An introduction to:

Platformfest – 17 Jan 2024

CRBS is a Research Centre & a Platform:

CRBS's Mission is to exploit the power of structural biology and biophysics to produce the next wave of scientific breakthroughs in:

(i) determining the molecular basis of disease and treatments

(ii) leveraging biophysical, chemical and synthetic biology for health

To train a new generation of structural biologists and biophysicists with outstanding expertise in using cross-disciplinary approaches for biomedical research

To make structural biology and its many strengths accessible to the broader biomedical research and health community.

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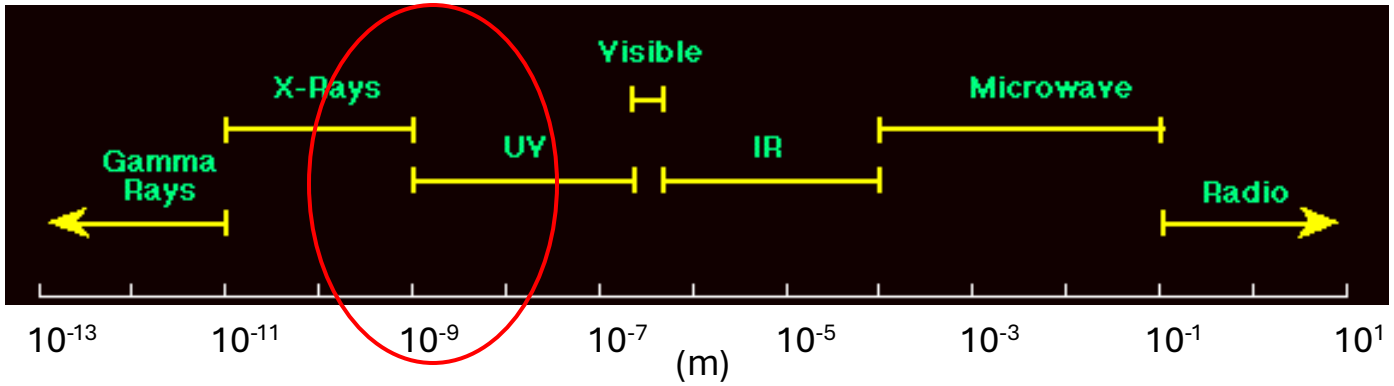
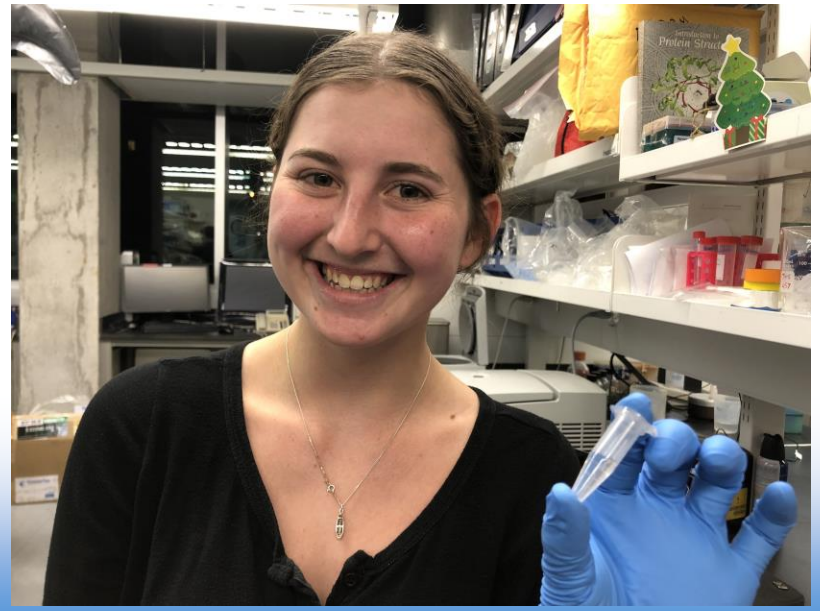
The Fundamental Problem:

-the molecules that underpin all health and disease are very small and thus not visible even with a very, very powerful light microscope





Biophysics & Structural Biology to the Rescue!

