

## CRBS Summer Bootcamp

### Using Native Mass Spectrometry to Investigate Protein Tertiary and Quaternary Structure

Instructor: Christopher Thibodeaux

Date: Tuesday, July 27, 2021

Time: 1 – 4 PM

<https://mcgill.zoom.us/j/87083468891>

This bootcamp will cover the theoretical and practical aspects of conducting mass spectrometry experiments on natively folded proteins to investigate tertiary/quaternary structure and ligand binding interactions. The seminar will consist of four sections:

1. Native MS basics: What is native MS and what is the theoretical basis for maintaining proteins in a natively folded state in gas phase MS experiments? What are the experimental requirements for conducting native MS experiments? How do you know that your protein is natively folded in the gas phase?
2. Practical aspects for (cheaply!!!) preparing native MS experiments: How to make nanospray ESI emitters, how to prepare protein samples for native MS analysis, how to load protein samples into emitters and onto the MS.
3. Live (virtual) demo illustrating how to tune the MS instrument to maintain native structure in the gas phase. The demo will take place on a Waters Synapt G2-Si ion mobility mass spec (the most popular model for performing native MS experiments).
4. (Time permitting) Examples from the literature where native MS has been used to characterize ligand binding, protein conformational changes, determine binding equilibria, study allostery, and investigate quaternary structure.

The session will take about 2 hours, but it may overflow to 3 hours depending on how many questions we get. **Feel free to interrupt at any time during the seminar if you have questions!!**

A recording of the tutorial will be made freely available to those who registered for the Bootcamp.

Looking forward to seeing you on July 27!

Chris Thibodeaux