World Leaders in Research

SFI Research Professor of Immunotherapeutics

School of Biochemistry & Immunology, Trinity College Dublin
Trinity College Dublin

Trinity College Dublin is Ireland’s university on the world stage. Recognised for its transformative research and education conducted at the frontiers of disciplines, Trinity is ranked 61st in the world by the QS World University Rankings 2013.

The pursuit of academic excellence through research and scholarship is at the heart of Trinity’s academic endeavour. Trinity is known for intellectual rigour, excellence, interdisciplinarity, and research-led teaching. Home to Nobel prize-winners such as scientist Ernest Walton and writer Samuel Beckett, Trinity draws visitors from across the world to its historic campus each year, including to the Book of Kells and Science Gallery which capture the university’s connection to both old and new.

Trinity accounts for one-quarter of all spin-out companies from Irish higher education institutions, helping to turn Ireland into an innovation-intensive, high-productivity economy. That culture of innovation and entrepreneurship is a defining characteristic of our campus as we help shape the next generation of job creators and global citizens.

Founded in 1592, Trinity is situated at the nexus of tradition and innovation, offering undergraduate and postgraduate programmes across 24 schools and three faculties: arts, humanities, and social sciences; engineering, mathematics and science; and health sciences.

Spread across 47 acres in Dublin’s city centre, Trinity has a 17,000-strong student body, 3,000 staff and over 100,000 alumni around the world. Of the student body, 16% come from outside Ireland and, of those, 40% are from outside the European Union, making Trinity’s campus cosmopolitan and bustling, with a focus on diversity.

Trinity has developed significant strength in a broad range of research areas, including the 21 broadly based multidisciplinary thematic research areas, see www.tcd.ie/research/themes. Trinity is home to Ireland’s first purpose-built nanoscience research institute, CRANN, housing 150 scientists, technicians and graduate students in specialised laboratory facilities. Meanwhile, the state-of-the-art Trinity Biomedical Sciences Institute is carrying out breakthrough research in areas such as immunology, cancer and medical devices. Trinity College Institute of Neuroscience (TCIN) leads brain research in Ireland and is the country’s only dedicated neuroscience research institute. TCIN is an interdisciplinary research institute with Principal Investigators from a wide range of disciplines including psychology, physiology, biochemistry, engineering, psychiatry and genetics.

The Old Library in Trinity is the largest research library in Ireland, with a collection of six million printed items, 500,000 maps, 80,000 electronic journals, and 350,000 electronic books. Some of the world’s most famous scholars are graduates of Trinity, including writer Jonathan Swift, dramatist Oscar Wilde, philosopher George Berkeley, and political philosopher theorist Edmund Burke. Three Trinity graduates have become Presidents of Ireland - Douglas Hyde, Mary Robinson and Mary McAleese.
Trinity is:

- Recognised internationally as Ireland’s leading university, ranked 61st in the world by the QS World University Rankings 2013 and 18th in Europe.
- Ranked 42nd in the world and ninth in Europe in terms of Research Performance (Leiden Ranking of World Universities, 2013).
- Ranked in the top 1% of research institutions in the world in 18 fields - an increase of over 150% from 2004 (Thomson Reuters Essential Science Indicators, September 2013).
- Ranked 22nd in the world in terms of International Outlook (Times Higher Education World University Ranking, 2013).
- Ranked in the top 200 world universities in 23 of the 30 disciplines in the 2014 QS World University Rankings by subject including:
  - **Biological Sciences**: in the top 100 universities in the world and the top 35 in Europe
  - **Medicine**: in the top 100 universities in the world and in the top 46 in Europe
  - **Pharmacy and Pharmacology**: in the top 100 universities in the world and in the top 40 in Europe
  - **English**: 25th in the world, 7th in Europe

Trinity’s Global Rankings
Two Trinity scientists, Professor Luke O’Neill and Professor Jonathan Coleman, were recently included in the Thomson Reuters Highly Cited Researchers 2014 list. They are ranked among the top 1% most cited for their subject field and year of publication (between 2002 and 2012).