-What protein/RNA/DNA/complex looks like
-What is binds, how it binds
(no biomolecule is an island, entire of itself)

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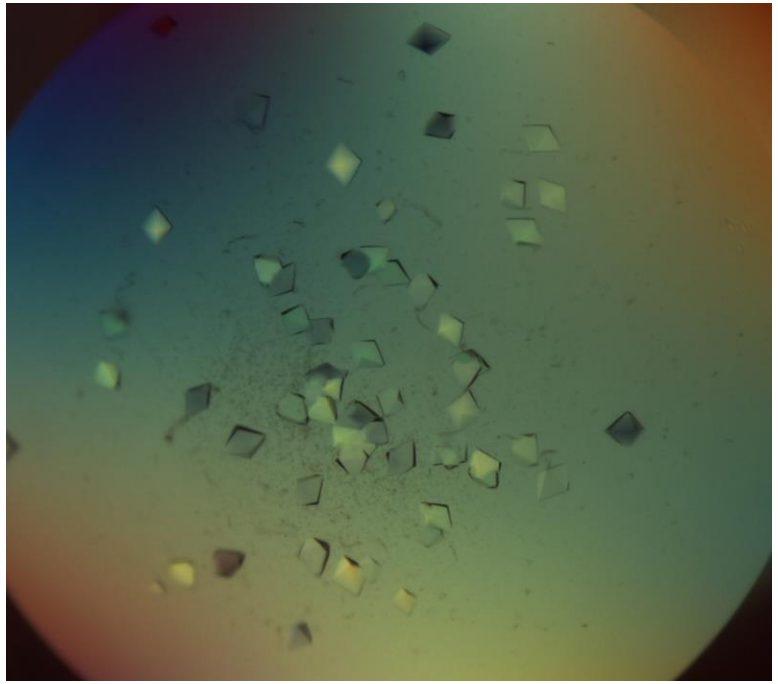
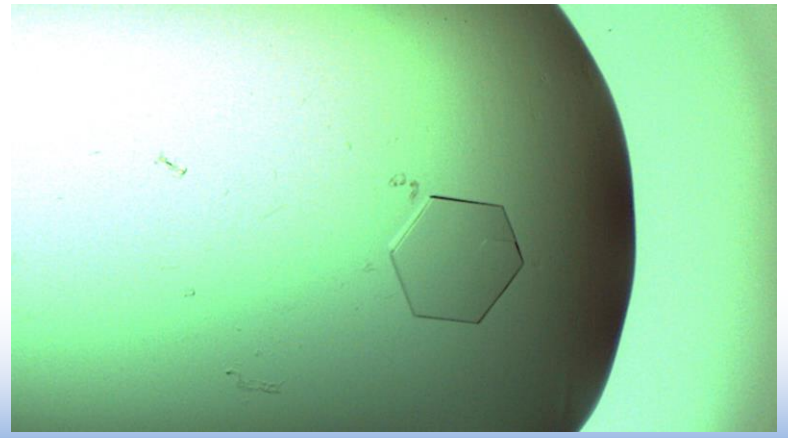
Equipment to address this Fundamental Problem:





Crystallography 1: High-throughput crystallization hub

Robots

Controlled incubation & UV/vis camera

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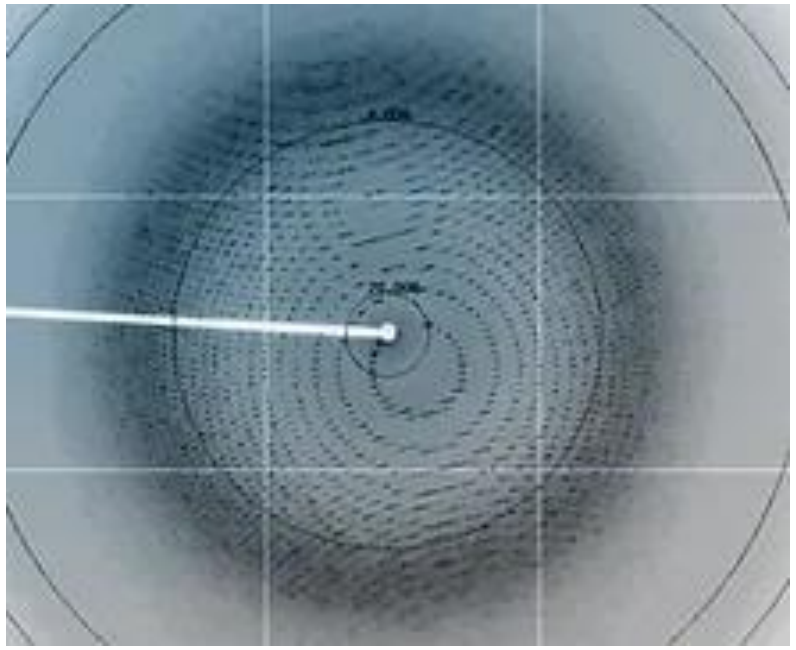
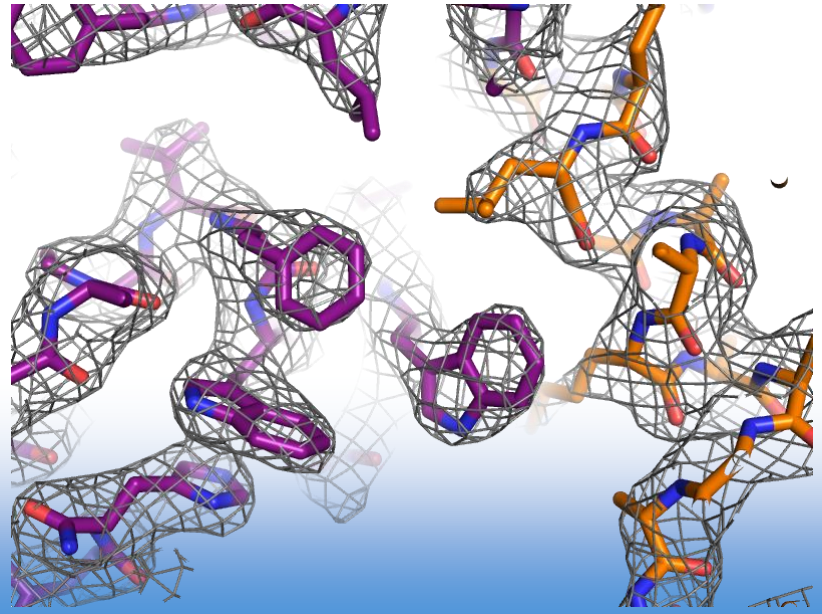
Equipment to address this Fundamental Problem:





Crystallography 2: Macromolecular X-ray analysis hub

Single crystal diffraction (CRBS's D6 & RI-MUHC's D6): High res structure & crystal screening

Small angle X-ray scattering (SAXS): Shape info

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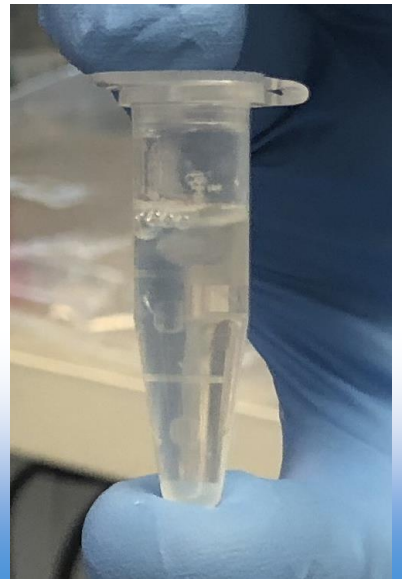
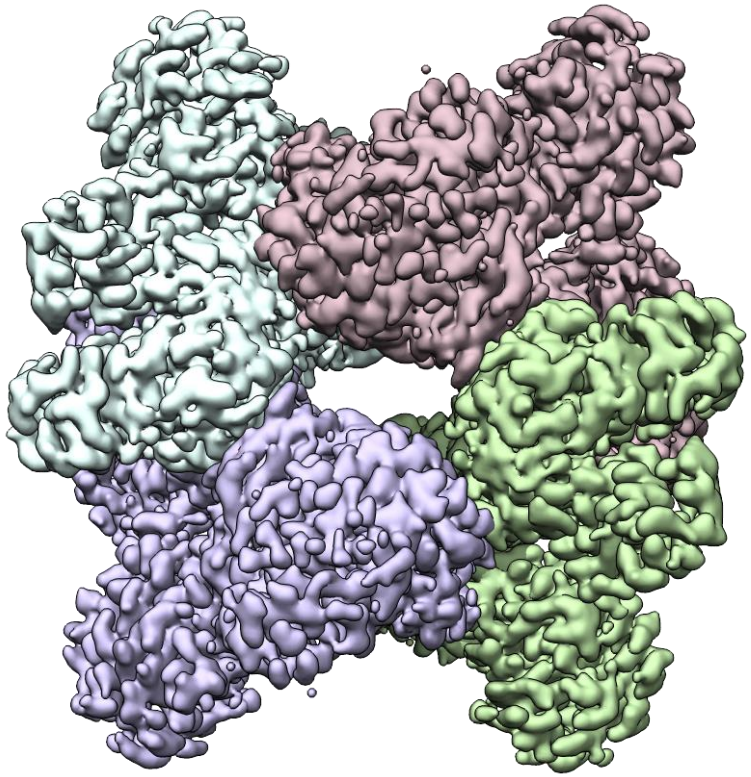
Equipment to address this Fundamental Problem:

EM prep: Vitrobot, carbon coater and glow discharger



FEMR



Equipment to address this Fundamental Problem:

NMR: 600 MHz spectrometer with cold probe. Small molecule structure determination and protein dynamics, ligand binding and structure.

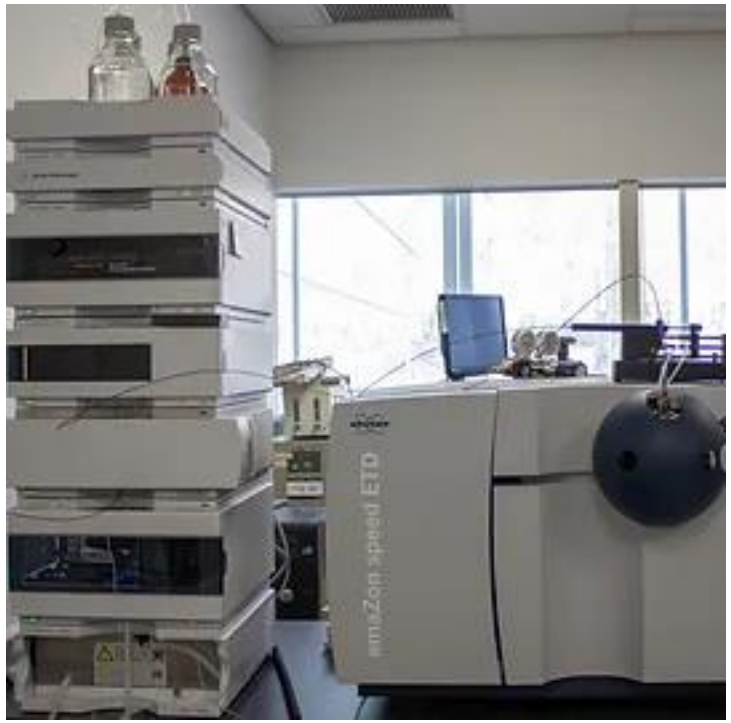
This NMR also has NMR friends in Chemistry

Equipment to address this Fundamental Problem:

Mass Spec:

Microflex MALDI –TOF: Metabolite, small molecule and small protein detection and analysis.

Amazon Speed ETD ion trap mass – HPLC: intact protein mass and small molecule mass.



These MSs has MS friends in SPR-MS platform

Equipment to address this Fundamental Problem:

All the Biophysics: Protein-protein interactions platform
-three isothermal titration calorimeters (ITC) for measuring binding affinities,
-multiangle and dynamic light scattering instruments and analytical ultracentrifuges for characterizing shape and oligomeric mass
-a circular dichroism (CD) spectrometer for determining protein secondary structure
-a Biocomp Gradient Station for purification, crosslinking and molecular density analysis
-several fluorometers for measuring binding affinities and protein stability.

