



Open Science Clinical, Biological, Imaging and Genetic Repository – An Integrated Approach To Biobanking

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INTRODUCTION

The C-BIG repository is a program established as part of the neuro's open science initiative to integrate research in neurobiology with human clinical studies of neurological diseases. It will accomplish its mission with the collection of human biological samples from well-characterized patient populations. The goal of the program is to expedite the development and formal evaluation of emerging therapies aimed at halting and ultimately reversing disabilities caused by neurological diseases.

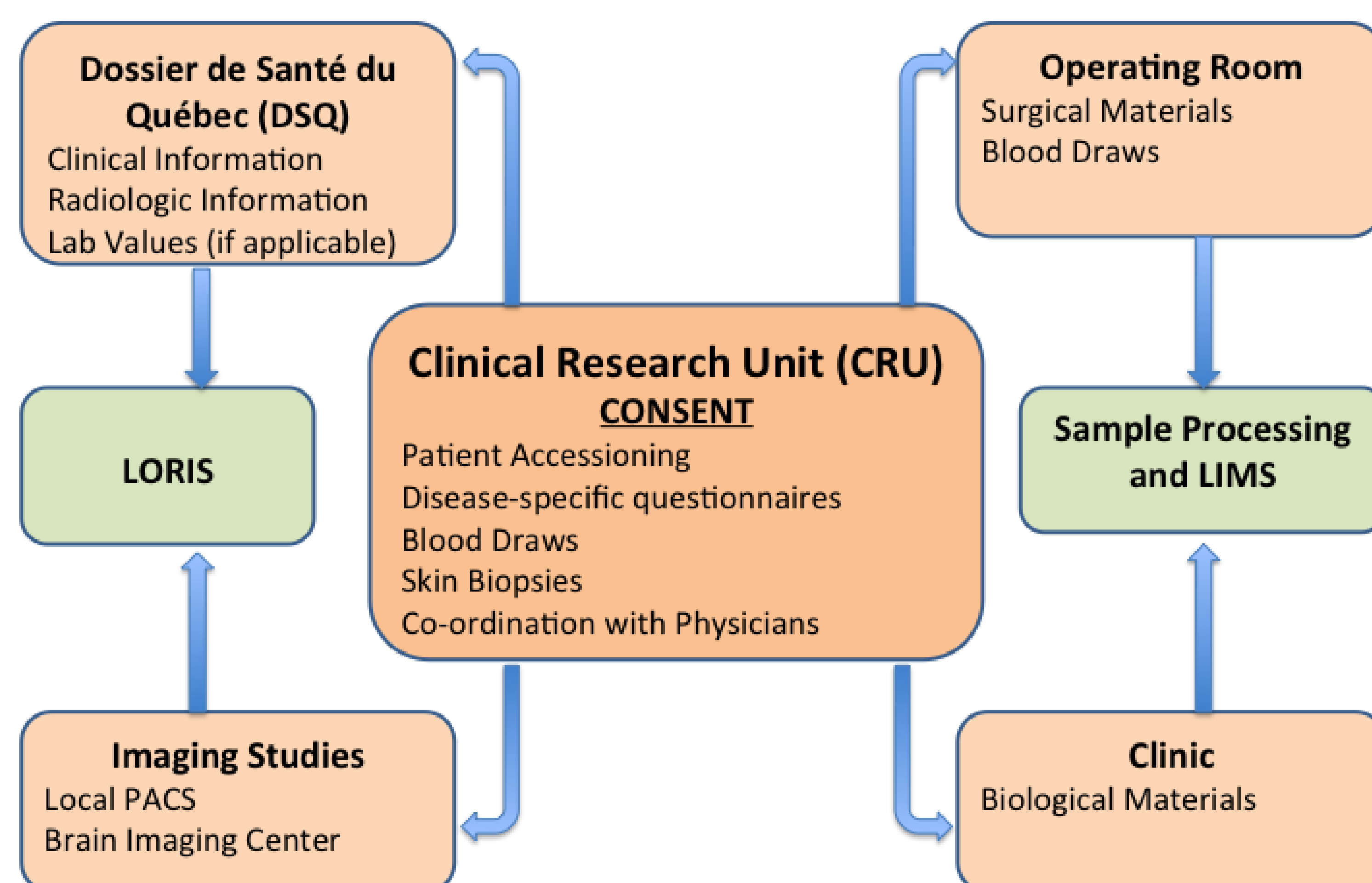
GOAL

Collect clinical, biological, imaging and genetic material from patients and healthy controls to drive cutting edge research projects that will advance our understanding of neurological diseases.

The neuro already has key metrics to make this collection unique:

- ❖ Clinical Research Unit (CRU)
- ❖ SOP driven industry trained expert tissue processing team
- ❖ TM and Nautilus LIMS for sample storage, tracking and chain of custody
- ❖ Excellence in neuroimaging, Brain Imaging Center (BIC)
- ❖ Informatics expertise, Longitudinal Online Research and Imaging System (LORIS)
- ❖ Clinical and Translational research activities (MUHC / MNI / McGill)
- ❖ Patients

TISSUE AND DATA COLLECTION



SPECIMEN COLLECTED

Whole blood

- ❖ PBMC
- ❖ Serum
- ❖ Plasma
- ❖ DNA
- ❖ RNA
- ❖ PBMC derived iPSCs

Saliva

- ❖ DNA

Cerebrospinal fluid (CSF)

- ❖ Cells
- ❖ Supernatant

Biopsy

- ❖ Skin tissue (iPSC)
- ❖ Muscle tissue
- ❖ Brain / tumor tissue