Trinity’s research leverages areas of multidisciplinary expertise where the University has critical mass of world-class primary investigation. Trinity’s research is across science, engineering, social sciences, medicine and the arts. These research areas address immediate and long-term challenges in society, as well as offering opportunities for economic development. Research is central to the generation of the new disruptive ideas that will underpin future sustainable businesses. The value created by Trinity is critical for Ireland’s economic and social development, as well as society globally.

Trinity’s research themes are supported by a set of research institutes that provide the infrastructure needed to support multi-disciplinary research as well as engagement with enterprise and social partners working in partnership with Trinity’s 24 schools. Built on the foundations of individual excellence, clustering expertise into multi-disciplinary teams, Trinity has a portfolio of research activity presented as 21 themes www.tcd.ie/research/themes, which have scale, resources and the ability to solve large scale research challenges. Trinity’s credentials in research and innovation are strong:

- According to Thomson Reuters Essential Science Indicators, in terms of research impact as measured by citations, Trinity ranks among the world’s top 1% of research institutions in 17 STEM and social sciences fields, including immunology, materials science, and molecular biology and genetics;
- Trinity’s researchers have made major contributions to global society. Trinity’s mathematics gave us quaternions which underpin modern spaceflight while our chemists developed the world’s first commercial nicotine patch, in collaboration with Elan Pharmaceuticals;
- Trinity has an outstanding record of publications in high-quality journals and in terms of the impact of its research publications. The University is highly successful at securing research funding, with 1,526 research accounts totaling an annual expenditure of €79.1 million in 2012/2013.
- In the period 2008 to 2013, 70 commercial licenses have been granted to a wide range of companies, and 38 new Trinity campus companies have been formed to commercialize Trinity’s intellectual property. These eight Trinity spin-outs/licensees have attracted almost €60 million in venture capital investment in the past two years.
- In 2008, Trinity created Science Gallery on our Dublin campus, attracting over 1.5 million people to unique exhibitions, from living art experiments to materials science and from the future of the human race to the future of play.
- The Trinity Biomedical Sciences Institute (TBSI) opened in 2011. Among the key highlights so far are:
  - 76 companies working with researchers to develop new products in biomedicine;
  - €36 million raised for interdisciplinary research; and,
  - Three spin-out companies involved in drug discovery and development, and cancer treatment - Opsona Therapeutics, Trino Therapeutics and TriMod.
- CTVR, The Telecommunications Research Centre provides a cutting edge focus to not just communications research in Trinity, but also across related research in the country including industry. The Trinity Centre for Bioengineering, in addition to a growing research record, provides key strategic linkages to the biosciences (TBSI) and nanomaterials (CRANN).

**Trinity’s Flagship Research Institutes**

Trinity’s research institutes provide the infrastructure to support multi-disciplinary research, working in partnership with Trinity’s faculties and schools www.tcd.ie/research/institutes

**Trinity’s International Research collaborations**

Full details of Trinity’s research and innovation strategies as well as international research collaborations are available at:

www.tcd.ie/research
www.tcd.ie/innovation
www.tcd.ie/research/worldleaders/brochure2014
Research in Ireland

Ireland is a country of 4.5 million people with a global diaspora of 70 million more, which has a significant impact on global affairs in terms of culture, business and research. Over the last decade, Ireland has demonstrated a clear commitment to the development of a knowledge-led economy, in good times and bad, with unprecedented investment on a national level in education, science and technology.

This strategy is based on harnessing its unique international success in attracting foreign direct investment, and ensuring that Ireland remains not just a global hub for manufacturing but also increasingly for research, development and innovation.

Ireland has proven to be the most effective gateway for international businesses into Europe. This small offshore island has successfully become a global economic centre with a truly remarkable cluster of world-leading businesses.