These MSs has MS friends in SPR-MS platform

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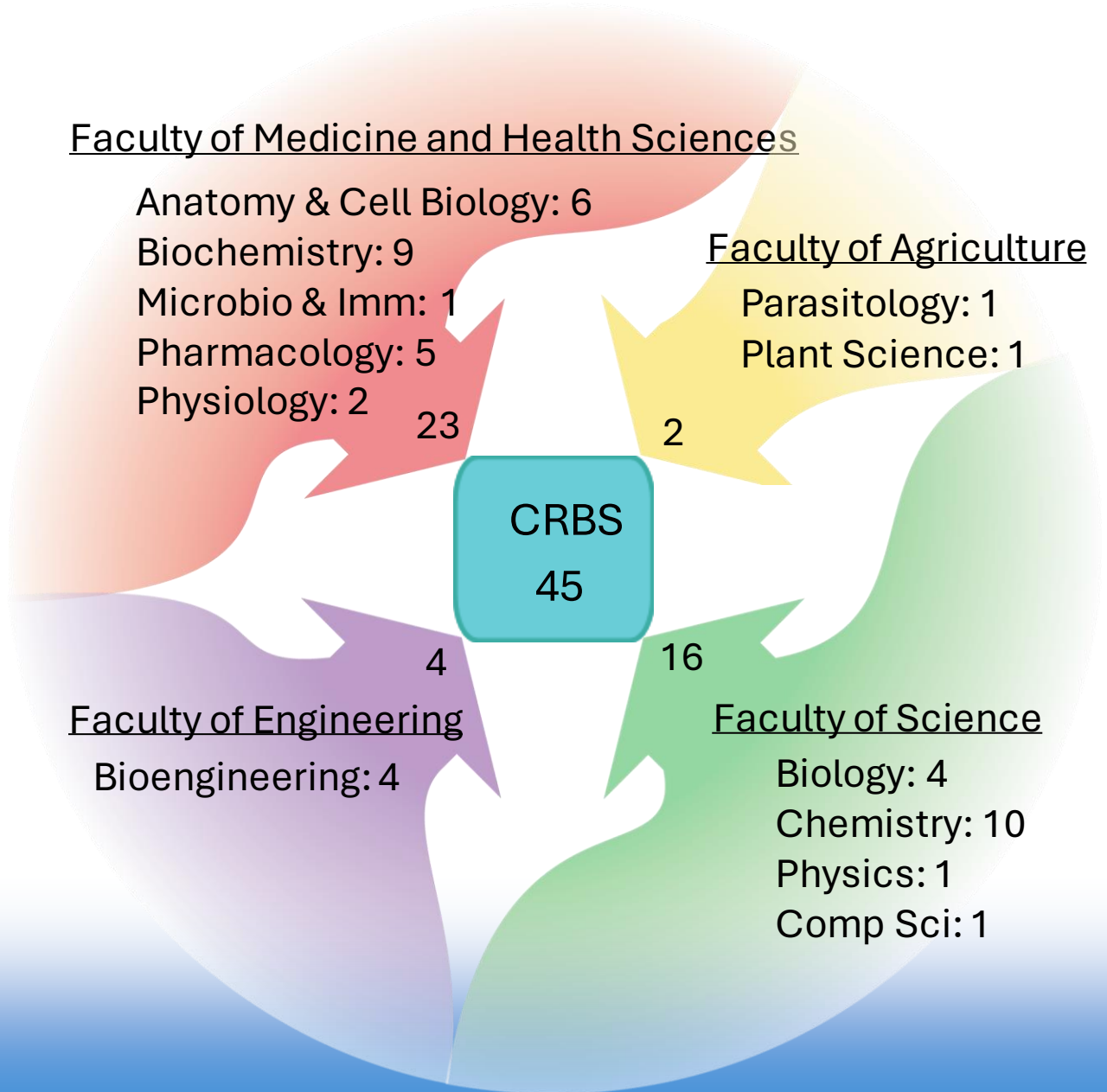
CRBS PIs / Core users of Biophysics Platforms



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Linking to others

We can:

-Facilitate your research if you would like to get into biophysics

-Collaborate on a PI-PI level (funding available! RI-MUHC, MI4, GCI)

-Put on joint events with your Centre / Platform

-Access the power of AlphaFold (one-on-one, or group)

CRBS Centre de Recherche en Biologie Structurale

Atelier du CRBS
Exploration des structures de protéines avec PyMOL et AlphaFold2

Instructeur: Jean-François Trempe
Date: vendredi, 17 juin 2022, 13-16h
Session virtuelle sur Zoom

Le *Centre de Recherche en Biologie Structurale* (CRBS; https://fr.crbsmcgill.ca/) de l'Université McGill a le plaisir d'annoncer la tenue d'un atelier d'exploration des structures biomoléculaires, qui aura lieu le **17 juin 2022 à 13h**. Ce cours intensif de **3h sur Zoom**, en **français**, est gratuit et

www.CRBSMcGill.ca

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Martin Schmeing, Director (me!)
Christopher Thibodeaux, Associate Director
Natalie Zeytuni, Associate Director
Plus an awesome exec council and student body

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