CORE FACILITY EQUIPMENT

Flow Cytometry

- ❖ Cyan ADP Analyzer
- ❖ BD FACSCalibur
- ❖ BD FACSAria cell sorter

Plate Readers

- ❖ Luminex 100
- ❖ Victor3
- ❖ CTL Immunospot
- ❖ EnSpire

Imaging

- ❖ ImageXpress
- ❖ Zeiss inverted and Brightfield scope

Others

- ❖ Nanodrop
- ❖ Cell Harvester
- ❖ Z1 Particle Counter
- ❖ Countess Cell counter
- ❖ ULT Freezers (-80C / LN₂)
- ❖ LIMS (Nautilus / Tissue Metrix)
- ❖ Zebra 2D Barcode printer and scanner

ONGOING PROJECTS

Québec Parkinson's Network (QPN)

- ❖ 115 patients

Specimen	Total Donors
Blood	35
Saliva	77

- ❖ 50 patients will be consented for imaging at the brain imaging center (BIC)

CSF

- ❖ 5 patients (with time matched blood from 4)
- ❖ SOPs development for an immunophenotypic analysis of the cellular component (see fig.1)

Skeletal Muscle Tissue in Patients with Myopathy

- ❖ 5 patients (blood and muscle biopsy)

iPSC

- ❖ 3 patients (blood and skin biopsy)
- ❖ Comparison of iPSCs generated from PBMCs and fibroblasts (done in collaboration of CHU of Quebec)

FUTURE COLLABORATION

CHU Ste-Justine, Dr. Michaud

- ❖ Collection of PBMCs, fibroblasts, iPSC from patients with intellectual deficiencies

University of Calgary, Dr. Oury Monchi

- ❖ Collection of DNA from patients with Parkinson disease

CONCLUSIONS

- ❖ The biorepository will improve and facilitate the patient flow and the specimen / data collection.
- ❖ Make the data open to all researchers
- ❖ Researchers will be encouraged to return results back to the C-BIG repository
- ❖ Empower patients by allowing them to participate indirectly in research aimed at advancing our understanding of their diseases.

