Advanced Fellowship
EU CV Devices Hub
REF 2020 growth to 85 faculty returns (40% of papers 4*)

The WHRI Going Forward

Building on the excellence of our founder Sir John Vane, over the three decades of our activities the WHRI has established itself as one of the largest multidisciplinary pharmacological institutes in Europe and the largest in the UK, with over 600 scientists, clinician scientists, post-doctoral fellows, postgraduate students and support/administrative staff drawn from more than 45 nations.

Since 2004 we have implemented a flexible research-driven structure alongside three disease-oriented scientific streams: Cardiovascular – Inflammation – Endocrinology. This choice was inspired by the strategic decision to bring together basic and applied research across three distinct but very much connected areas of research, to offer to our faculty opportunities to approach their specific research focus from multiple angles. Within these areas, we have identified three cross-cutting themes: Genomics and Stratified Medicine, Experimental Medicine and Pharmacology, Translational Pharmacology and Therapeutic Innovation.



Our vision for the next decade is to be recognised as a world-class Institute for research and training in Therapeutic Innovation in Cardiovascular, Inflammation and Endocrine disorders, as well as pushing the boundaries in clinical therapies for diabetic kideney disease and intensive care medicine. Within these common and shared activities, we conduct, plan and develop our endeavours in research and education to enact our aspirational motto ‘strive for excellence in a supportive environment’.

At REF2014, 90% of our research was judged outstanding or of international leadership level. We accomplished 46 returns (that is 70% of eligible staff) in Unit of Assessment 01 Clinical Medicine. This achievement was possible by implementing a strategy of excellence, targeted recruitments and innovation alongside a strategy that we have developed as the WHRI model.

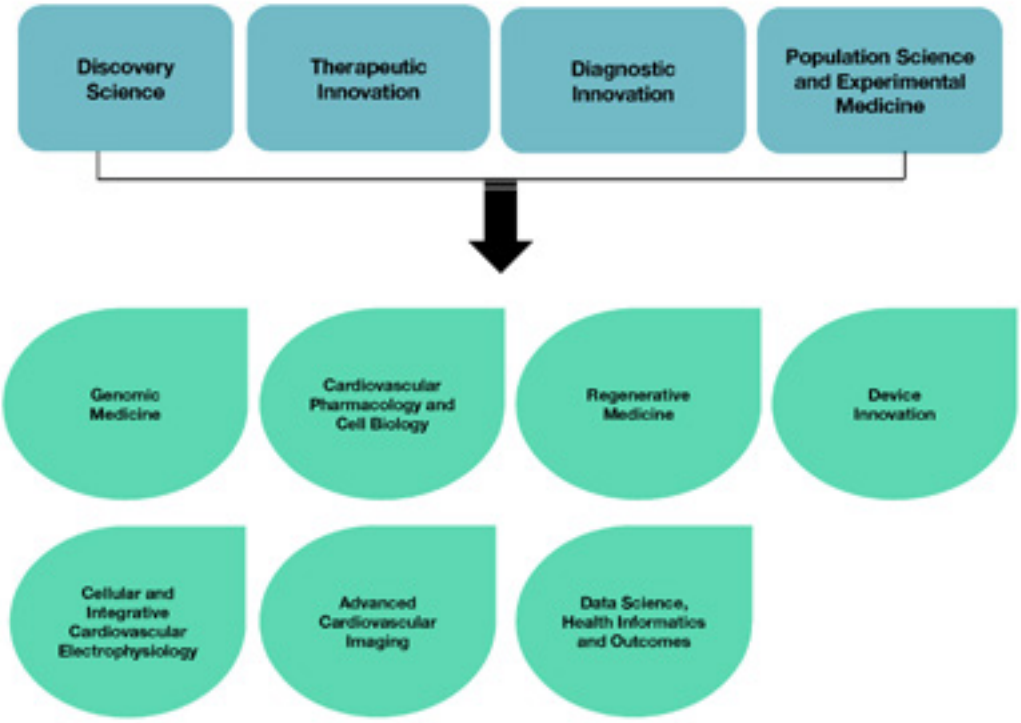
WHRI Cardiovascular Strategy

The Barts Heart Centre

Our aim is to create "the go-to Academic Medical Centre" for both research and treatment of cardiovascular disease at Barts, centred on the unmet healthcare needs of our North and East London patients. We aim to deliver novel and advanced therapies for cardiovascular disease to a substantial number of Barts Health NHS Trust patients, both pharmacotherapeutics and new device-based therapies. We aim to do this by taking advantage of, and expanding, a number of initiatives that we have introduced specifically through our highly prestigious National Institute for Health Research Biomedical Research Units in Cardiovascular disease (£12M; 2008 - 2017) and Biomedical Research Centre (£6.5M; 2018 - current) as well as capitalising upon our international leading expertise (see figure below) that extends across our extended network of basic scientists and clinicians across UCLP. The Barts Heart Centre is designed to accelerate research from WHRI/QMUL into patient care at Barts Health.

Barts Health NHS Trust has one of the busiest cardiac services in the UK, with the Barts Heart Centre annually treating 80,000 episodes. As part of our NIHR Biomedical Research Centre at Barts we have developed generic consent for patients enabling us to collect and store all clinical data, store a core set of blood samples for DNA, serum, plasma and RNA in the Barts Cardiovascular Bioresource. We developed, with NIHR funding, an informatics system that allows us to extract all information on consenting patients from the Barts Health Cerner System and multiple companion databases. Our aim is now to extend this pilot across all specialities within the Barts Heart Centre providing an enviable and unique resource for researchers.

We are also currently establishing the Barts Cardiovascular Devices Centre, that will be physically situated in very close proximity to the hospital as a one-stop shop for device innovation, development and translation that represents a collaboration between bioengineers, translational scientists and cardiologists. We have also established our own UKCRC cardiovascular clinical trials unit with generous funding from the Barts Charity that will enable and accelerate translation of our basic science discoveries.



Therefore our Cardiovascular Strategy is one that integrates an NHS/ University partnership placing patient care at the centre of a strategy that connects cutting edge cardiovascular science, within the WHRI at QMUL, to Barts Health NHS Trust patients through the Barts Heart Centre. Our leadership has also resulted in the development of a patient-focused unified strategy for an Integrated Cardiovascular System at UCL Partners (UCLP) Academic Health Sciences Centre that sets the thematic direction for the cardiovascular theme at WHRI with the Barts Heart Centre and provides system-wide support for the UCLP CV Academic Medical Centre. This approach will accelerate our trajectory to global leadership in CV care, research and training and thereby advanced diagnostic and therapeutic innovation for patients.

