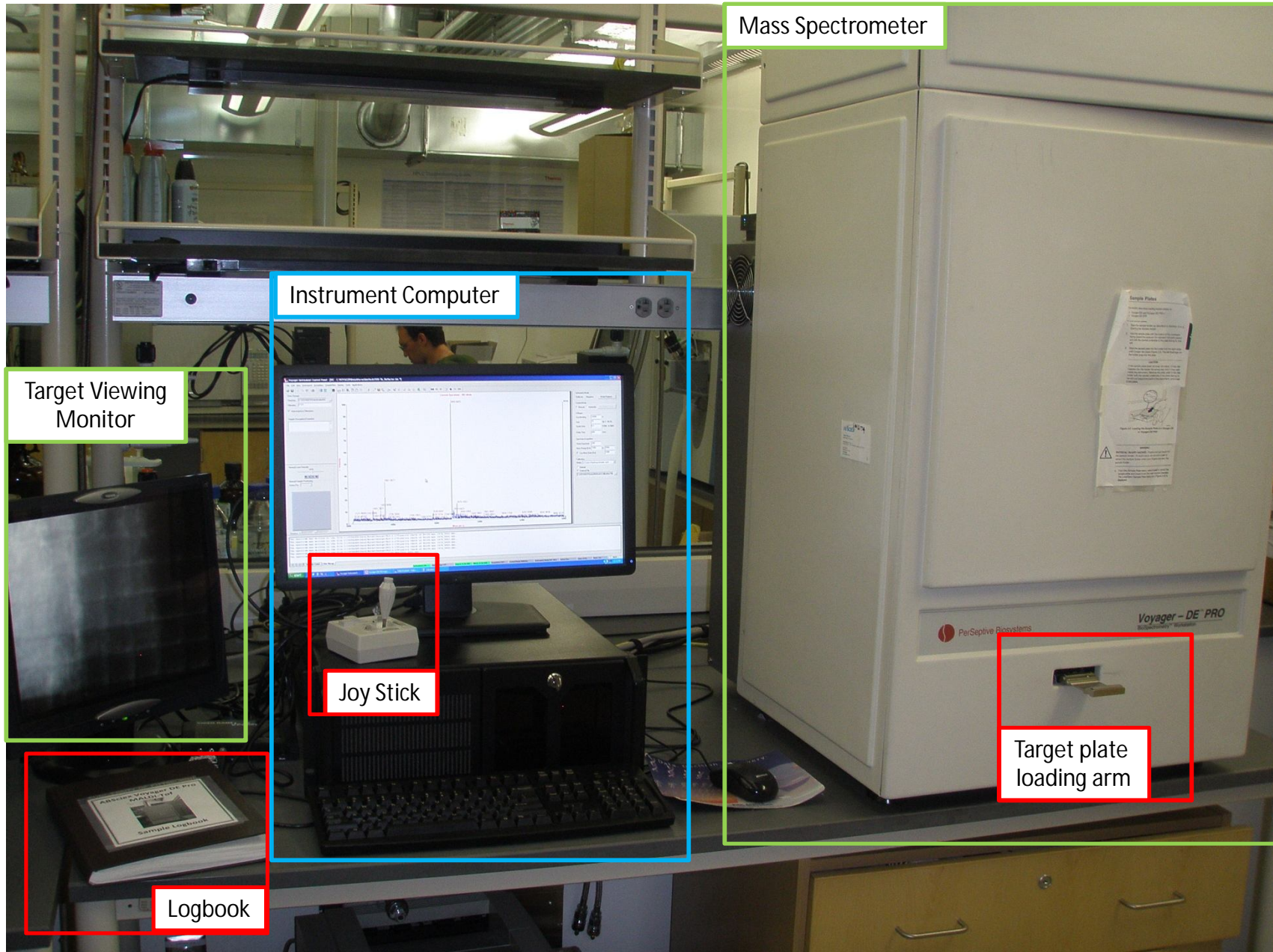


Voyager-DE PRO ABSciex

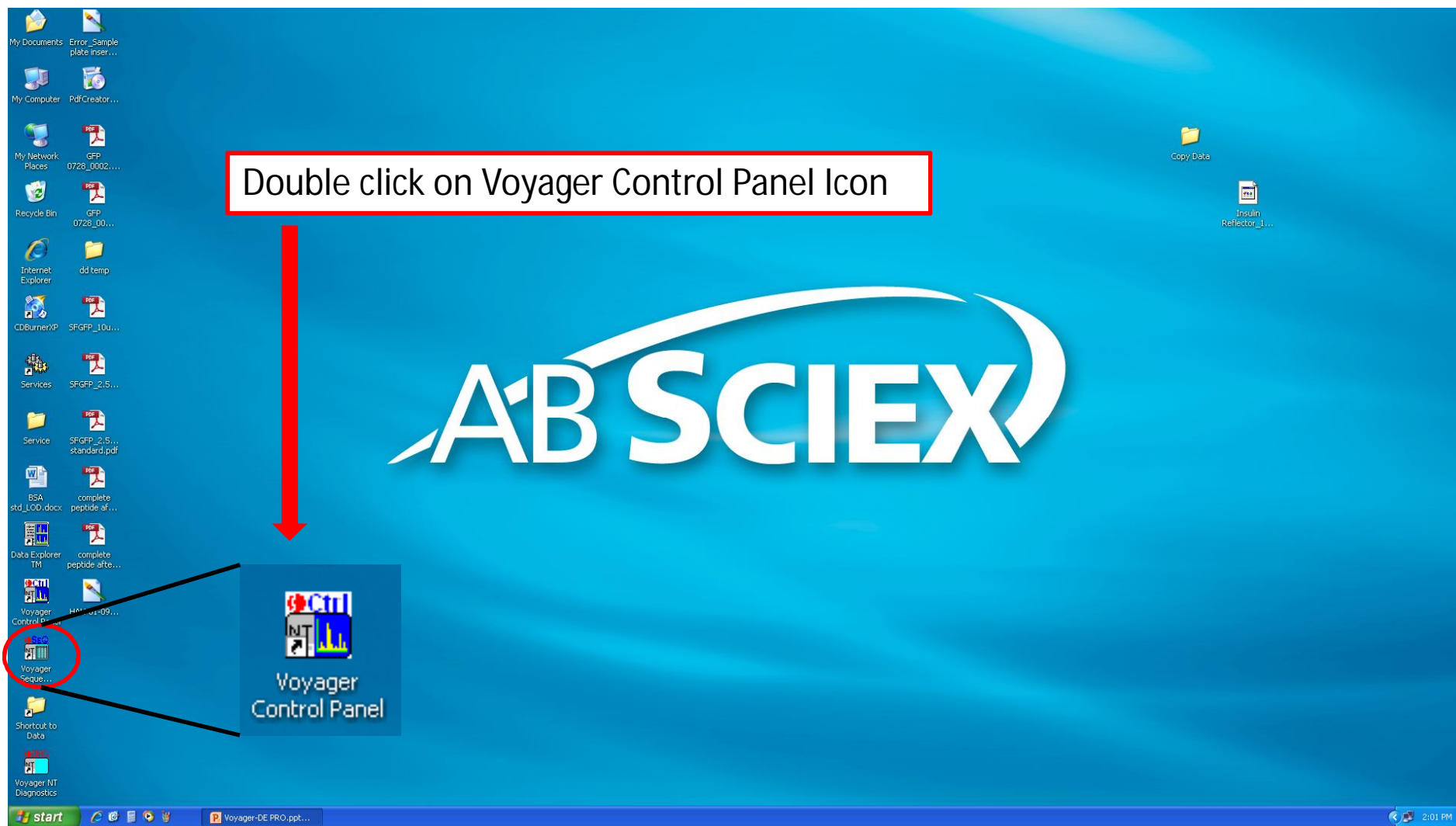
Instructional Guide
prepared by Emanuel Schreiber
May 28, 2015



The MALDI-ToF System



To Start the Voyager Software



Instrument Control Panel

The screenshot displays the Voyager Instrument Control Panel software interface. The window title is "Voyager Instrument Control Panel - [BIC - Default Instrument Settings]". The interface includes a menu bar (File, Edit, View, Instrument, Acquisition, SamplePlate, Display, Tools, Applications), a toolbar, and several control panels. A central spectrum window shows a plot of % Intensity vs. Mass (m/z) with the title "Current Spectrum - 0 shots". The plot shows a single peak at approximately m/z 254.000. The interface is annotated with several callout boxes:

- Instrument settings file name**: Points to the "Data Storage" panel on the left, which includes fields for Directory (C:\VOYAGER\Data\Rozi\Yich), Filename, and a checked "Autosequence Filenames" option.
- Toolbar**: Points to the toolbar at the top of the window.
- Data Storage Control page**: Points to the "Data Storage" panel.
- Spectrum window**: Points to the central mass spectrum plot.
- Instrument Settings Control page**: Points to the right-hand control panel, which includes sections for Instrument Mode (Linear, Positive, Mode/Digitizer...), Control Mode (Manual, Automatic, Automatic Control...), Voltages (Accelerating: 20000 V, Grid: 94, Guide Wire: 0.05, Delay Time: 100 nsec), Spectrum Acquisition (Shots/Spectrum: 50, Mass Range [Da]: 500 to 5000, Low Mass Gate [Da]: 500), and Calibration (Matrix: s-Cyano-4-hydroxycinnamic acid, Default/External File).
- Manual Laser/ Sample Position Control page**: Points to the bottom-left control panel, which includes "Manual Laser Intensity" (2400), "Manual Sample Positioning" (Active Pos), and relative/absolute coordinates for X and Y.
- Output window**: Points to the large empty area at the bottom of the interface.
- Status bar**: Points to the bottom status bar, which displays system information: Instrument-ON, High Voltage-OFF, Source-2.2e-006, Mirror-4.0e-006, Acquisition-OFF, Control Mode-MANUAL, Instrument Mode-LIN POS, Active Pos, Laser-2400, Shots-0, NUM.

Before running instrument

- sign in logbook
- check the status bar

- 1) Instrument-ON
- 2) High Voltage-OFF
- 3) Vacuum: Source (green) less than $e-06$
Mirror (green) less than $e-07$

| | | | | | | | | | | |
|---------------|------------------|------------------|------------------|-----------------|---------------------|-------------------------|-------------|------------|---------|-----|
| Instrument-ON | High Voltage-OFF | Source- 2.0e-008 | Mirror- 3.9e-008 | Acquisition-OFF | Control Mode-MANUAL | Instrument Mode-LIN POS | Active Pos- | Laser-2400 | Shots-0 | NUM |
|---------------|------------------|------------------|------------------|-----------------|---------------------|-------------------------|-------------|------------|---------|-----|

1

2

3

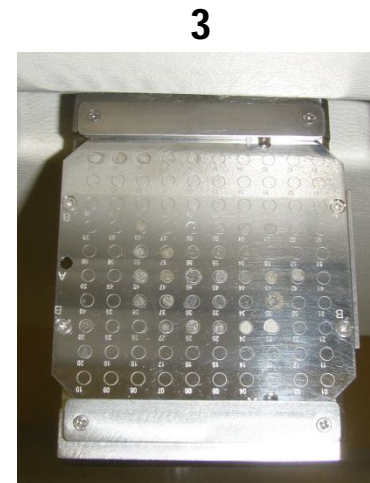
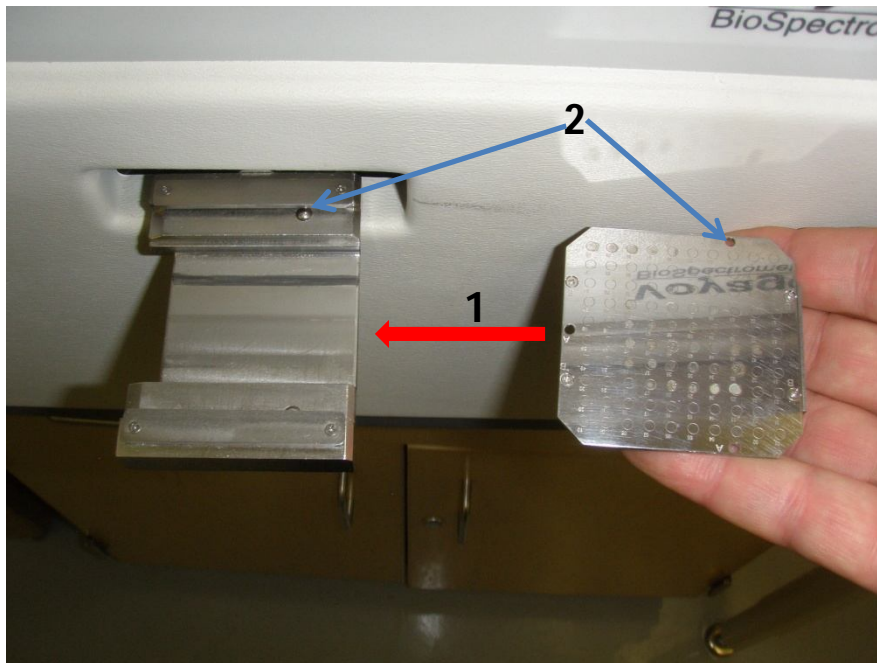
Ejecting MALDI Plate Holder

