CORE FACILITIES

CITADEL

Romain Berti
Core Facility Manager

The Centre for the Integration and Analysis of Medical Data (CITADEL) core facility is a centre of expertise in data science with a data lake infrastructure that stores the CHUM's clinical, administrative and research data.

The CITADEL's mission is to promote data science innovation in the field of health.

CITADEL is made up of a team of highly qualified specialists (data architects, data scientists, bioinformaticians, biostatisticians, doctors) to support you in your research projects, and adheres to ISO 9001 certified procedures.

SERVICES

BIOSTATISTICS AND METHODOLOGY
> Methodological consultation
> Help writing articles and data management plans
> Sample size calculation and feasibility study
> Data analysis and interpretation of results
> Omic and bioinformatics analysis

DATA ACCESS AND ANALYSIS
> Management and storage of research data
> Extraction and preparation of data from the data lake
> Feasibility study in preparation for a research project
> Integration of variables and various data sources
> Algorithmic validation and advanced data analysis

GENOMICS
> Methodological consultation (e.g. choice of technologies, experimental design)
> Developing bioinformatics analysis pipelines
> Genomic/epigenetic data analyses and interpretation of results

ANALYTICS
> Predictive analytics
> Artificial intelligence
> Data visualization
> Heterogeneous data integration

HIGHLIGHTS

Since our launch in 2018, our team of 23 people:

supported **135 people** as part of the research component and has more than **1,400** REDCap **users**

relies on more than **30 integrated information systems**

has access to a data lake containing nearly **4 million** patient records and more than **20.5 million** episodes of care

RESEARCH IN ACTION

Thanks to CITADEL's support, Dr. Simon Turcotte's team was able to analyze complete tumour genomes and establish lists of priority neoantigens for patients as part of an adult cancer immunotherapy project. Our statistical specialists were involved in the design and specification of a study led by Dr. Daniel Von Renteln and helped secure major CIHR funding for his project to reduce neoplasia recurrences after endoscopic resection of large colorectal polyps. As part of the GEVIS study, our data specialists helped Dr. Nguyen Quoc Dinh characterize geriatric vital signs and develop new indicators optimized to predict clinical outcomes in the elderly.