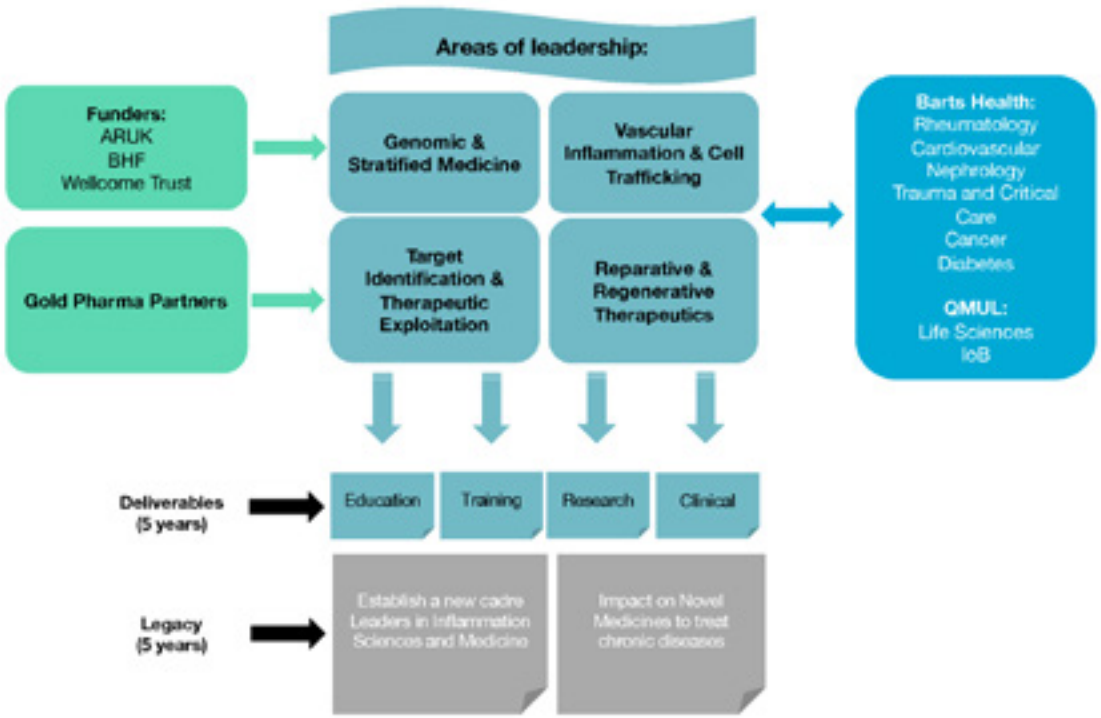
WHRI Inflammation Strategy

The Centre for Inflammation and Therapeutic Innovation

Founded on our excellence in inflammation research with a long record of small, medium and large awards from Arthritis Research UK (e.g. top number of fellowships in the Country; establishment of an Experimental Arthritis Treatment Centre), Medical Research Council and Wellcome Trust, we have taken the opportunity to establish a Centre for Inflammation and Therapeutic Innovation or CiTI.

CiTI capitalises on QMUL technological expertise and innovations to identify new therapeutic targets, interventions, diagnostics, prevention strategies and stratified medicine in the context of defined inflammatory disorders. Subverting current approaches and mental structures, CiTI places inflammation at centre stage and enable synergies through basic and applied research in multiple medical specialties and scientific domains.

CITI acts as a framework for synergy; a selective structure for excellence in discovery, translation and clinical inflammation sciences within QMUL, East London and partners. The scheme below illustrates how CITI has acted as a catalyst within QMUL at large, bringing in biomedical research that spans and includes specialties beyond those classically associated with WHRI, hence hepatology, cancer, dentistry and other disease areas where there is an inflammatory component in their etiopathogenesis. The Centre has identified four specific research themes that capitalise upon WHRI's track record and excellence, bringing together Barts NHS Trust, QMUL and external partners including commercial ones.



WHRI Endocrine Strategy

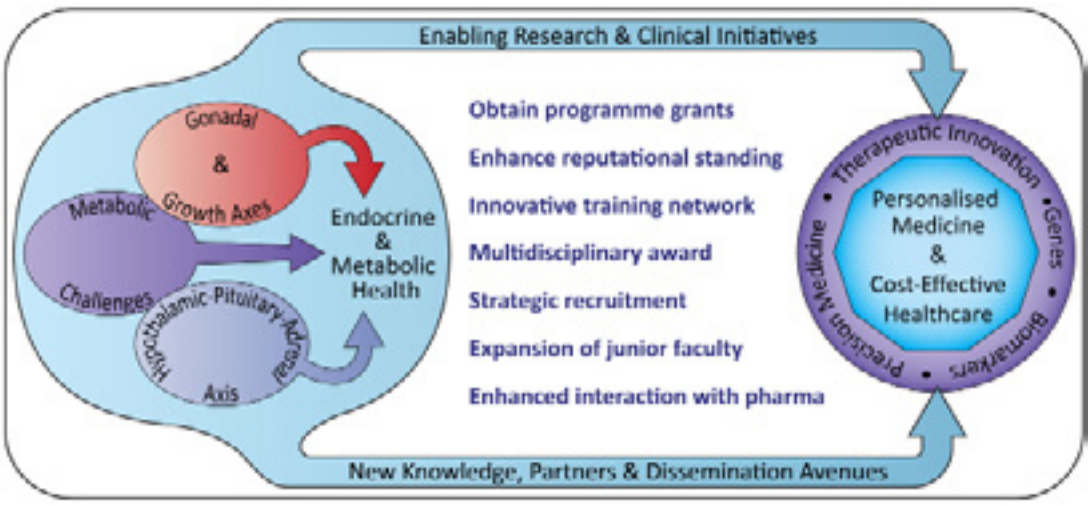
The Barts Endocrine Centre

The Centre for Endocrinology integrates world-leading discovery science in endocrinology with long-standing international leadership in both paediatric and adult clinical endocrinology, specialising in diseases of the pituitary and adrenal glands, and disorders of growth and puberty.