- 1) Click on "hand" icon on tool bar.
- 2) Click on Eject... button.
- 3) Holder will be exposed.

The screenshot shows the Voyager Instrument Control Panel software interface. The title bar reads "Voyager Instrument Control Panel - [BIC - Default Instrument Settings]". The menu bar includes File, Edit, View, Instrument, Acquisition, SamplePlate, Display, Tools, and Applications. The toolbar contains various icons, with a hand icon circled in red and labeled "1". Below the toolbar, the "Data Storage" section shows the directory "C:\WOYAGER\Data\RosiYich". On the right side, the text "Current Spectrum - 0 shots" is displayed in red. A blue arrow points from the hand icon to a "Load/Eject Sample Plate" dialog box, which is labeled "2". This dialog box has fields for Plate ID, Plate Type, Last Aligned, and Optimization Created, along with a checkbox for "Use Mass Accuracy Optimizations". The "Eject..." button is circled in red. A blue arrow points from the "Eject..." button to a "Load/Eject Cycle Status" dialog box, which is labeled "3". This dialog box shows "Source Chamber (BA1) Pressure" at 2.0e-008 and "Sample Chamber (TC2) Pressure" at 1.4e-003, with a status message "Preparing Sample Stage For Plate Eject". A blue arrow points from the "Load/Eject Cycle Status" dialog box to a photograph of the MALDI plate holder being ejected from the instrument, also labeled "3".

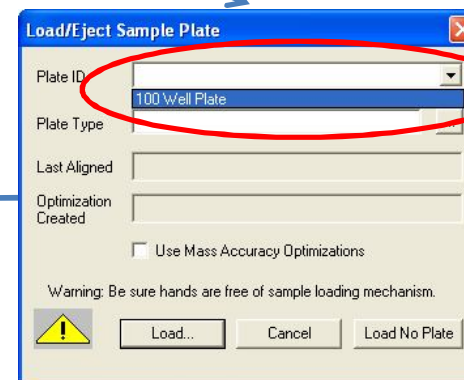
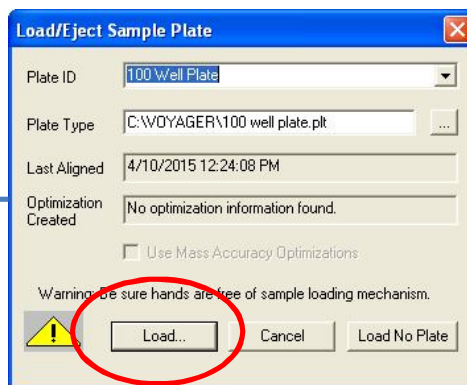
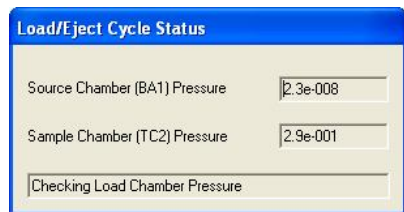
Sliding plate onto holder

- 1) Slide plate into holder (from right to left). **NOTE:** Well numbers on plate will be upside down as you look down at plate.
- 2) Plate will “snap” into place when balls align with holes in plate. Base on right side.
- 3) **IMPORTANT** make sure plate is in holder correctly, or the plate may fall off holder inside instrument. (You don't want this to happen)



Loading MALDI Plate

- 1) Click on "hand" icon on toolbar
- 2) Select Plate ID, 100 Well Plate.
- 3) Click on Load... button. Plate will then move into instrument.



