Trinity Translational Medicine Institute

Overview of Supports for Researchers

Jun 2020
Research Centres and Institutes

- Trinity Translational Medicine Institute
- Trinity Long Room Hub Arts & Humanities Research Institute
- Trinity College Institute of Neuroscience
- Trinity Biomedical Sciences Institute
TCD Research Themes

- **Aging**: Unlocking the longevity dividend for the ageing population.
- **Cancer**: Research towards understanding, treatment and prevention of this pervasive disease.
- **Creative Arts Practice**: A creative and innovative approach for music, theatre and digital film.
- **Creative Technologies**: Integrating creative arts and technology for multimedia, gaming, digital content and production.
- **Next Generation Medical Devices**: Translating research prototypes to practice, towards delivery of next generation of implants and devices.
- **Digital Engagement**: Researching the technological impact and innovation that enhances human communication with digital content.
- **Digital Humanities**: Converging science and the humanities to translate established humanities techniques into new technologies.
- **Genes & Society**: Extending and utilising our knowledge of genes and their function for enhanced understanding and invention.
- **Identities in Transformation**: Exploring how individual, cultural, social and political identities evolve and change in an Irish, European and global context.
- **Smart Sustainable Planet**: Research on the Smart and Sustainable Planet designs new ways for us to interact with our environment.
- **Immunology, Inflammation & Infection**: Challenging the signalling pathways of the human immune response through research in molecular and cellular biology and drug design.
- **Inclusive Society**: Research in understanding human well-being and who is responsible for delivering it.
- **International Development**: Examining the challenges of the developing world, exploring new markets and the responsible transfer of technologies.
- **International Integration**: Researching globalization as enacted via flows of capital, ideas, investment, people and trade and associated governance structures.
- **Telecommunications**: A multi-disciplinary approach to telecommunications research focusing on infrastructure to serve the networks of the future.
- **Making Ireland**: Understands Ireland as a continuously developing phenomenon, and studies the varieties of human effort through which Ireland has been and is.
- **Manuscript, Book and Print Cultures**: The critical study of texts and their material support.
- **Nanoscience**: Understanding matter on the scale of individual atoms and molecules, with impact on technology across ICT and Biotechnology sectors.
- **Neuroscience**: Understanding the structure and function of the brain from molecule to mind.
TCD - Globally Unique Infrastructure
Trinity Translational Medicine Institute – Linking TCD with the Patient

T0
BASIC SCIENCE RESEARCH
Preclinical and animal studies.
Defining mechanisms, targets, and lead molecules.
Translation from basic science to human studies

T1
TRANSLATION TO HUMANS
Proof of concept, Phase 1 clinical trials.
New methods of diagnosis, treatment, and prevention.

T2
TRANSLATION TO PATIENTS
Phase 2 and 3 clinical trials.
Controlled studies leading to effective care.

T3
TRANSLATION TO PRACTICE
Phase 4 clinical trials and clinical outcomes research.
Delivery of recommended and timely care to the right patient.
Translation of new data into the clinic and health decision making

T4
TRANSLATION TO COMMUNITY
Population level outcomes research.
True benefit to society.
TTMI Board Members

- Chair: Prof. John Hegarty (former Provost/President 2001-11)
- Prof. Orla Sheils (Dean Faculty of Health Sciences)
- Prof. Aideen Long (Director – Trinity Translational Medicine Institute)
- Mr. Lorcan Birthistle (Chief Executive of St. James’s Hospital)
- Mr. Oliver Tattan (entrepreneur and investor)
- Prof. Linda Doyle (Dean of Research)
- Prof. Michael Gill (Head of School of Medicine)
- Prof. Sylvia Draper (School of Chemistry)
- Prof. Eleanor Molloy (Chair of Paediatrics)
- Prof John Gilmer (Professor in Pharmaceutical Chemistry)
- Prof. Aiden Corvin (Professor in Psychiatry/Consultant Psychiatrist)
- Dr Pat O’ Mahony (Chief Executive Clinical Research Development Ireland (CRDI))
- Prof. Martina Hennessy (Director of the Wellcome Trust HRB Clinical Research Facility)