- Nine of the top ten global companies in medical technologies have a high volume manufacturing base here and a growing presence in Research and Development.
- Nine of the top ten global pharmaceutical companies are located in Ireland, with seven out of ten pharmaceutical blockbusters produced here.
- The ICT sector in Ireland attracts global investment with seven of the world’s top ten companies operating here. The sector accounts for €50 billion in Irish exports and is continuing to grow.
- Ireland has in recent years become the internet hub for Europe with companies such as Google, Facebook, AOL, PayPal and a host of gaming companies picking Ireland as their European location.

Advantages include:

- A politically stable country and respected regulatory regime.
- A thriving RD&I sector, with strong Government support for productive collaboration between industry and academia.
- A strong legal framework for development, exploitation and protection of Intellectual Property rights.
- Strategic location with easy access to the Europe/Middle East region.
- Excellent IT skills and infrastructure.
- Good telecommunications infrastructure, with state-of-the-art optical networks and international connectivity.
- Strategic clusters of leading global companies in Life Sciences, ICT, Engineering, Services, Digital Media, and Consumer Brands.
- An established reputation as a hub for business process improvement in the region.

Ireland’s growing international reputation for research excellence is primarily due to research funded by Science Foundation Ireland (www.sfi.ie). SFI has invested over €1,400 million in research at Irish universities over the last decade. This investment, guided solely by international peer review and research excellence, has taken the form of both individual PIs awards and the development of ten Centres for Science, Engineering and Technology. The research investment has led to significant improvements in the quantity and quality of the published output.

Ireland is now ranked in the top 20 countries globally in scientific global rankings and ranks 3rd for immunology and 8th for material science. (Source: Thomson Reuters Essential Science Indicators) The investment has also transformed the competitiveness of Irish universities such as Trinity College Dublin, Ireland’s leading university.
Did you know? Ireland is...

- Forbes’ Best Country for Business 2013
- First in Europe for completion of higher education. 60% of students go on to higher education.
- Ranked ninth overall (out of 141 countries) in the Global Innovation Index 2012 (Insead).
- Highlighted as one of five up and coming countries in the world to watch for scientific research excellence (Nature).
- In the top 20 countries in scientific global ranking for international scientific citation per paper and higher in specific disciplines
  - First in Immunology
  - First in Animal and Dairy
  - Third in Nanosciences
  - Fourth in Computer Sciences
  - Sixth in Materials Sciences

Ireland has a rich history of achievements in Science and Technology and continues to invest in its research and technology capabilities:
- Robert Boyle – founder of modern chemistry
- Ernest Walton – split the atom with John Cockcroft
- Sir William Rowan Hamilton – modern maths and gaming
- Sir Charles Parsons – engineer
- Sir Francis Beaufort – devised the Beaufort wind force scale.

Dublin is ranked as the best city in the world for human capital.
Trinity College Dublin, in collaboration with Science Foundation Ireland (SFI), wishes to recruit a number of high calibre Research Professors in targeted scientific areas within Biotechnology, Information and Communications Technology (ICT) and Sustainable Energy and Energy Efficiency sectors. Funding of up to €5 million will be provided to successful candidates for a five-year programme of work.

Background
In recognition of the need for Ireland to build capacity in key areas of economic importance, Science Foundation Ireland (SFI) has consulted with Irish universities to identify areas, aligned with national and institutional strategic priorities, where the recruitment of eminent research professors will be targeted. Research Professors with world class research profiles will build on ongoing significant research activities in Ireland, help to foster and develop emerging areas of strategic opportunity and catalyse future expansion in these targeted areas.

To this end, SFI has launched the SFI Targeted Research Professorship Programme 2014 and will provide funding of up to €1 million per year for five years (€5 million maximum) in direct costs to each successful applicant to the Programme in selected thematic areas.

This funding is perhaps the most generous package available to stellar researchers surpassing ERC advanced grants, which offer a maximum of €3.5 million over five years. These SFI grants can also be used by current ERC award holders to supplement their research activities. Potential candidates wishing to apply to the Programme should contact Trinity directly. Submission of full proposals to SFI will be by invitation only, following the submission and evaluation of Expression of Interest phase during which SFI will work closely with the research body.