3

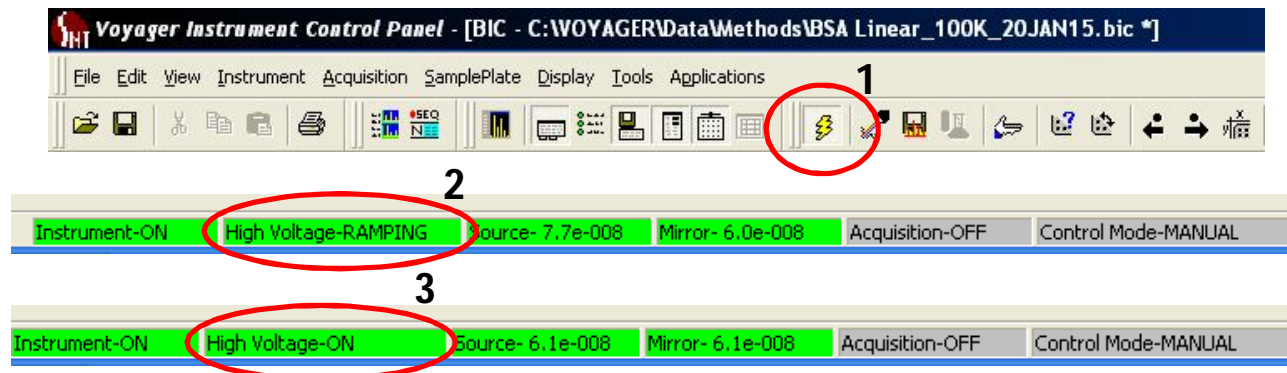
2

Running a Sample

- A. Turn on High Voltage
- B. Load instrument method
- C. Input sample information
- D. Move target into position
- E. Fire laser and collect data
- F. Save data
- G. Remove plate

