



LUXEMBOURG  
INSTITUTE  
OF HEALTH

TRANSLATIONAL  
MEDICINE  
OPERATIONS HUB  
TMOH



## Overview of the Translational Medicine Operations Hub (TMOH)

*Dr. Hermann Thien*

*Director TMOH, Head IBBL*

*25-Oct-2023*

## DEPARTMENT OF INFECTION AND IMMUNITY

The Department aims to understand the complex mechanisms of infectious and inflammatory disease processes in order to enable new ways to diagnose, prevent or cure human diseases. Such a strategy requires the existence of a highly interdisciplinary research environment with intensive collaboration of basic and clinical immunologists, engineers, biochemists, computational and systems biologists, public health specialists and clinician scientists.

The Luxembourg Institute of Health (LIH) is a public biomedical research organisation focused on precision health and invested in becoming a leading reference in Europe for the translation of scientific excellence into meaningful benefits for patients.

## DEPARTMENT OF PRECISION HEALTH

The Department of Precision Health is an interdisciplinary research centre, focusing on epidemiological, clinical and public health research across a wide range of areas including digital health, lifestyle, human biomonitoring, health economics and sociodemographic inequalities in key diseases such as cardiovascular conditions, neurodegenerative diseases, cancer, and COVID-19. By the evidence we generate, we aim at tackling the major causes of morbidity and mortality, improving quality of life and supporting clinical practice and public health bodies to advance the field of precision health.

## DEPARTMENT OF CANCER RESEARCH

Our vision is to impact on patients' life by advancing the fight against cancer. Based on strong scientific track-records, we focus on priority research areas and provide research expertise covering the most common and/or malignant cancer types representing a health burden in Luxembourg. The department also represents a state-of-the-art training ground for next generation cancer researchers and acts as a reference point for cancer research in Luxembourg.

## TRANSLATIONAL MEDICINE OPERATIONS HUB (TMOH)

TMOH offers the infrastructure to support translational medicine research.

TMOH@LIH



RESEARCH *Services*  
DEDICATED  
TO LIFE





**The Translational Medicine Operations Hub (TMOH)** ensures full support to clinical research, from the planning of the clinical research studies to their execution and closure via the collection, processing, storage and analysis of high-quality biological samples and structured clinical data.

## Mission of TMOH

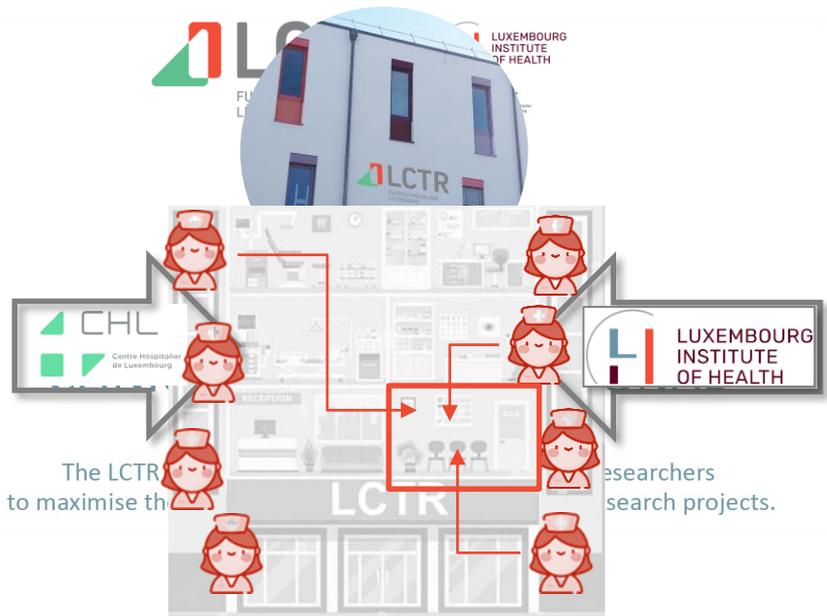
**The mission of TMOH is to improve patients' lives by providing Operational Excellence:**

- > Single Point of contact regarding Research Services for internal & external stakeholders
- > Inbuilt collaboration (clear processes, interfaces, roles & responsibilities) and exchange of resources (technologies, Subject Matter Experts)
- > Consulting for research projects regarding design, operations, regulatory aspects...
- > Seamless workflow and high-quality project execution
- > Continuous improvement – of methods, technology, science, quality, processes...

