

# WORKSHOP SUMMARY

Workshop: Matrix application I/II

Topic: TM Sprayer

Session: 3D & 4D

Time: Wednesday 9:00 am & 11:00 am

## Background

A variety of methods are used to coat MALDI matrix onto tissue sections. For many applications it is applied in solution form so that analytes are extracted and co-crystallized with the matrix. Solutions may be spotted in array format using either inkjet printers or acoustic deposition spotters, however data are obtained from the spotted areas only and the spatial resolution is limited to  $\sim 250 \mu\text{m}$ . Manual spray methods typically utilize hardware such as a glass reagent sprayer or artist airbrush and generally produce homogenous coatings with small crystals. However, these methods are difficult to perform reproducibly with respect to the total amount of matrix applied and initial wetness of the coating. Analyte delocalization is possible if tissues become too wet. Optimized robotic spray deposition is an alternative method that is used to reproducibly coat tissue sections with MALDI matrix. This workshop will highlight the use of the TM Sprayer (by HTX Technologies) to apply matrix onto tissue sections.

## Highlights

- Hardware (gas connections, solvent pump, injection valve, in-line filter, nozzle design, sample stage, pressure gauge, temperature controller) will be discussed
- Software (instrument control, spray pattern method design, plate size/location) will be presented
- The effect of various parameters on coating will be discussed (nozzle height above target, flow rate, stage velocity, temperature, matrix concentration, solvent composition, number of passes, track spacing, dry time, stage movement)
- The resulting matrix coating will be examined (wetness, uniformity, amount, crystal formation)

## Summary

MALDI targets containing tissue sections will be robotically coated with a solution of matrix. Instrument parameters will be discussed and matrix coating evaluated. Participants will have the opportunity to alter conditions and observe spray pattern results.