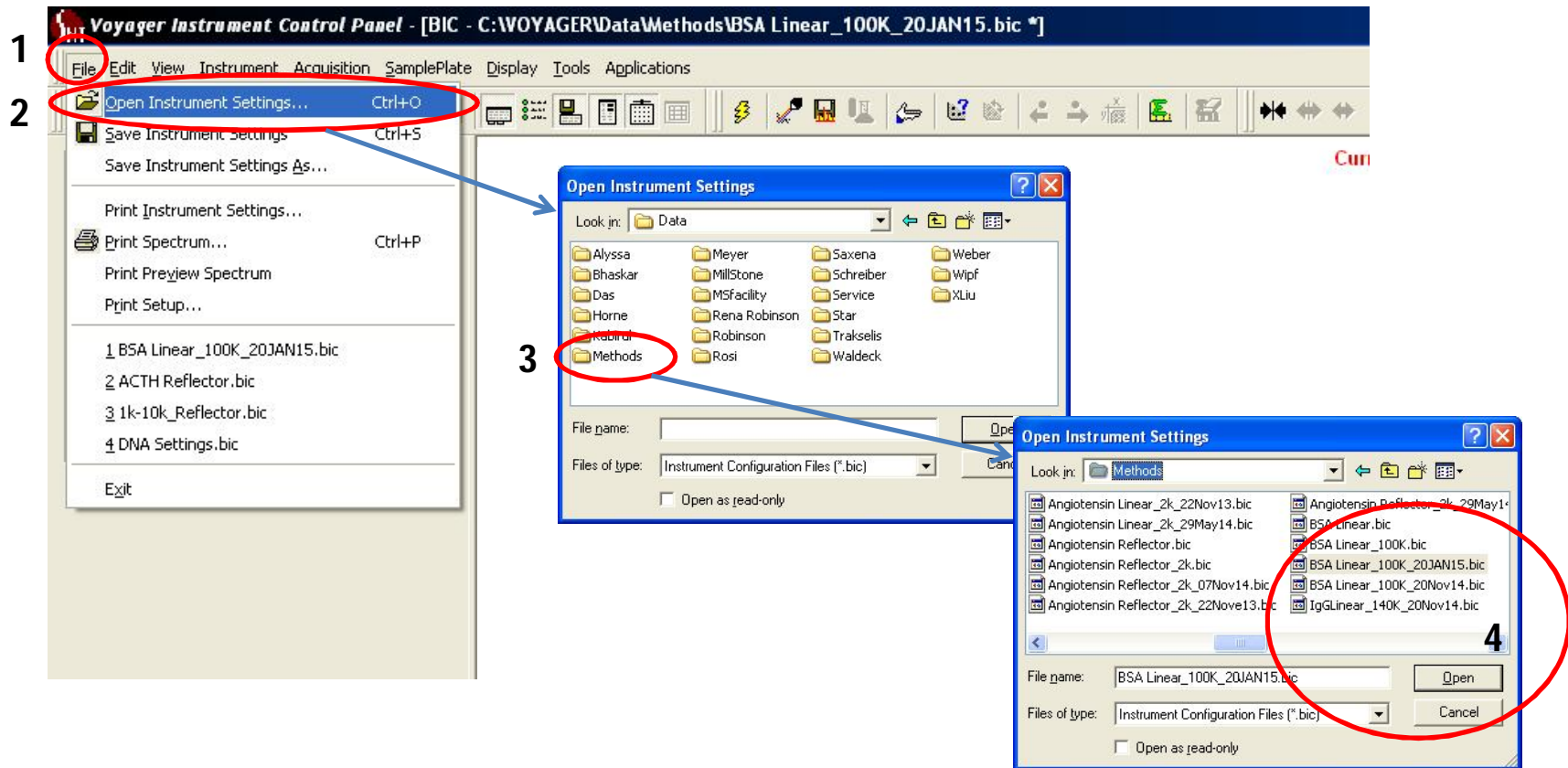
A) Turning on the high voltage

- 1) Click on the high voltage icon on toolbar.
- 2) High voltage will ramp up.
- 3) Wait till high voltage is finished ramping.