# Integrated translational capacities: TMOH



Operational integration of bed-bench-bed capacities in one department



## The LCTR is an interface between basic research, epidemiology and clinical research

- It is provided and maintained by CHL and LIH for the Luxembourgish Research Community
- Access to the facility is granted for P.I.s or companies whose projects have been selected by the translational steering committee.
- Projects have to be fully funded, or can be part of a strategic (in-kind) investment by the LCTR (in this case LIH)
- P.I.s can come from any hospitals or research institution or private parties
- Infrastructure (e.g. IBL satellite lab) incl. examination rooms for patients and healthy volunteers



Translational Steering Committee (TSC)





## CLINICAL PROJECT MANAGEMENT OFFICE

The CPMO coordinates the planning of translational research project in lines with LIH strategy



- **Main point of contact** for the various partners involved in Clinical Research projects, including clinicians and researchers
- **Support setup and conduct of clinical research projects** for private sponsors, researchers and investigators from other research institutions or hospitals (contract, admin, approvals, timelines, budget, etc.)
- **Link to and between the units of the TMOH** to support translational programmes
- **Coordinate and manage portfolio** of life science/clinical research projects according to the contract/scope of work, protocol, budget (setup financial contracts and manage financial aspects during the projects) and fixed timelines
- **Supervise and assist regulatory submissions** (national and international, to health authorities and research ethics committees) according to the applicable laws, administrative and regulatory requirements and obtain approvals
- Support the participation in European consortia and grant applications





## CLINICAL AND EPIDEMIOLOGICAL INVESTIGATION CENTRE

The CIEC supports research and health care institutions, international academia and pharmaceutical industry players, providing them with high quality clinical research and services.



- **Dedicated staff and infrastructure** (Research Nurses, CRAs, Coordination Team - consultation rooms, equipment)
- **Operational & educational support in the set-up and conduct of clinical research projects** to hospitals, health care professionals and researchers, including regulatory and ethical guidance
- Access to new and innovative therapeutic approaches/strategies for patients through participation in clinical studies
- Access to clinical research networks (ECRIN, EFGCP, EUPATI...)

CIEC is working according to operational standard procedures set up in the respect of Good Clinical Practice (ICH-GCP), ensuring Patients' rights & safety, as well as Data privacy.





## COMPETENCE CENTRE FOR METHODOLOGY AND STATISTICS

The CCMS supports LIH research units and international pharmaceutical industry players by providing them with high quality methodological and statistical services.

The CCMS provides support in study design, sample size calculation and statistical methodology for the study protocol, as well as preparing the statistical analysis plan, performing statistical analyses and reporting results.

- Methodological support in **statistical planning and analyses** for epidemiological (case-control, cohort) and animal studies, Clinical trials, Meta-Analyses, DSMBs,
- Support in **Data Collection, Data Management, Data Curation and Data Management Plan, Data Warehousing** in accordance with GCP, GCDMP and GDPR
- Training in statistics and support in writing papers.