Our vision is to build on our internationally recognised expertise in endocrinology and establish the Barts Endocrine Centre. The mission of this new Centre will be to integrate basic and translational research to deliver more effective outcomes for patients with endocrine disorders over their life-course. Our unique combination of fundamental research and clinical expertise, coupled with an international patient base, places us in an exceptional position to deliver outstanding discovery science. This will allow us to untangle links between the clinical phenotype and genetic basis of rare endocrine diseases to better understand pathogenic mechanisms and target pathways for intervention. To do this we will exploit our unique patient resource, combined with proficiency in state-of-the-art technologies in omics and stem cell biology, to develop novel disease models, diagnostic tools and biomarkers. Importantly, this multi-pronged, inter-disciplinary approach will promote development of targeted therapeutics and enable personalised medicine for patients with endocrine conditions and syndromic diseases with endocrine components.

Envisaged outcomes will be to generate intellectual property, engender clinical trials and influence best clinical practice. In achieving these goals we will also build on another of our current strengths by developing further world-class academic clinicians and scientists. Our impact will be more efficient and cost-effective endocrine health care.

In summary, the integration of fundamental and translational research with expertise in endocrine and metabolic disease will be utilised to understand the underlying biology of endocrine and metabolic homeostasis. This will translate into novel therapeutics to deliver more effective outcomes for patients with endocrine disease. The road map to achieve this and establish the Barts Endocrine Centre is visually presented below.



The Barts Cardiovascular Clinical Trials Unit

The Barts CVCTU was established in 2016. It is a branch of the Barts CTU which is a UK-CRC Registered Clinical Trials Unit. The Unit supports the development of research across all areas of cardiovascular research within the Barts Heart Centre primarily but also with other HEI's.

The CVCTU will provide expertise and advice in the following areas:

Trial design, sample size and statistics, Developing proposals and funding applications, Project management, Regulations and governance, Patient and Public Involvement, Quality management, Database development, Recruitment of patients (and staff), Trial oversight and day to day management.

The directon of the CVCTU is led by Professor Amrita Ahluwalia, Co-Director of the WHRI and managed by Dr Vivienne Monk, WHRI CRC.

Members include:

Dr Dan Jones
Hon. Consultant, Interventional Cardiology (Barts Heart Centre)

Dr Ajay Gupta
Hon. Consultant, Clinical Pharmacology & Interventional Medicine (Barts Health NHS Trust)

Dr Sam Mohiddin
Consultant Cardiologist (Barts Heart Centre) and Chair of Peer Review Committee

Professor Steffen Petersen
Director of Research (Barts Heart Centre)

Dr David Collier
Joint Clinical Director (WHRI CRC)

Benoit Aigret
Head of Barts CTU

For more information visit:
http://www.qmul.ac.uk/whri/clinical-activities/barts-cardiovascular-clinical-trials-unit-cvctu/

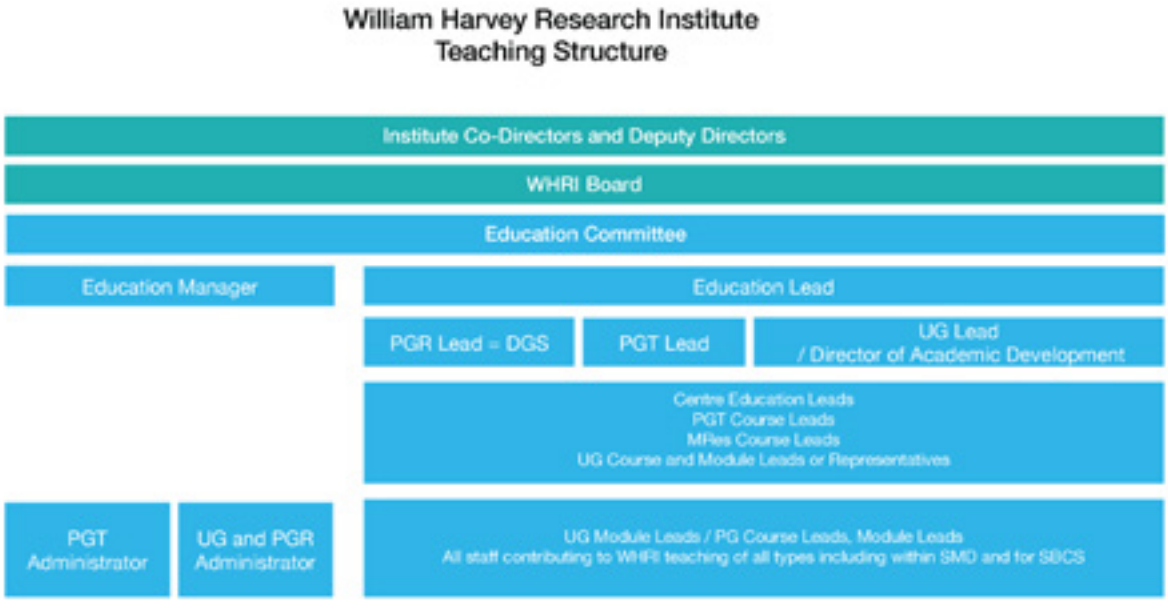
WHRI Education Strategy

The WHRI has a growth and development strategy in education. Staff have developed significant expertise and success in running various postgraduate degree programmes with "in-house" distance-learning, blended learning modalities and developing undergraduate programmes in conjunction with other schools. Our staff also continue to make significant contributions to the MBBS and Graduate entry programmes in SMD and undergraduate programmes in the School of Biological and Chemical Sciences. All staff are required to teach and we have a proactive approach to supporting teacher development (via CILT and PgCAP) and a proactive approach to ensuring the recognition of this development via support for HEA accreditation.

Our strategic aims are as follows, to be achieved via a number of clear objectives outlined in our strategy document.

- Sustaining Student Recruitment on UG, PGT and PGR programmes
- Enhancing student experience
- Further development of online courses-distance learning and blended learning modalities
- Further enhancing and improving the quality of our educational provision by regular asessment of learning /teaching methods and curriculum
- Maintaining the quality of learning and teaching by fully utilising the learning resources available
- Staff academic development and professional acknowledgment

Teaching structures are represented below. This does not include specific reporting lines as most teaching staff have formal line management within their centres. Most staff have parallel commitments in research and/or clinical work.



Reporting significant issues

QMUL policies for issues and problems arising with students can be found in the ARCS policy zone: http://www.arcs.qmul.ac.uk/policy/index.html

It is important that you ensure that any actions you take regarding discipline, assessment offences, professionalism etc fall within the bounds of the policies available.

Health:
QMUL policies should be followed at all times. Where appropriate, students should be asked to self-refer to a healthcare professional and to seek help from student support services. There may be circumstances in which this also needs to be discussed with or notified to the Programme Director, Centre lead in which the student is hosted, Education Manager, Education Lead or Institute Directors.

Assessment:
- Late submissions and special circumstances should be notified to programme lead.
- Assessment infringements, plagiarism or other assessment concerns must be notified to programme lead and WHRI education lead.
- Extenuating circumstances for assessment are dealt with via the Chair of the relevant examination board.

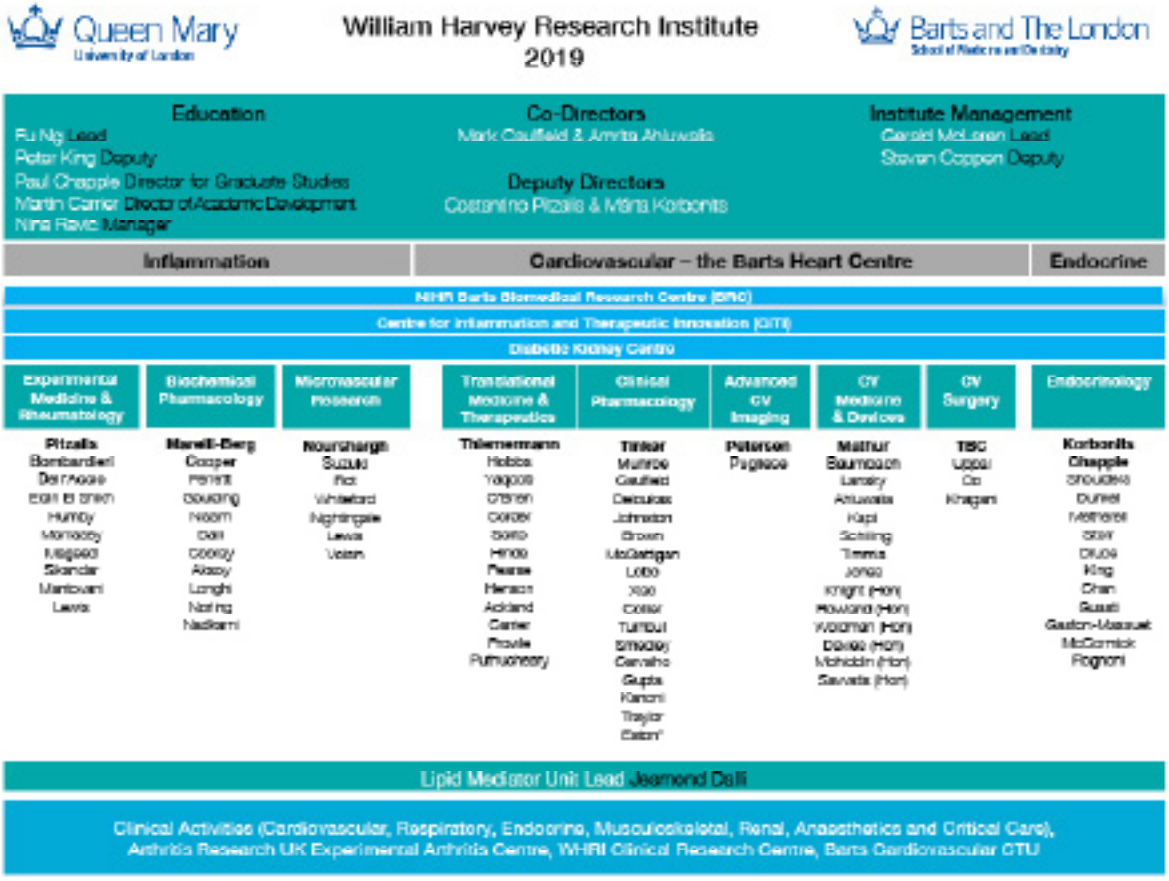
Discipline:
- Any issues or allegations involving student misconduct must be notified to the programme lead who will escalate the information as appropriate.
- Any student discipline issues warranting suspension,exclusion or instruction restricting activity pending investigation (although these are not penalties) must be notified to the programme lead, Education Manager and Education Lead, the Centre Lead hosting the programme (if applicable) and the Institute Directors. The importance of the maintenance of confidentiality and limiting the spread of information beyond those who need to know should be emphasized.
- Any issues or allegations involving criminal proceedings or allegations must be notified to the programme lead, the centre lead hosting the programme (if applicable) and the Education Manager, Education lead and Institute directors. The importance of the maintenance of confidentiality and limiting the spread of information beyond those who need to know should be emphasized.

Professionalism:
These are mostly relevant to undergraduate students on the MBBS programme and postgraduate students on the dental school programmes. Postgraduate clinicians are usually regulated by their professional body. Occasionally such issues may arise within the institute for intercalating students or students who are being supervised onsite as part of their undergraduate activities. Again QMUL processes should be followed (Professional capability and fitness to practice policy).

In addition, for issues occurring onsite or under WHRI supervision, these should be notified for information to the Education Manager and Education Lead and institute directors. The importance of the maintenance of confidentiality and limiting the spread of information beyond those who need to know should be emphasized.

WHRI Structure

Organisational Chart 2019-20



International Scientific Advisory Board Members 2019

ISAB Member	Academic Title	Institution
Prof Rod Flower	Emeritus Professor of Biochemical Pharmacology	William Harvey Research Institute, QMUL, UK
Prof Charlie Serhan	Director and Simon Gelman Professor of Anaesthesia (Biochemistry and Molecular Pharmacology)	Center for Experimemntal Therapeutics and Reperfusion Injury, Brigham and Women's Hopsital, Harvard Medical School, USA
Prof Carlo Patrono	Professor of Clinical Pharmacology	Università Cattolica del Sacro Cuoure, Roma, Italy
Prof William Sessa	Alfred Gilman Professor and Vice Chairman and Director, Vascular Biology and Therapeutics Programme	Department of Pharmacology, Yale School of Medicine, USA
Prof Thomas Jonassen	Professor of Pharmacology	Department of Biomedical Sciences, University of Copenhagen, Denmark
Prof John Walllace	Professor of Pharmacology	University of Calgary, Canada
Prof Tim Williams	Emeritus Professor in Airway Disease	Imperial College London, UK
Prof Robert Naismith	Professor of Clinical Sciences	The Commonwealth Medical College, USA

Core Facilities at the WHRI

Mouse Cyropreservation

The use of animal models is a vital part of scientific research within the William Harvey Research Institute and the School of Medicine and Dentistry. The Mouse Cryopreservation Facility offers the possibility of freezing mouse embryos and sperm from valuable mouse models through cryopreservation, which is an essential service for modern murine transgenic studies. Cryopreservation is an advantageous process for safely preserving mouse embryos and sperm at very low temperatures and easily recovering them at a future date to revive transgenic mouse lines. It significantly reduces costs associated with mouse colony maintenance, functions as a backup of transgenic lines, frees up space in animal houses and it complies with 3Rs as it helps to reduce the number of animals used in research.