IMMUNOPHENOTYPIC ANALYSIS

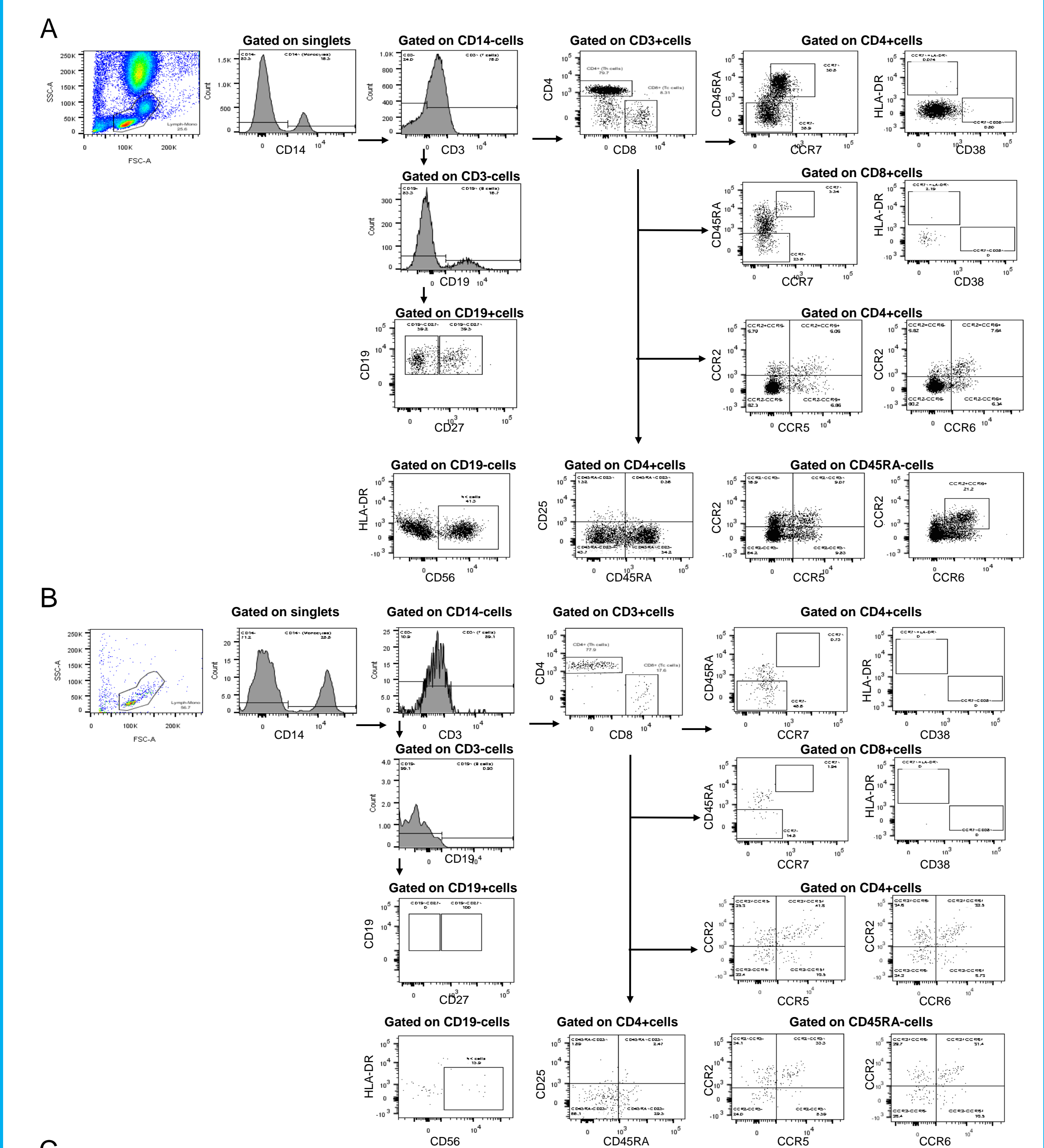


Fig. 1. Immunophenotyping analysis. PBMC (A) vs CSF (B) and a summary table of cells subgroup percent in PBMC vs CSF (C)

CONTACT

To inquire about potential collaboration and services please contact:

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