Science Foundation Ireland (SFI) is the largest funder of scientific research in Ireland. The SFI Research Professorship Programme assists research bodies in the recruitment of world-leading researchers for Professorial Chairs, or similar research leadership positions in targeted scientific areas. The programme may also act as a mechanism to support the recruitment of individuals who possess a strong industry background, as well as directorship roles in established research centres within eligible research bodies in Ireland.
Trinity College Dublin invites applications for a full-time permanent Professor of Immunotherapeutics in the School of Biochemistry and Immunology which is located in the Trinity Biomedical Sciences Institute. The successful candidate will develop their own research programme and work with other Trinity researchers to maximise discovery and innovation in the area of immunotherapeutics design and cellular bioengineering. The post-holder will work with leading biochemists and immunologists in Trinity and will be expected to link into other academic and bio-manufacturing activities in Ireland.

Trinity is world-renowned for research excellence in Immunology, which is designated a priority research area in the institution. Within the School of Biochemistry and Immunology in Trinity there is a critical mass of researchers in immunology and cellular/structural biology who are world-leaders in their respective areas and have developed significant research infrastructure and knowledge ideal for high-impact research in biotherapeutic design and bio-manufacturing activities.

Trinity intends to strengthen these activities by hiring a scientist with complementary research interests in biotherapeutic design and delivery and in cellular bioengineering. The successful candidate will have an internationally recognised research profile in the area of Immunotherapeutics, and have an established track record of achievement and impact in teaching and in research supervision at all levels, along with a demonstrated ability to raise research funding.

The candidate will also be expected to strengthen and build the School’s capacity for collaboration with other academic disciplines and institutions such as NIBRT (National Institute for Bioprocessing Research & Training) and with the biopharmaceutical industry, nationally and internationally.

This position is tenable from April 2015.

Post Specification

SFI Research Professor of Immunotherapeutics
Permanent (full-time) and research funded for 5 years

Summary

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Professors are senior members of the University and are expected to demonstrate a strong leadership capacity along with excellence in research, teaching and administration and to make significant contributions to the wider University community and in the governance of the School.

In the School of Biochemistry & Immunology context, the Professor of Immunotherapeutics will be expected to generate a stimulating and supportive work environment that excites existing faculty, attracts high calibre researchers and teachers and encourages their contribution to overall scholarship.

S/he will be expected to promote an interdisciplinary and collaborative approach to immunotherapeutics research and teaching, and to build and strengthen links between relevant disciplines within Trinity and external stakeholders.

Duties of the Post

The Professor will be required to:

• Lead and develop research in the area of immunotherapeutics, linking into existing research expertise in the School of Biochemistry & Immunology.
• Grow a research team.
• Provide vision and flair to the development of immunotherapeutics research within the University.
• Develop research collaborations with the Trinity Cancer Institute (TCI), National Institute for Bioprocessing Research and Training (NIBRT) and industry partners.
• Obtain competitive grant funding (Science Foundation Ireland, ERC, H2020).
• Develop and coordinate new taught modules at undergraduate level.
• Supervise undergraduate and postgraduate student project and dissertation activity.
• Interact in an interdisciplinary capacity across the University, including participation in the overall life of the University and, if called upon, to contribute in to University-level initiatives in other capacities.
• In accordance with University regulations, the appointee may be expected to stand for election to the position of Head of School. The appointee will also be expected to play an interdisciplinary role in the Faculty and across the University and participate in the overall life of the University, and may from time to time be called upon to contribute in other capacities.
Person Specification

The successful candidate will be expected to provide evidence of and to demonstrate clearly the following:

- The vision and leadership skills necessary to direct and drive the strategic development of a school, such as the School of Biochemistry & Immunology, within a university which is competing and collaborating both nationally and internationally.
- An outstanding research record that includes evidence of sustained and recent publication in high-impact international journals.
- Ability to work effectively as a member of a team.
- Demonstrate vision and commitment.
- Excellent interpersonal and communication skills, and an ability to present and communicate ideas and concepts clearly.
- A history of thought leadership within the academic community through engagements such as chairmanship of international societies, committees, conference and editorial boards, and through reviewing and refereeing activities.
- The ability to build and sustain a significant research group, to pursue vigorously his/her own research programme, and to manage large research projects and teams.
- Interdisciplinarity in research and an ability to work with academics from a range of disciplinary backgrounds.
- The ability to raise significant amounts of research funding from a variety of sources.
- Excellence in teaching at undergraduate and postgraduate education levels.
- Experience in successfully supervising to completion doctoral dissertations, and also undergraduate and masters’ projects and dissertations.
- Enthusiasm and commitment for engagement with wider University initiatives.
Qualifications and Experience:

Candidates must have a PhD in a relevant discipline and demonstrate a research track record, which contributes to the field of immunotherapeutics. International work experience is desirable and a sustained record of published research output ideally in high-impact international journals is essential.

S/he will also have demonstrable ability to provide strategic leadership and excellent management in a school context. A capacity to provide research leadership and a record of high achievement in teaching and research supervision is expected along with a capacity for strong engagement with the University and wider communities.

Contact Information

Interested applicants may contact the following in the first instance with informal enquiries:

• Professor Gavin Davey, Head of School, e-mail: gdavey@tcd.ie
• Professor Kingston Mills, Immunology, Inflammation and Infection Research Theme Leader, e-mail: millsk@tcd.ie
• Professor Luke O’Neill, Chair of Biochemistry, e-mail: laoneill@tcd.ie

Further information may be obtained at the following web addresses:

   Trinity College Dublin: www.tcd.ie
   School of Biochemistry & Immunology: www.tcd.ie/biochemistry

Application Details

Applicants must provide the following information in applying for this position:

• A comprehensive curriculum vitae including full data on publications.
• Names and contact details (i.e., addresses, e-mail addresses) of three referees.
• Statement on his/her vision for the future development of the role.

PLEASE NOTE: Interested applicants should contact by noon (GMT), Friday, 12th September 2014, our Executive Search Partners, Perrett Laver.

Contact Person: Dr Jack Bircher: Tel: +44 (0) 20 7340 6220 E-mail: jack.bircher@perrettlafer.com

For application details and job specification, please visit www.perrettlafer.com/candidates, quoting reference number 1761.

Equal Opportunities Policy

Trinity College Dublin is an equal opportunities employer and is committed to the employment policies, procedures and practices that do not discriminate on grounds such as gender, civil status, family status, age, disability, race, religious belief, sexual orientation or membership of the travelling community.
Programmes Offered

Our School offers undergraduate programmes in Biochemistry, Immunology and Molecular Medicine. For entry into these degree programmes, students must first complete two years (Junior and Senior Freshman) study in the general TR071 Science Course, following on with two years (Junior & Senior Sophister) specialisation in their selected moderatorship.

The School also provides courses to students taking degree programmes in Neuroscience, Human Health & Disease, Science, Pharmacy and Medicine. The School’s commitment to providing a rich educational environment for the next generation of undergraduate and graduate students is reflected in a dynamic, research-led curriculum that covers the most topical issues in research today.

The MSc in Immunology is a taught postgraduate course designed for graduates aiming to pursue careers in academic research, medicine or the pharmaceutical industry for which a thorough grounding in immunology, immune-mediated pathogenic mechanisms and immunotherapy is required. The course is underpinned by modules in basic immunological principles and technologies. A key component is the research project to be undertaken by each student under the supervision of an academic staff member.