Embryo cryopreservation - it consists of harvesting and cryopreserving approximately 300 embryos from a single transgenic mouse line. This technique has the advantage of preserving the original parental genotype and it is straightforward to recover through Non-Surgical Embryo Transfer (NSET). It dramatically reduces costs associated with mouse colony maintenance, particularly those of low use strains.

Sperm cryopreservation - it involves the cryopreservation of sperm and represents a simple and convenient procedure, which is a highly recommended complement to embryo cryopreservation. The transgenic mouse line can be then recovered through In Vitro Fertilisation (IVF).

Recovering of cryopreserved transgenic mouse lines - when a transgenic mouse line is needed again, it can be recovered from cryopreserved stocks. Non-Surgical Embryo Transfer (NSET) is a quick and effective procedure to recover the line from cryopreserved embryos, while In Vitro Fertilisation (IVF) is the procedure used to recover cryopreserved sperm.

Transferring lines between HO recognised establishments - transgenic mouse lines can be transferred to other establishments by sending frozen embryos or sperm subject to personal project licence.

Echocardiography

The WHRI is equipped with core echocardiographic facilities available to all researchers using the iLabs online booking system (subsequent to appropriate training). The resource includes two VisualSonics Vevo 3100 imaging systems and one VisualSonics Vevo 770 device. Please refer to https://www.visualsonics.com/product/imaging-systems/vevo-3100 for further information.

The Vevo 770 system operates with a RMV 707B probe. The Vevo 3100 systems can be utilised with 38Mhz or 55Mhz transducers and possess a number of specific analysis modules for assessing cardiac and vascular function. These include:

- B-Mode: Two-dimensional ultrasound image display composed of bright dots representing the ultrasound echoes enabling visualization and quantification of anatomical structures, as well as for the visualization of diagnostic and therapeutic procedures
- M-Mode: Motion mode, single line acquisition allowing high-temporal resolution for analysis of cardiovascular function
- PW Doppler Mode: Pulsed-Wave Doppler acquisition for blood flow velocity and waveform measurements using advanced digital signal processing techniques
- LV Trace Tool: Allows tracing of left ventricular walls during systole and diastole, to generate calculations of cardiac function (Cardiac Output, Stroke Volume, Ejection Fraction, etc.)

- Color Doppler Mode: 2D and color acquisition for blood flow velocity analysis using advanced digital Signal Processing techniques
- ECG Triggered Analysis: provides physiologically timed LV analysis

Flow Cytometry

The Flow Cytometry Facility provides a state of the art facility to support the important research being carried out at the William Harvey Research Institute. Flow Cytometry is a versatile technique enabling high throughput analysis and cell separation. Using fluorescent proteins, dyes, and fluorescently labelled probes we can perform cellular phenotyping, functional assays, cell cycle analysis, intracellular protein studies e.g. cytokines and transcription factors, and more. The facility is equipped with the following:

- Four analysers with up to 4 lasers able to detect up to 16 fluorescent parameters, including 3 x BD LSRFortessas
- Cell sorting service with two BD FACS Aria cell sorters
- ImageStream X MkII Imaging Cytometer
- CyTOF2 Mass Cytometer

Visit: http://www.qmul.ac.uk/whri/research/core-facilities/flow-cytometry/

Genome Centre

Barts and the London Genome Centre is the genomics core facility at Queen Mary, University of London, supporting researchers since 2000. The Centre works with academicsw (with and without QMUL affiliation) and corporate partners, on a not for profit basis, to achieve their genomics research aims. The model is to provide a custom service, offering advice on design and interpretation if required. The unit is always interested to try novel approaches to genomic challenges. The services are supported by some of the key genomics platforms - Next Generation Sequencing, Arrays, and Robotics and the unit is active in four key areas;

- Single Cell genomics - 10X Chromium system, and the Fluidigm C1 to capture tens to thousands of single cells for transcriptome analysis.
- RNA sequencing is the method of choice to profile the transcriptome from bulk RNA samples. Optimised processes for mRNA, total RNA and miRNA sample prep and data analysis are used.
- DNA methylation - mainly using the powerful Illumina EPIC Methylation array (850K CpG sites) for humans or Reduced Representation Bisulphite Sequencing (RRBS) followed by targeted Bisulphite Sequencing for validation.
- Targeted DNA sequencing using a number of platforms but with the majority of projects using the Fluidigm Access Array to target tens to hundreds of genes in several thousand individuals.

Visit: http://www.smd.qmul.ac.uk/gc/

Imaging Facilities

The WHRI is equipped with state-of-the-art core microscopy facilities and expert bio-imaging support. Dedicated facility staff can provide advice on imaging strategy, training for imaging applications and guidance for image analysis.

Our facilities include:

- Two inverted laser scanning confocals, a Zeiss LSM 800 and a Zeiss LSM 880 (with Airyscan technology for super-resolution applications), both equipped with incubation and CO2 provision for live cell imaging applications.
- Two upright laser scanning confocals, a Leica SP5 and a Leica SP8, both suitable for fixed or intravital imaging applications.

- A cutting-edge upright Leica SP8 DIVE multiphoton microscope for deep tissue imaging and intravital applications
- Fluorescence lifetime imaging technology for bionsensing studies or in situ detection of protein interactions.
- An inverted widefield epifluorescent system with phase contrast capability and full incubation/CO¬2 control for fast live cell imaging, large tilescan acquisitions and long time-course experiments.

Support and training can be provided in all basic imaging methodologies, as well as advanced applications such as FRAP, FRET, spectral unmixing, tilescan image captures, multi-position timecourse experiments, intravital techniques, fluorescence lifetime studies and analysis workflows.

For more information, please visit http://www.qmul.ac.uk/whri/research/core-facilities/imaging-facilities/ or contact the facility manager, Dr Rebecca Saleeb (r.saleeb@qmul.ac.uk), to discuss your applications.

Lipid Mediator Unit

The QMUL Lipid Mediator Unit is a QMUL Core Service that provides the instrumentation and expertise to investigate endogenous protective mechanisms that may become dysregulated in disease with a focus on bioactive lipid mediators.