TTMI Management Team

- Prof. Aiden Corvin
- Prof. Jacintha O’Sullivan
- Prof. Derek Doherty
- Prof. Aideen Long
- Prof. Joseph Keane
- Prof. Mark Little
- Prof. Yuri Volkov

TTMI Support Team

- Mr. Frank Mangan – Business Manager – Ext. 3268; email: frank.mangan@tcd.ie
- Dr. William McCormack - Research Program Officer – Ext. 8561; email: mccormw@tcd.ie
- Dr. Eamon Breen - Operations Manager – Ext. 3270/3055; email: breenea@tcd.ie
Overview

Research Plan
Design based on patient centric health issue.

Population stratification
Ethically consented and controlled collection

Targeted Areas
Companion Dx
Theranostics
Immunotherapy
Cell therapy systems
Small molecule Compounds

Molecular diagnostics
Molecular profiling
Liquid biopsy
MultiOMICS
Proteomics
Metabolomics

Research Capabilities
NGS
Flow Cytometry
Microarray
High Content Analysis
Laser Capture Microdissection
Biological irradiator cabinet
Immunohistochemistry
Microscopy
Hypoxia Chambers

Curated Collection
Well annotated specimens in protected environment

End-to-end sample collection to analysis
Understanding Gene Regulation and Single-Cell Heterogeneity

Flow Cytometry / Cell Sorting + BD Rhapsody + NovaSeq 6000 System = Single cell gene expression profiles

- Cell phenotyping
- Cell viability
- Cell cycle analysis
- Surface protein expression
- Intracellular expression
- Phosphorylation state
- Apoptosis assays
- Proliferation assays
- mRNA expression
- Cytometric Bead Arrays
- Single-cell isolation

- Single-cell mRNA capture and amplification
- Exploration of single-cell gene regulation by simultaneous digital mRNA and protein quantification
- Reduces experimentation time and sequencing costs.

- Capable of generating data equivalent to approx. 7,200 human genomes per year.
- Human whole genome sequencing (WGS), ultradeep exome sequencing, and tumour–normal profiling can now be completed in a more timely and cost effective manner.

- Single-cell RNAseq is changing how we understand cells
- Single-Cell Analysis System enables digital quantitation of hundreds of expressed genes across tens of thousands of single cells
- Only complete workflow of its kind in Ireland and the UK
**Additional Sequencing Capability**

- DNA Sequencing - access to state-of-the-art next-gen sequencing technology – NovaSeq, MiSeq, Ion torrent and Rhapsody systems
- Integrated workflow from library preparation to advanced data analysis and interpretation
- Expert scientific advice to assist with the development of experimental design
- Access to clinical samples for sequencing
BioTek Lionheart Automated Live Cell Imager

High-content analysis or high-content screening

MESO QuickPlex

High-performance electrochemiluminescence immunoassays.

Automated Cytell Cell Imaging System

Captures cellular & subcellular images
TTMI Flow Cytometry & Cell Sorting

CellStream® flow cytometer

22 Channels (20 fluorescent, plus FSC, SSC)

BD FACS Melody

3 lasers, 9 fluorescent parameters
Research Supports

- TTMI Lab space
- Access to core facilities/expertise
- Access to a community of Researchers
- Funding application support
Research Funding Supports

- Monthly Funding Bulletin with Health Related calls
  https://www.tcd.ie/medicine/research/funding/

- Regular training, mentoring and skills workshops

- TTMI RPO Advice on relevant finding calls, collaborators, internal & external specialists to improve the quality of research grant proposals at every stage of the process

- Boiler plate text

- Pre-award Organisation of Head of School approvals and letters of support for Grant Applications in advance of Institutional sign off
Research Metrics & Impact


- Information on Faculty of Health Sciences Research Metrics & thresholds for productivity [..\Research Metrics\2019\FHS FRM\Faculty Research Metrics - Health Sciences.pdf](..\Research Metrics\2019\FHS FRM\Faculty Research Metrics - Health Sciences.pdf)