Current Research Fields

The School of Biochemistry and Immunology is research intensive and has a strong international reputation for the quality of its scholarly activities. The areas of research in Biochemistry include membrane proteins, enzymology, folic acid biochemistry, structural biology, tRNA biology, neurochemistry, systems biology, cancer biology, molecular parasitology, apoptosis, energy transduction and drug discovery. In the area of Immunology our School is active in immunoregulation, immunomodulation, cell signalling in immunity and inflammation, immunoparasitology, vaccine adjuvant research, innate immunity and inflammation and viral subversion of immunity.

Our success in these areas is complemented by our substantial investment in cutting-edge facilities for nuclear magnetic resonance, protein crystallization, X-ray crystallography, transgenics, histochemistry, electron microscopy, confocal microscopy, and fluorescence activated cell sorting.

The staff of the School have a passion for discovery, an ability to generate new knowledge, expertise in cutting-edge technologies, a flair for entrepreneurship and innovation, as well as a commitment to communicating their passion and knowledge to students, colleagues and the public.

Our research mission is to discover the fundamental mechanisms that underlie human disease and we engage multi-disciplinary approaches for this endeavour. This intersectoral approach aims to push the boundaries of discovery by promoting the translation of basic research discoveries into therapies and treatment. Five new campus companies have emerged from our research discoveries that focus on biotherapeutic development.

There are 5 research themes in the School of Biochemistry and Immunology, all consistent with supporting the biomedical research that takes place in the Trinity Biomedical Sciences Institute where the School is physically located. The research themes are: Immunology, Cancer, Metabolism, Neurodegeneration and Structural Biology.

School of Biochemistry and Immunology (www.tcd.ie/Biochemistry)
SCHOOL OF BIOCHEMISTRY AND IMMUNOLOGY

Head of School
Gavin Davey, B.A., PH.D.
Director of Teaching and Learning (Undergraduate)
Kenneth Hun Mok, B.A. (BERKELEY), M.A., PH.D. (PURDUE)
Director of Teaching and Learning (Postgraduate)
Amir Khan, B.SC. (TOR.), PH.D. (ALTA.)
Director of Research
Daniela Maria Zisterer, B.A., PH.D., F.T.C.D.
School Administrator
Conor Spillane, B.A. (N.U.I.), H.DIP.ED. (N.U.I.), DIP. M.S. (I.C.M.)

BIOCHEMISTRY

Professor of Biochemistry (1960)
Professor of Membrane Structural and Functional Biology (2009)
Professor of Chemical Biology (2012)
David Clive Williams, B.SC. (WALES), M.A., PH.D. (WALES), M.R.I.A., F.T.C.D.
Associate Professor in Biochemistry and Head of Biochemistry
Richard Kevin Porter, B.A., PH.D., F.T.C.D.
Associate Professors in Biochemistry
Daniela Maria Zisterer, B.A., PH.D., F.T.C.D.
Derek Nolan, B.A., PH.D.
Associate Professor in Neuroscience
Gavin Davey, B.A., PH.D.
Assistant Professors in Biochemistry
Amir Khan, B.SC. (TOR.), PH.D. (ALTA.)
Kenneth Hun Mok, B.A. (BERKELEY), M.A., PH.D. (PURDUE)
Emma Mary Creagh, B.A., PH.D. (N.U.I.)
Assistant Professor in Biochemistry and Academic Co-ordinator
Vincent Patrick Kelly, B.A., PH.D. (DUND.)

ImmunoLogy

Professor of Experimental Immunology (2001)
Professor of Comparative Immunology (2006)
Cliona O’Farrelly, B.A., PH.D., F.T.C.D.
Professor in Immunology and Head of Immunology
Associate Professor in Immunology
Associate Professor in Immunology and Course Co-ordinator
Edward Lavelle, B.SC. (N.U.I.), PH.D. (PLYM.), F.T.C.D.
Assistant Professor in Immunology
Nigel Stevenson, B.SC. (BELF.), PH.D. (BELF.)
Ussher Assistant Professor in Immunology
Rachel Mary McLoughlin, B.SC. (N.U.I.), PH.D. (WALES)
Ussher Assistant Professor in Neuroinflammation
Aisling Dunne, B.A., PH.D.
Ussher Assistant Professor in Translational Immunology
Jean Fletcher, B.SC. (CAPE TOWN), M.SC. (CAPE TOWN), PH.D. (LOND.)
Adjunct Assistant Professors in Immunology
Andrew Thomas Lloyd, B.A., PH.D. (BOSTON)
David Lynn, B.A., M.SC. (OTT.), PH.D. (N.U.I.)
OTHER APPOINTMENTS IN THE SCHOOL