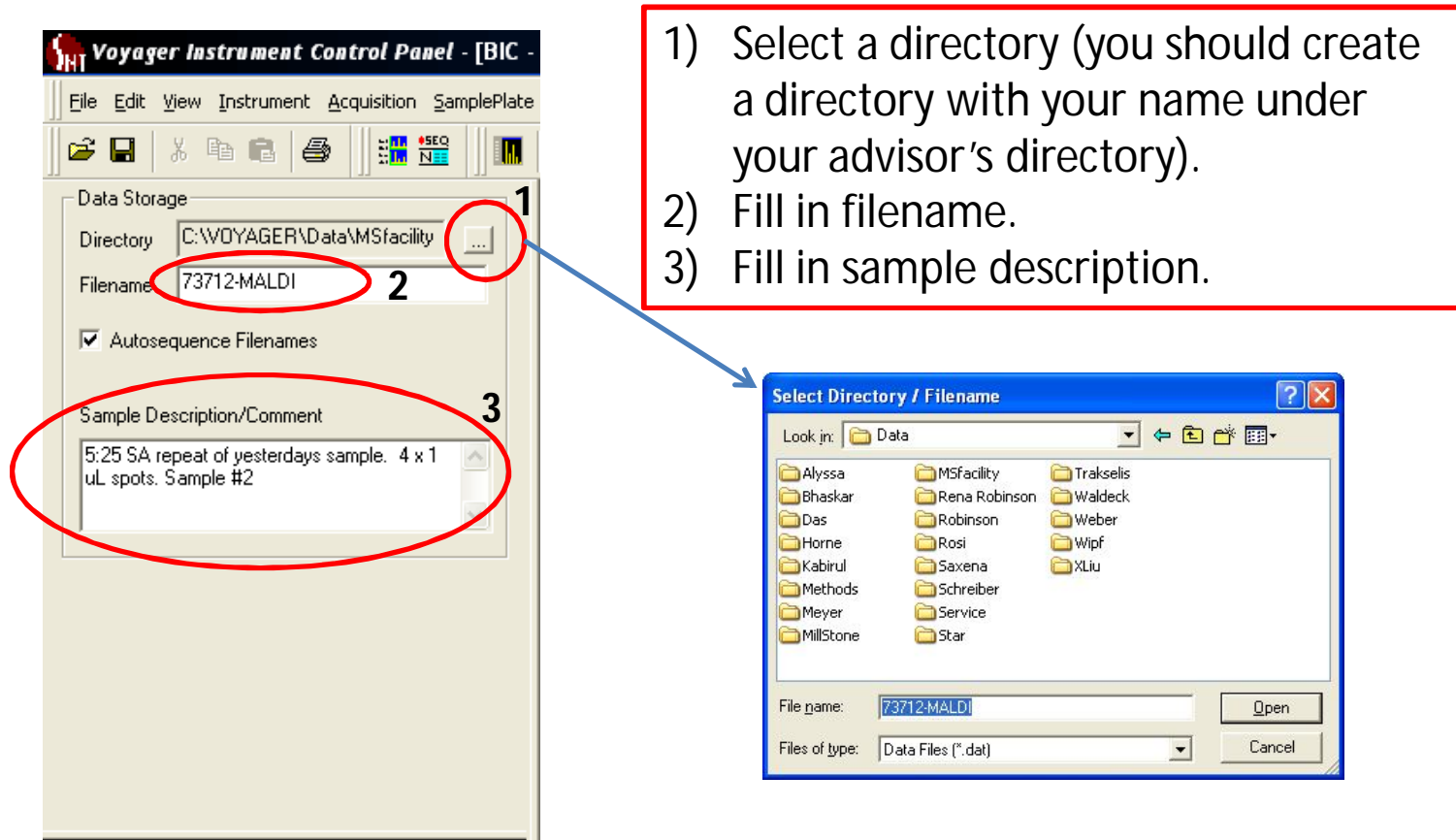


B) Load instrument method

- 1) Click on File option on menu bar.
- 2) Select "Open Instrument Setting..." from drop down menu.
- 3) Methods are stored in the Methods folder under Data.
- 4) Select method and open file. (methods may also be saved in your folder)



C) Input sample information



The image shows the Voyager Instrument Control Panel interface. The 'Data Storage' section is highlighted with a red circle and labeled '1'. The 'Directory' field is set to 'C:\VOYAGER\Data\MSfacility'. The 'Filename' field is set to '73712-MALDI' and is circled in red, labeled '2'. The 'Sample Description/Comment' field is set to '5:25 SA repeat of yesterdays sample. 4 x 1 uL spots. Sample #2' and is circled in red, labeled '3'. A red box on the right contains the following instructions:

- 1) Select a directory (you should create a directory with your name under your advisor's directory).
- 2) Fill in filename.
- 3) Fill in sample description.

A blue arrow points from the 'Select Directory / Filename' dialog box to the 'Data Storage' section of the Voyager Instrument Control Panel. The dialog box shows a file selection window with the following details:

- Look in: Data
- File name: 73712-MALDI
- Files of type: Data Files (*.dat)

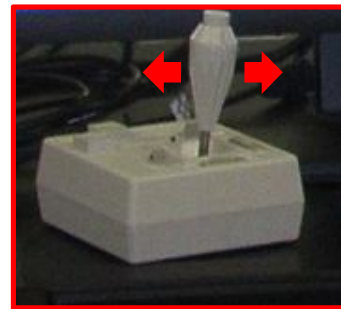
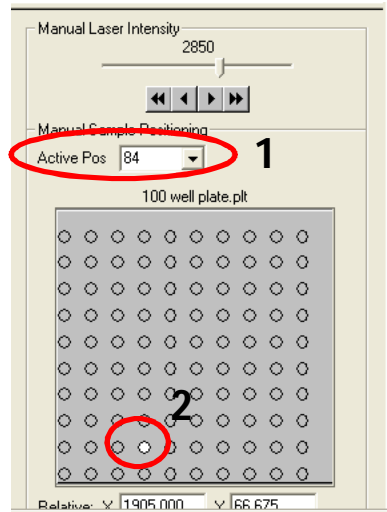
The dialog box also displays a list of directories:

| | | |
|-----------|---------------|-----------|
| Alyssa | MSfacility | Trakselis |
| Bhaskar | Rena Robinson | Waldeck |
| Das | Robinson | Weber |
| Horne | Rosi | Wipf |
| Kabirul | Saxena | XLiu |
| Methods | Schreiber | |
| Meyer | Service | |
| MillStone | Star | |

D) Moving target into position

Three methods for moving target:

- 1) Use active position dropdown or type well #.
- 2) Click on well in picture of plate.
- 3) Use joy stick to move target manually.