- Advice on Scopus profiles and how to ensure your papers and affiliation are correctly assigned [https://www.scopus.com/search/form.uri?display=basic#author](https://www.scopus.com/search/form.uri?display=basic#author)
Research Supports

Research Communications & Training

- Promoting the dissemination of new research projects, events and papers on school of medicine research news page -
  https://www.tcd.ie/medicine/research/news/

- Promoting the dissemination of new research projects, events and papers on Twitter
  - https://twitter.com/TCDTMI
  - https://twitter.com/TrinityMed1

- Organisation of regular workshops and events to improve grant proposals e.g. Grant Writing skills, Budgeting, Research Impact and GDPR training
  Research Events\2020\How to manage a budget Jan 30.pdf
Research Supports

Building Engagements in Health Research

***Pilot Scheme 2020***

The objective of the scheme is to fast-forward solutions for collaborative multidisciplinary research, with the ultimate goal of increasing translational research activity.

Applications must involve (ideally new) collaborations between TTMI-based researchers and Trinity-affiliated clinicians.

€30,000 available in funding split over 6-8 projects.

For more information and to apply:

TTMI / Allergan Innovation Award 2020

The Trinity Translation Medicine Institute (TTMI) Allergan Innovation Award provides seed funding of up to €5,000 to enable and develop new and existing research, innovation and outreach activities with high potential impact in the therapeutic space as well as an opportunity to participate in the postgraduate certificate in Innovation & Entrepreneurship in the Innovation Academy (value of €3,500).

For more information and to apply:
TCD Services
IT Services at Trinity

- Help and Support
- My IT Services
- Collaboration and Communications
- Teaching & Learning IT
- Research IT
- Desktop and Software
- Business Services
- IT Security
- Technical Services
- Training and Development
Office 365 office.tcd.ie

Staff have access to Office 365 and students to Office 365 ProPlus via office.tcd.ie

- Includes common apps such as Word, Excel, PowerPoint, SharePoint, etc.
- You can download Office 365/Office 365 ProPlus on up to 5 devices - Windows, Mac, Android or iPhone
Secure & Share with Office365
GDPR compliant data storage and collaboration tools

**Collaborative Spaces**

- **OneDrive**
  - My Documents
  - Your private working space that remains private until you share items
    - Personal Documents
    - Backups
    - Documents to share with 1/2 people short term

- **Microsoft Teams**
  - Team Documents
  - Collaborate with ad-hoc groups of people on a task, project, course etc.
    - Team docs, work in progress
    - Use instead of emailing attachments
    - Communicate / store

**Publishing Space**

- **SharePoint**
  - Published Documents
  - Official document store for a School or Research Project, share with large permanent groups
    - Centralised templates
    - Procedure documents
    - Policies
    - Information for current Students
Employee Assistance Programme

Services Offered

- 6 Face to Face Counselling sessions
- 24/7 Helpline & Telephone Counselling Service (where practical/suitable) – Telephone 1800 817 433
- Online Wellbeing Portal

Contacting the Service to make appointments

- 1800 817 433 - 9am-5pm
- Counselling appointments - 8am to 10pm Mon to Fri and 9am to 4pm Sat
- Email workandstudy@inspirewellbeing.ie

https://www.tcd.ie/hr/staff-wellbeing/employee-assistance/index.php
Staff Schemes

Health
- College Health service.
- Health insurance.

Travel
- Bike to work.
- Travel pass Tax saver scheme – July and October.
- Parking/weekend parking.

Schemes/benefits
- Shorter Working Year Scheme.
- Support for education.

Crèche.
Online Learning with LinkedIn Learning

LinkedIn Learning - Limitless Learning, Limitless Possibilities
Want to learn something new or enhance your technology, business and creative skills?

LinkedIn Learning is an online library that teaches the latest software tools, business and creative skills through high-quality instructional videos taught by recognised industry experts.

All students and staff at Trinity College Dublin have full, free, and unlimited access to all the online tutorials at lil.tcd.ie. Thousands of your peers and colleagues are using LinkedIn Learning to learn new skills as part of their academic, vocational and personal interests. You can join them right now.

You can view an introduction to LinkedIn Learning below:

![LinkedIn Learning Introduction video](image-url)