The Unit utilizes state of the art Liquid Chromatography Tandem Mass Spectrometry (LC-MS-MS) based techniques to identify and quantify bioactive lipid mediators (LM), their precursors and pathway markers in biological systems. The Unit also utilizes LC-MS-MS based techniques to identify and quantify both known and novel further metabolites for each of the bioactive mediators.

Together these provide an insight into the resolution status of the biological system(s) being investigated (e.g. cell incubations, organs, tissues etc), protective pathways that become dysregulated during disease as well as potential novel therapeutic leads.

Visit: http://www.qmul.ac.uk/whri/research/core-facilities/lipid-mediator-unit/

Metabolic Phenotyping

The core facility for the metabolic phenotyping of small rodents has recently been established at the WHRI to enable the measurement of energy homeostasis and body composition in mice. The facility consists of the following:

1. LabMaster-PhenoMaster, metabolic phenotyping unit
The latest system from TSE allows measurement continuous indirect calorimetry measured in every cage simultaneously at 1 s resolution, compatibility with standard home cages to measure energy expenditure, locomotion, weight, food and water intake. Additional modules allow for paired feeding and food choice options as well as an exercise module.

2. EchoMRI-130 Whole Body Magnetic Resonance Analyser
The EchoMRI system is a self-contained quantitative nuclear magnetic resonance system that provides whole body composition measurements including total body fat mass, lean mass and body fluids in live mice importantly without the need for anaesthesia or culling of the animal.

For enquires regarding use please contact:

Dr Li Chan
Email: l.chan@qmul.ac.uk

Practical Information

Useful Contacts

Institute Co-Directors

Mark Caulfield	(PA)	3402
Amrita Ahluwalia		8377

Co-Deputy Institute Directors

Cos Pitzalis	(PA)	8192
Marta Korbonits		6238

Institute Manager

Gerald McLaren		6090

Deputy Institute Manager & H&S Coordinator

Steven Coppen		8234

Centre Administrators

Advanced Cardiovascular Imaging	Jane Batchelor	7188
Biochemical Pharmacology	Olivia Carvalho	8783
Clinical Pharmacology	Denise Grant	2101
Endocrinology	Sharon Ajodha	8284
Exp. Medicine & Rheumatology (EMR)	Sam Heenan	8948
EMR (Sports & Exercise Medicine)	Sue Tracey/Gillian Morrey	5015/8839
Microvascular Research	Joana Mateu	2083
Translational Medicine & Therapeutics (TMT)	Amanda Craddock	2107

Lab Managers

Biochemical Pharmacology	Martin Goss	5642
Clinical Pharmacology (JVSC)	Sven van Eijl	5720
Clinical Pharmacology (HC)	Stephane Bourgeois	6651
Endocrinology	Tom Milligan	5682
Exp. Medicine & Rheumatology (EMR)	Becki Hands	8194
Heart Centre (HC)	Ian Joy	6054
Microvascular Research	Matthew Golding	8239
Translational Medicine & Therapeutics (TMT)	Noorafza Khan	8112
	Steve Harwood	2123

Clinical Trials Unit

Manager	Vivienne Monk	5668

Core Facilities

BSU	Fraser Darling	3822
Genome Centre	Chaz Mein	2055
Flow Cytometry	Julfa Begum	2119
Image Facilities	Mathieu-Benoit Voisin	8241
Lipid Mediator Unit	Jesmond Dalli	8263

Emergency Number

For all emergencies (security, fire first aid etc), the number to call is 3333. This will be answered 24/7. From a mobile call +44(0) 20 7882 3333

Security Access Card

To get your security ID card, please complete the application form included at the end of this handbook. This form should then be signed by a member of the Institute Management and taken to Security, located just inside the entrance to Dawson Hall. Here they will take your photo and will let you know when your card will be ready for collection.

Security

Access to the campus is limited to members of the college and authorized visitors. Do not allow access to anyone without a valid ID card. Be vigilant to trespassers and if suspicious of anyone do not approach them yourselves but alert security based at Dawson Hall or call 3333 from a College phone.

Health & Safety

A copy of the Local Health & Safety Rules can be found towards the end of this handbook but you will receive a copy separately with an acknowledgement and Fire Familiarisation forms attached. Please complete these forms during your first few days here. You will also be informed of the date of the next H&S Induction for new starters which you must attend.
In the meantime all relevant H&S Information can be found on the following website:
http://www.hsd.qmul.ac.uk

Fire alarm

On hearing the fire alarm in any building, you should make your area safe and leave via the nearest fire exit – signposted with the green running man signs. Always follow the instructions of the fire marshals who will be clearly visible during an evacuation.

The assembly point for all buildings her at Charterhouse Square is the central green.

The alarms are tested in all buildings once a week (for the John Vane Science Centre and the Heart Centre, this is Friday morning before 9am).

Computing

IT user accounts can be set up for you by your Centre Administrator. This will give you your main QMUL username and password for a number of systems and your email address.

Any IT issues can be reported to the IT Helpdesk via:

Email: its-helpdesk@qmul.ac.uk

Phone: ext 8888

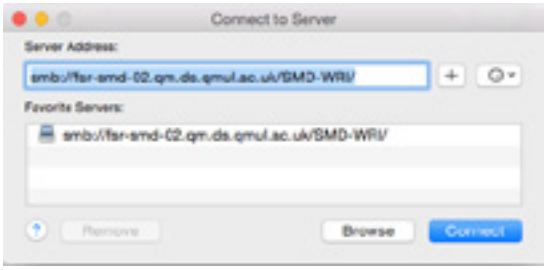
Online portal
https://helpdesk.qmul.ac.uk/QMULServiceDesk.BridgeIT#/logon

Shared Drive

There is a shared drive on which this handbook and all associated documents are stored so to be available to all WHRI staff & students. Once you have a QMUL login, this can be mapped on your computer as follows:

For Macs:

Open Finder, Press "Command K" to open the "connect to server box"



Type the following into the Sever Address: smb://fsr-smd-02.qm.ds.qmul.ac.uk/SMD-WRI/ and click connect. You will then have to enter your QMUL login and Password as a registered user. Click connect and then you should be able to see your home drive and the WHRI-Shared drive.

For PCs:

Open File Explorer.

Right Click on "My Computer" and select "Map Network drive"

Select the drive letter you wish to use and enter the address of the drive as follows \\fsr-smd-02.qm.ds.qmul.ac.uk\SMD-WRI\

Make sure the two tick boxes are ticked and hit finish. You will then be prompted to enter your QMUL username & password and you should then see the shared drive.