Honorary Professors & Nobellists:
Bruce Alan Beutler, B.A. (CALIF.), M.D. (CALIF.), DR.MED. (h.c. T.U. MUNICH)
Peter Charles Doherty, B.V.SC. (QLD.), M.V.SC. (QLD.), PH.D. (EDIN.), D.V.SC. (h.c. QLD.), D.SC. (h.c. A.N.U., U.A. BARCELONA, BERN, EDIN., GUELPH, ILL., LATROBE, LOND., MC G., MICH. STATE, N. CAROLINA STATE, PENN., TUFTS, U.T. SYD., WARSAW A.U.), D.MED.SC. (h.c. RHODES COLLEGE), D.PH. (h.c. KYORIN)
Jules Hoffmann, M. ÈS SCIENCES (STRAS.), DOCTORAT (STRAS.), DR.MED. (h.c. T.U. MUNICH)

Adjunct Professors:
Hidde Ploegh, B.SC. (GRON.), M.SC. (GRON.), PH.D. (LEIDEN), F.AMER.A.A.S., M.E.M.B.O.
Pauline Rudd, B.SC. (LOND.), M.A. (OXON.), PH.D. (OPEN)

CORE RESEARCH CAPACITIES AVAILABLE IN SCHOOL OF BIOCHEMISTRY & IMMUNOLOGY

Translational Medicine Unit: Specific pathogen-free and transgenic animal units with Tecniplast IVC Cage Systems, mouse embryo derivation and cryopreservation facilities, germ-free isolation facility, in vivo live imaging unit, Intravital microscope, whole body irradiator. The National Transgenic Centre provides custom-made gene over-expressed and conventional and conditional knockout mice; key resources for interrogating the function of critical molecules in cancer metabolism.

Flow cytometry suite: FACSaria Fusion - 4 laser, 16 colour high speed cell sorter, MoFlo - 3 laser, 6 colour fluorescence activated cell sorter (FACS), capable of sorting cells up to four populations at once. LSRFortessa - 3 laser analyser, capable of analysing up to 11 fluorescence parameters at once, FACSComp II 3 laser analyser, capable of analysing up to eight fluorescence parameters at once. CyAn ADP 3 laser analyser, capable of analysing up to nine fluorescence parameters at once. FACSComp II.

Confocal Microscopy Facility: Fluoview FV1000 scanning confocal microscope, Spinning disk confocal - for fast 3D imaging of live cells with fluorescent proteins and dyes. IX81 fluorescent and bright field microscope - For epifluorescence and bright field imaging. Imaris image analysis software - Run on a high end PC for analysis of all imaging systems.


X-ray crystallography facility: Rigaku MicroMax-007 X-ray Generator – micro-focus rotating copper anode X-ray generator. Graphics modelling is with 3 Dell quad-core high-end Vostro 420 and 1 dual-core iMac used for diffraction data processing, modelling, refinement, 3-D visualization, for computations in structure-based drug, ligand and protein design.

NMR facility: 800 MHz (19.2 T) High Resolution Biomolecular NMR Spectrometer (Agilent Premium COMPACT) and 400 MHz NMR Spectrometer (Agilent). Routinely employed in (i) three-dimensional elucidation of biomolecules in the solution state and (ii) metabolomics of cells and biofluids. Highest magnetic field spectrometer in Ireland, serving as a reference centre for the country.

Level-3 containment tissue culture suite: Two fully equipped tissue culture rooms with airlock lobby, suitable for category-3 pathogen work.