LUXEMBOURG  
INSTITUTE  
OF HEALTH

INTEGRATED BIOBANK  
OF LUXEMBOURG  
IBBL



Biobanking



Sample processing



Sample analysis &  
Quality control



Biomarker validation



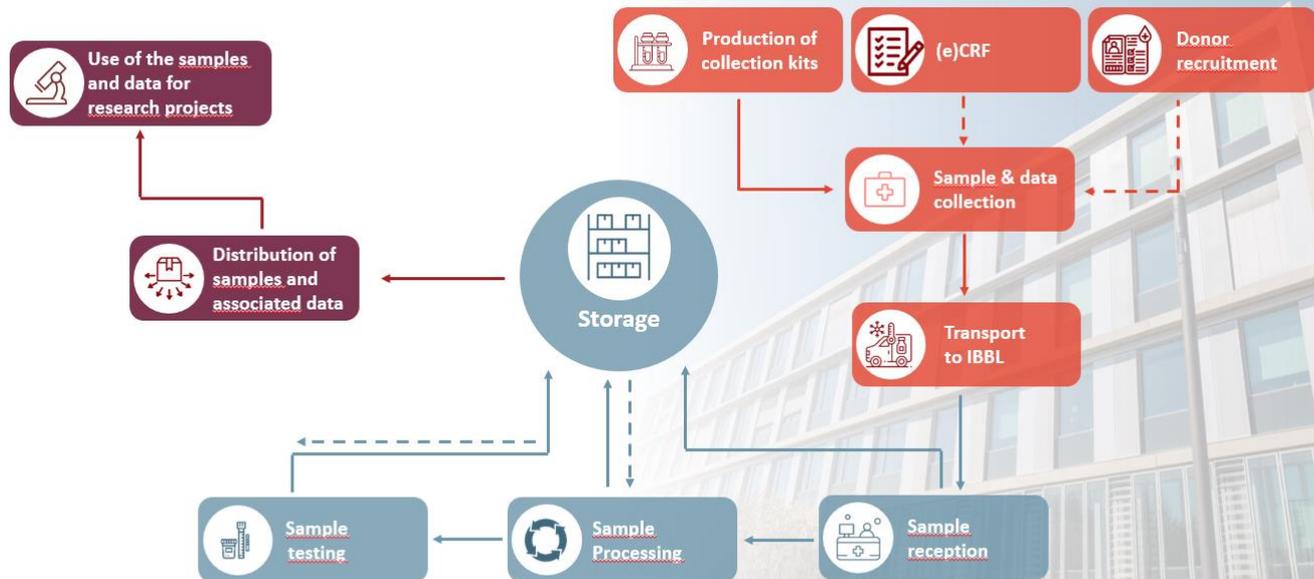
Proficiency testing



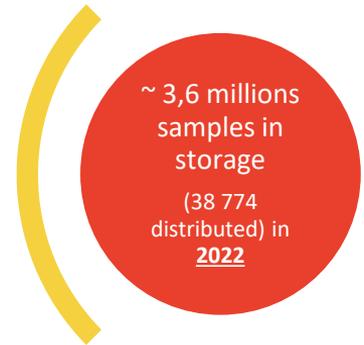
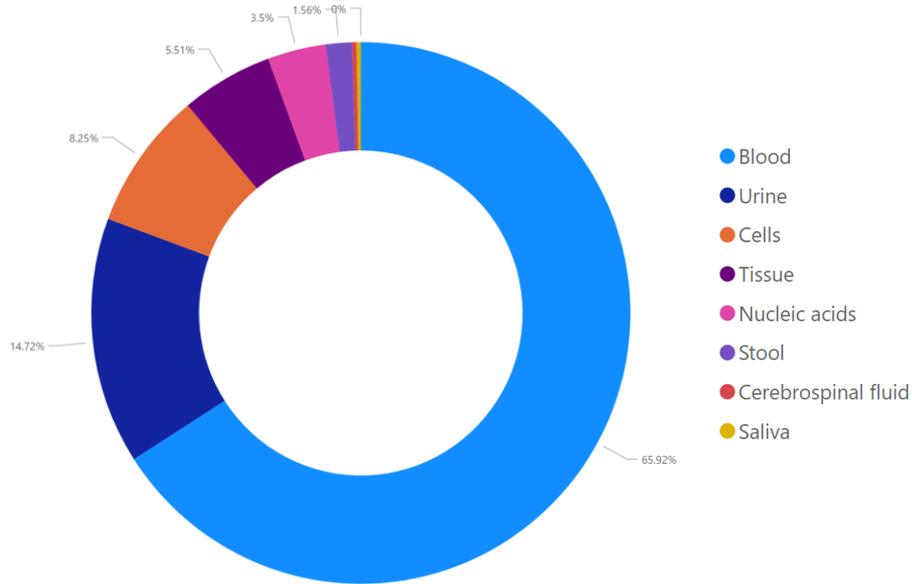
Pathology services

IBBL/LIH offer a full range of biospecimen-related services to industry, academia & EU consortia

# Sample & Data production *process flow*



# a few numbers



Storage/distribution

# TRANSLATIONAL MEDICINE OPERATIONS HUB TMOH



## Scale

- ongoing projects: ~100
- Budget 2022: 11.2mio
- of which ca. 40% external funding (EU, FNR, consortia, industry)
- FTE: ~100

## IBBL

- Dedicated facilities of 1500m<sup>2</sup>
- 23x LN<sub>2</sub>, 45x -80°, 13x -20°, 17x 4° (+ 5x -80° per year)
- 6000l LN<sub>2</sub> tank outside
- 117 sensors, 34 data loggers
- Large equip: 25 (e.g. analysers, automates) +12@NCP
- Small equip: 146 (e.g. centrifuges, cryocarts)

## Staff

- IBBL 44
- CIEC 21.5
- CPMO 16.5
- CCMS 11
- LuxGen 2.5
- DMSP 3
- TMOH 2

*Total 100.5*



# Partners & Projects

## Sample Collections within Luxembourg

### National collections:

- Oncology (LCS, SOCS)
- Neurodegenerative disease (ND Collection)
- Immunity (SYST-ACT)

### PrediCovid:

Predicting the severity of COVID-19 infection

### CON-Vince:

Evaluate the prevalence and dynamics of the spread of the COVID-19 disease within the Luxembourgish population

## EU projects

Central Lab and central biobank



## Academic partners

Central lab and central Biorepository



*The future of cancer therapy*



## Pharma partners

Trials with IMP  
Phase I, II & III  
Registries, PASS



**SCOL**

**PADOVA**





LUXEMBOURG  
INSTITUTE  
OF HEALTH

Better Samples  
Better Data  
Better Science

THANK YOU



Dr. Hermann Thien  
*Director TMOH, Head of IBBL*  
hermann.thien@lih.lu

For more information visit: [www.lih.lu](http://www.lih.lu)

Join us on social media:

