

Appendix F - TCBE Welcome Document

Welcome to the Trinity Centre for Biomedical Engineering

All new members of Trinity Centre for Biomedical Engineering (TCBE) should access and review the *TCBE Lab Users SharePoint Website* for important information regarding Induction, Health & Safety, Lab Access, SOPs etc.

SharePoint Link: <https://tcdud.sharepoint.com/sites/TrinityCentreforBioengineering>
Contact Dr. Simon Carroll at simon.carroll@tcd.ie for access.

A checklist is available on the SharePoint site that summarizes all the documentation/training that personnel must complete/undertake prior to commencing activities in TCBE labs.

Trinity Centre for Biomedical Engineering

The Trinity Centre for Biomedical Engineering has five research themes: Neural, Regenerative Medicine, Biomaterials, Musculoskeletal and Cardiovascular.

Access to TBSI

Swipe card access is essential to gain entry to TCBE on level 3. If your TCD ID card will not work, students should contact academic.registry@tcd.ie, whereas Post-Docs and other staff members need to go to contact the HR office at hr@tcd.ie. Door access codes can be found on the *TCBE Lab Users SharePoint Website*.

Labs and Facilities

There are 8 specialist laboratories which are equipped to a very high specification:

1. Tissue engineering using Animal derived stem cells.
2. Tissue engineering using Human derived stem cells.
3. Tissue (Bone and Muscle) preparation lab.
4. Tissue testing lab (Bone, Muscle and cell).
5. Microscopy Suite (includes nano-indentor, microCT and epifluorescent microscope).
6. Biomaterials lab.
7. Impact Biomechanics lab.
8. Medical Device Design lab.

Most of these are located on level 3 of Trinity Biomedical Sciences Institute.

The Microscopy Suite is located in Parsons building, for all enquiries regarding equipment please contact Robert Dunbar (dunbarro@tcd.ie) or Simon Carroll (simon.carroll@tcd.ie). For equipment booking use this link: <http://www.tcd.ie/bioengineering/facilities/>

Communications: Emails, Internet and Intranet, Newsletter

Email access is paramount for establishing and maintaining contacts. You have access to email internally in TCD and can access it externally also from any web-based PC. Please email IS Services at helpdesk@tcd.ie if you have any email issues.

The TCBE website is www.tcd.ie/bioengineering. As you will see on our home page, each research theme has its own website which also functions as an intranet for the researchers in each group. It is important to keep these research theme websites up to date with the latest information on people in the group, research output, events etc. To update your profile in the research theme website please request the password from the relevant PI. See People section of the Neural website for how it should be done: <http://www.mee.tcd.ie/neuraleng/People>

TCBE emails a regular newsletter to all PI's, postdoctoral fellows, and postgraduates. We welcome all news including journal publications, presentations at conferences, industrial or clinical collaborations, awards and research grants and new members to the teams.

Visitors to the Lab

We frequently have visitors to the Trinity Centre for Biomedical Engineering from funding agencies, industry and other prestigious educational institutes.

On occasion, you may be asked to describe your research area and the main purpose of it. For example, "I am working on EEG signal processing, which means that we are trying to extract diagnostic information from EEG signals during a cognitive task acquired using scalp electrodes. To do this I am manipulating these signals mathematically etc." Posters from conferences are used to help describe to visitors the results of our research.

These visits can be important for funding and financial support. To give the best impression, it is important to keep a tidy desk policy at all times in preparation of these visits. Please keep personal belongings in your under-desk units and keep shelves above desks organized.

Productive & environmentally friendly working environment

The most important thing about carrying out research in TCBE is that it should be enjoyable. You should enjoy working in your project area and working in the Trinity Biomedical Sciences Institute.

Here are some minor general housekeeping rules to bear in mind:

In order to be mindful of your co-workers, please make sure your mobile phones are kept on silent and take phone calls outside of the office/lab area. For discussions with colleagues please use the knowledge exchange on level 2 or use the TCBE meeting room.

To reducing waste levels and recycle the maximum volume of waste possible this building is the first building on campus where all offices are 'bin-less'. Instead of a bin at each desk there are central recycling points in accessible areas on all floors throughout the building (located opposite printer). Any non-recyclable waste should be placed in the general waste bins.

Printing – only print when necessary to reduce waste levels. Please set your printing to print double sided and in greyscale unless colour is essential.

The kitchen is one of the first areas visitors see when they enter the main reception area and must be kept tidy and clean at all times. Please wash, dry and put away any utensils - do not leave them on the sink.

TCD's IP Policy

For full information on IP Policy and technology transfer please contact the TCD Technology Transfer Office's website.

Health & Safety

Note that detailed information regarding Health and Safety in TCBE can be found on the *TCBE Lab Users SharePoint Website*.

Safety Statement & Project Risk Assessment

It is mandatory that all personnel familiarize themselves with college policies regarding health and safety which can be found here: <https://www.tcd.ie/safetyoffice/>. In addition, before any work may commence the relevant safety documentation must be completed and signed by the researcher in consultation with the principal investigator (PI). The safety statement may be downloaded here: <http://www.tcd.ie/mecheng/safetystatement/>. Once you have read the safety statement, you must submit the relevant acknowledgment form.

Safety training

There are various annual courses that “wet” lab personnel must attend. Examples include:

- Fire Safety & Extinguisher Training
- Safe Handling of Cryogenics such as Liquid Nitrogen
- Working with Compressed Gases
- College Radiological Protection Workshop
- College Biological Safety Workshop
- College Chemical Safety Workshop
- Laser Safety Training

Details of these courses can be found here: <https://www.tcd.ie/safetyoffice/safety-training/>

Biological Based Research (e.g. cell culture or tissue testing)

It is necessary to make contact with Dr Simon Carroll who is the TCBE Safety Officer to ensure sufficient and appropriate training has been provided before any “wet” lab work may be performed in TCBE facilities. Any individual proposing to undertake work (research or teaching) involving potential exposure to a biologically hazardous material must comply with the College Biological Agents Policy, and the provisions of all relevant legislation, in particular the Safety Health and Welfare at Work (Biological Agents) Regulations 1994, as amended 1998. Biologically Hazardous Materials include micro-organisms- natural or genetically modified, cell cultures, human endoparasites, human or animal tissues, fluids, preparations and derivatives, which may be able to cause any infection, allergy, or toxicity. It is the responsibility of each user of biologically hazardous material in College to ensure that the provisions of this policy are complied with. Before undertaking work with biological agents, the prior approval of the College Biohazard Officer is required. All work with chemicals must be done in the chemical fume hood within each lab.

Health Surveillance.

The College Occupational Health Physician will provide health surveillance as deemed necessary and will offer appropriate immunisation/vaccination where applicable. For example, immunisation is required for all personnel whose intended activities in College involve working with human cells or biological tissues. Typical vaccinations include **Hepatitis A**, **Hepatitis B** and **Tetanus**. Where immunisation is required, this will be paid for by the Department or Principal Investigator in question. Those receiving immunisation will be informed of the benefits and drawbacks of both immunisation and non-immunisation, and any offer of immunisation, which is refused, must be in writing. The Occupational Health Physician will keep records of any such health surveillance, in accordance with the requirements of the Biological Agents Regulations 1994, as amended 1998. The immune status of such individuals may have to be assessed before permission can be given for work to proceed, and it should be noted that at least six months may elapse before this can be determined in many cases.

Any individual working with biologically hazardous materials or chemical reagents who becomes pregnant or immunocompromised must immediately advise their PI, Departmental Safety Officer and TCBE Safety Officer, so that a further risk assessment can be undertaken. The TCBE Safety Officer may also act as a liaison between pregnant researchers and their respective supervisors or PIs to provide advice/guidance on best work practices and safety/risk issues.

Bioresources Unit (BRU)

All personnel wishing to access the Bioresources unit (BRU) are required to have a medical examination and register for a personnel code. Please discuss your individual requirements with your PI. Guidelines and policies of the BRU may be found here: <http://www.tcd.ie/BioResources/>

Personal Protective Equipment (PPE)

It is standard policy of TCBE to wear personal protective equipment (PPE) such as lab coats, gloves, face masks and safety glasses/ ear defenders (when necessary) in all laboratories at all times. PPE must not be worn outside designated laboratories such as corridors, offices, toilets or common areas.

Chemical Safety

The use of dangerous chemicals is strictly controlled by specific legislation, Safety, Health & Welfare at Work (CHEMICAL AGENTS) Regulations, 2001. The Regulations cover all chemical agents in the workplace, see page 14 of the Departmental Safety Statement for further details. In particular, new lab members should note that:

1. Hazardous substances may not be ordered without the permission of the TCBE Safety Officer.
2. All lab members must attend the College Chemical Safety Workshop.
3. All personnel using any chemical in the lab must read the manufacturer's Material Safety Datasheet (MSDS) for that chemical before using it for the first time.
4. All work involving chemicals must be carried out in a fume hood making full use of safety goggles, safety clothing and gloves.
5. Users must at all times adhere strictly to the guidelines for correct fume cupboard usage.
6. All stocks of chemicals or hazardous substances used in the Centre must be properly stored in suitable chemical storage presses.
7. All chemicals or hazardous substances used in the Centre must be clearly labelled including warning signs.
8. All chemical waste must be clearly labelled and disposed of promptly through College's Hazardous Materials Facility (HMF).

Affiliations for Conference Abstracts/Papers and Journal Articles

It is necessary on publications to include both the Trinity Biomedical Sciences Institute (TBSI) address and that of the department you are registered with for a higher degree (i.e. Dept. Mechanical Engineering or Dept. Of Electronic Engineering) and any other associated affiliations. This is so both TBSI and the School of Engineering will be accredited with the publication which is important for university world rankings etc. Please consult with your PI regarding this matter before submitting any publication.

Example:

Expansion in the Presence of FGF-2 Enhances the Functional Development of Cartilaginous Tissues Engineered using Infrapatellar Fat Pad Derived MSCs. C.T Buckley ^{1,2} and D.J. Kelly ^{1,2}

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