Estates

If you need any maintenance jobs doing, email Estates on eaf-helpdesk@qmul.ac.uk explaining the problem and they will order a work number. Alternatively ring them on ext. 2580. The maintenance manager can be contacted on ext. 8388 or via email: i.wiser@qmul.ac.uk

MyHr

This is the online system for recording your annual leave, sick days and also for getting copies of your payslips.

http://www.hr.qmul.ac.uk/myhr/

Season Ticket Loan
An interest free season ticket loan is available to staff with a contract of 12 months of more and can be downloaded at http://www.hr.qmul.ac.uk/forms/pay/index.html

Cycle to Work Scheme
As part of the Government's Green Transport Plan Initiative and in line with Queen Mary's well-being policy, the cycle to work scheme aims to encourage staff to cycle to work by offering significant savings on the cost of bikes and accessories. It is a salary sacrifice scheme that allows you to pay for the bike in monthly installments whilst saving through tax and NI exemptions.
http://hr.qmul.ac.uk/workqm/paygradingrewards/reward/benefits/cycletowork/

Family Friendly
Queen Mary aims to be a family friendly employer and we have a broad range of policies and facilities which aim to support you in meeting your responsibilities.

Flexible Working
http://www.hr.qmul.ac.uk/forms/pay/index.html

College Nursery
http://www.nursery.qmul.ac.uk/downloads/index.html

Protected Characteristics
This page provides links to pages covering the QMUL policies and information relating to disability, race, religion & belief, gender reassignment, sexual orientation and sex.
http://hr.qmul.ac.uk/equality/protected-characteristics/

Full List of HR-Policies and documents can be found at:
http://hr.qmul.ac.uk/atoz/

Starting a PhD with us
If you are starting your PhD studies with us, please ensure that you are fully registered. Enquires can be made to the Postgraduate Research Office.
https://www.qmul.ac.uk/postgraduate/research/contact/

Leisure Facilities
Charterhouse Square has a coffee shop, The Shield and a gym, both operated by the Student Union and located in Dawson Hall.

Please note that smoking of tobacco products is not permitted anywhere on campus (e-cigarettes are permitted outside only).

Seminars

Weekly WHRI seminars are held on Mondays at 12.45 in the Derek Willoughby Lecture Theatre. These alternate between WHRI and Endocrinology. These are advertised via posters and Institute-wide emails. All staff should attend and PhD. students are required to attend as part of their training.

You are also encouraged to attend seminars held in other Institutes & Faculties which are also widely advertised.

Open Meetings

There are regular open meetings (WHRI, SMD, QMUL) which you are encouraged to attend. These are advertised via College, SMD and WHRI emails.

Other Campuses (Mile End and Whitechapel)

Our medical school is situated within a large multi-faculty college which is distributed on several campuses. The principal locations are Queen Mary and Westfield College at Mile End (nearest tube stations Stepney Green or Mile End) and the London Hospital site at Whitechapel (nearest tube station Whitechapel).

In the course of your employment you may have to visit one of these sites either for administrative purposes (e.g. visiting personnel or payroll) or to attend lectures or other important events. Travelling from our campus to the other sites can take quite a while. There is no organized college transport and you will either have to take a bus, taxi or the tube. The latter is usually the best bet. Journey times to Whitechapel and Mile End are in practice only 10 – 15 minutes from Barbican but it can take considerably longer if no appropriate train happens to be running when you want to travel. It is wise to allow yourself at least half an hour if not longer if you have an important appointment. The medical college has offices on the Whitechapel site and there is also a library, a museum and lecture theatres.

Likewise, on the Mile End site there are science laboratories relating to other departments as well as the library, a book shop, canteens and lecture theatres. Graduation ceremonies are usually held on the Mile End campus as it is the administration hub of the entire college.

Appraisals

Queen Mary's Performance and Development Appraisal Scheme, applies to all members of staff except for those who have been appraised as part of the joint academic and clinical appraisal scheme, or who fall into the following categories:

- Clinical staff who require revalidation (online Trust system should be used for this)
- Individuals with honorary status
- Temporary staff (on contracts less than one year)
- Staff currently on probation (the probationary procedure will apply)

Although appraisal conversations should take place regularly throughout the year, an annual recording of those conversations normally take place from May through July.
QMUL uses an online system for appraisals. Full information can be found at
http://hr.qmul.ac.uk/procedures/appraisal/

The following topics should be included in your appraisal conversations:

- Have you undertaken the training courses appropriate to your position (see next section)?
- Your teaching activity should be reviewed
- Staff bonus scheme should be discussed
- If relevant, the Professorial Review should be discussed
- Career progression

Training

There is a whole range of training available at QMUL. Some training is compulsory for all staff, some is compulsory depending on your role and some helps with your academic and professional development.
https://academicdevelopment.qmul.ac.uk

Mandatory Courses for all staff

Bribery Act Training: Delivered online via QMplus.
https://qmplus.qmul.ac.uk/course/view.php?id=9598
Activation codes – required for first login only

Advanced Cardiovascular Imaging	ADVCAR1
Biochemical Pharmacology	BIOPHAR1
Clinical Pharmacology	CLIPHAR1
Endocrinology	ENDOCRIN1
Experimental Medicine & Rheumatology (EMR)	MEDIRHEU1
Microvascular Research	MICRORES1
Translational Medicine & Therapeutics (TMT)	TRANMEDTHERA1
EMR – Sports & Exercise Medicine	SPOEXE1
Genome Centre	GENCENTRE1

WHRI Local H&S Induction: Delivered on the first Tuesday of each month, 1pm, meeting room 4.31 (4th floor JVSC) unless notified differently. Contact Steven Coppen.

Display Screen Equipment: Delivered online.
http://www.hsd.qmul.ac.uk/training/online-learning/

Fire Safety: Delivered online via QMplus.
http://www.hsd.qmul.ac.uk/training/online-learning/
Activation codes – required for first login only

Advanced Cardiovascular Imaging	SMD319
Biochemical Pharmacology	SMD320
Clinical Pharmacology	SMD322
Endocrinology	SMD323
Experimental Medicine & Rheumatology (EMR)	SMD324
Microvascular Research	SMD326
Translational Medicine & Therapeutics (TMT)	SMD327
EMR – Sports & Exercise Medicine	SMD328
Genome Centre	SMD329

Role-Dependent Mandatory Courses

H&S Training
Various courses are available for booking via MyHR or the CAPD website. Requirements should be discussed with your line manager. A list of available courses can be found on the following page.
http://hsd.qmul.ac.uk/Training/index.html

Recruitment and Interview Selection (Search Reference PD169)
https://www.esdcourses.org.uk/userlistcourse.php

PhD Supervisor Training (Search Reference DC001 or DC002 for refresher course)
https://www.esdcourses.org.uk/userlistcourse.php

Unconscious Bias training
http://www.hr.qmul.ac.uk/equality/equalitytraining/index.html

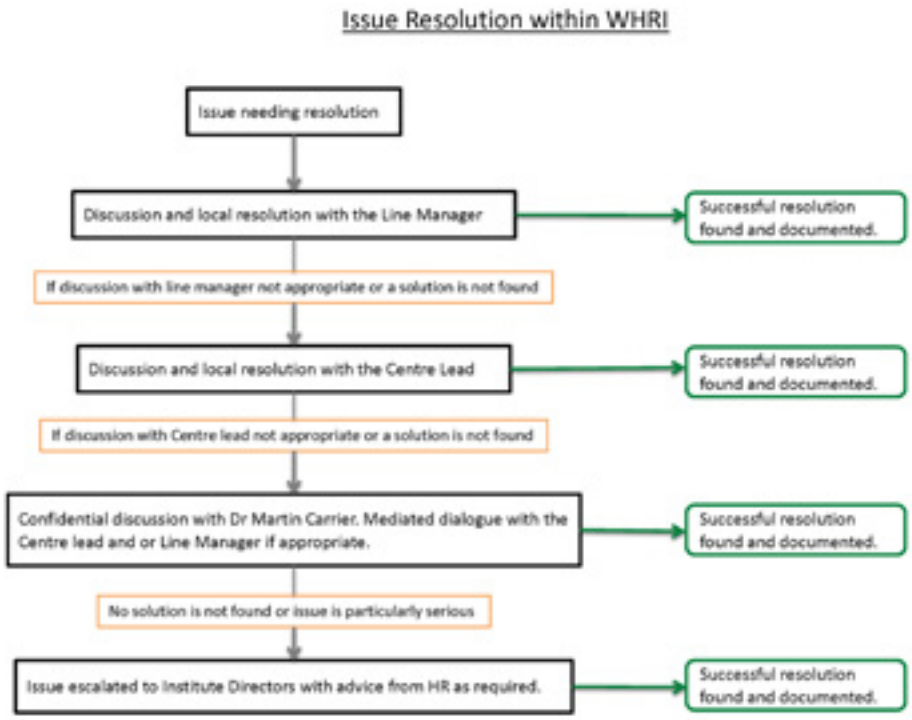
Appraisal Training (Search Reference PD180)
https://www.esdcourses.org.uk/userlistcourse.php

Other Training Courses

Please visit the CAPD website for the full range of training courses available.
https://www.esdcourses.org.uk/userlistcourse.php

Problems at Work

At the WHRI we have an issue resolution process in place to deal with problems that can arise from time to time. This process is outlined below.



v2. 1 September 2019

Full information about College Policies can be found on the HR website.
http://www.hr.qmul.ac.uk/procedures/problems/dignity/index.html

Publishing Papers

Publication of papers is key to our research at the WHRI and QMUL and our publications are used as part of the assessment of the University by the Government in the Research Excellence Framework (REF) exercise. The results of this assessment every 5 years or so will affect the amount of money allocated to the University by the Government. There is a process which needs to be followed to ensure that the papers we publish are compliant with the next REF and this involves uploading your accepted manuscripts into the QMUL database, Elements.

Please contact the Open Access monitor (Steven Coppen) for details and instructions for Elements. More information is available on the WHRI-Shared drive. It is important to note that there is a time limit of 3 months between date of acceptance of a manuscript and uploading the accepted version to the database.

How to Ensure Your Papers are REF-Compliant

- Write up first version of manuscript
- Send to journal
- Journal asks for extra work, corrections etc
- Send revised manuscript to Journal: *It is the version you upload to Elements if the manuscript is accepted*
- Journal sends message on dd/mm/yy to state paper accepted: *This is the date of*
- *acceptance to input to Elements. Inform the WHRI Open Access Monitor (Steven Coppen)*

You have 3 months from the acceptance date to upload the accepted version.

Do NOT wait for the proofs. Do NOT upload the prooofs

The WHRI OA Monitor will check the submissions regularly and contact you if they show up as a non-compliant.

Leaving the WHRI

When the time comes that you leave the WHRI, we would appreciate any feedback concerning your time with us. This information can be provided in the Exit Questionnaire overleaf (copy can be requested from your Centre Administrator). We want to make sure that the WHRI continues to be successful, productive and an enjoyable place to work. Your feedback will help us achieve this.

WHRI – Exit Questionnaire

This form should be completed by the Employee's Line Manager/Head of Department/School/Institute Director and then sent to the Institute Manager.

To be completed by the Line Manager	
Name	
Gender	☐ Female ☐ Male
School/Dept/Inst	
Post title	
Last day of service	
Last working day	
Home address for correspondence (if not known then the last known address must be given)	

Reason for leaving (Tick appropriate box)

☐ Resignation	☐ End of temporary/fixed term contract	☐ Retirement on pension
☐ Early retirement	☐ End of fixed term contract (redundancy)	☐ Dismissed
☐ Voluntary redundancy	☐ Compulsory redundancy	☐ Unsatisfactory probation
☐ Death in service	☐ Other reason	☐ Ill-health retirement

Activity and Location after Leaving (Please complete, required for HESA purposes)

☐ Working in a Higher Education Institute	(01)	☐ Working in the private sector	(08)
☐ Working in another Education Institute	(02)	☐ Self-employed	(09)
☐ Working in a research institute (private)	(03)	☐ Registered as a student	(10)
☐ Working in a research institute (public)	(04)	☐ Retired	(11)
☐ NHS/Gen Medical/Gen dental practice	(05)	☐ Not in regular employment	(12)
☐ Working in another public sector org	(06)	☐ Not known	(13)
☐ Working in the voluntary sector	(07)		
☐ England	(1)	☐ Other EU	(6)
☐ Wales	(2)	☐ Non EU	(7)
☐ Scotland	(3)	☐ Not Known	(8)
☐ Northern Ireland	(4)	☐ Information refused	(9)
☐ UK (not otherwise stated)	(5)		

Additional Comments	
Best aspects of working at WHRI	
Worst aspects of working at WHRI	
Suggestions for Improvements	

Signatures		
Employee		Date
Line Manager		Date

Confidential discussions can be arranged with Professor Nick Goulding if this would be helpful.

Charterhouse Square Campus Map Index

Educational / Research

Residential

Facilities