3

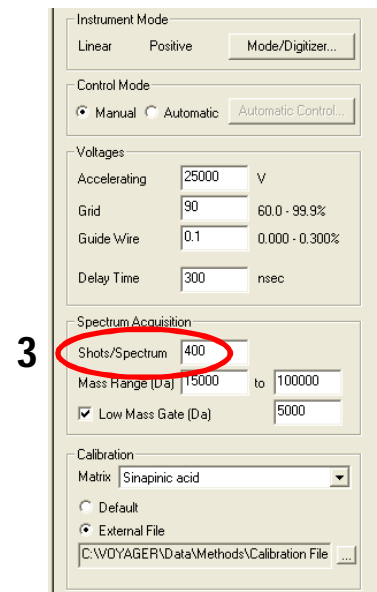
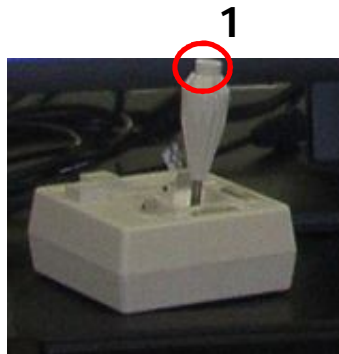
E) Firing laser and collecting data

Two ways to fire laser

- 1) Use button on joy stick handle.
- 2) Use the acquisition start/stop icon on toolbar.

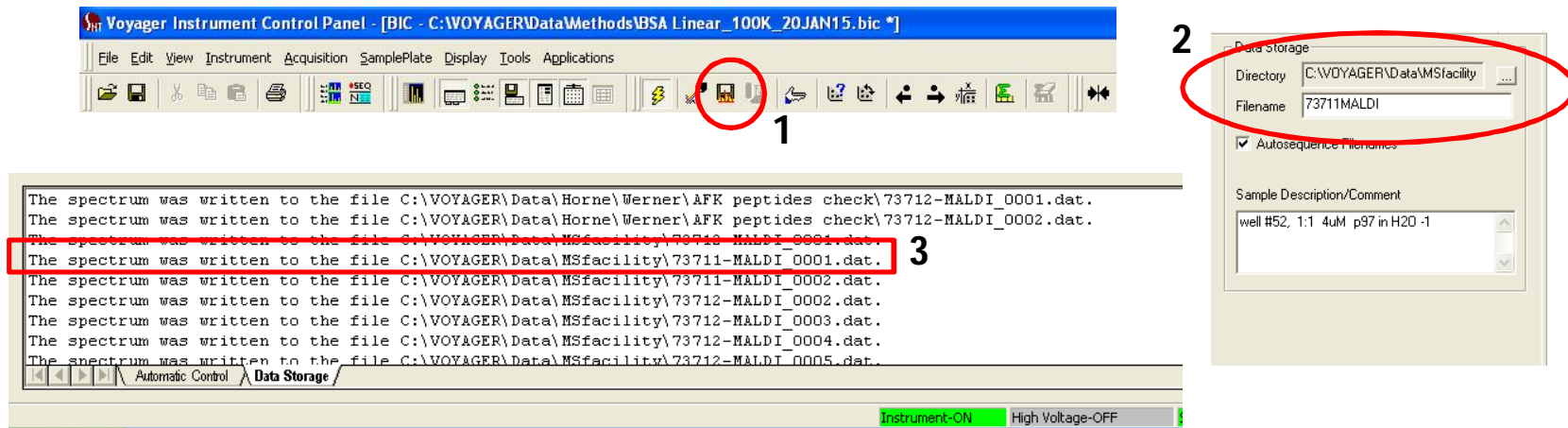
Collecting data

- 3) Laser will fire for the number of shots specified in method.
- 4) Move target around in well so that the laser is not hitting the same spot in well the entire time.



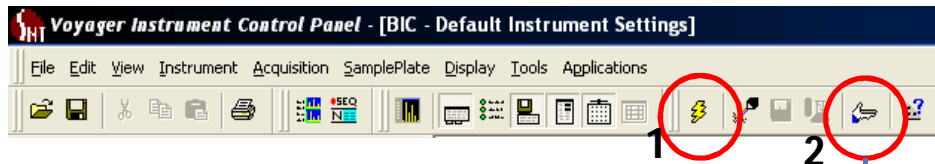
F) Saving data

- 1) Click on save data icon on toolbar.
- 2) Data will be saved into directory and file specified in the data storage control page.
- 3) Confirmation of file storage will appear in the output window.

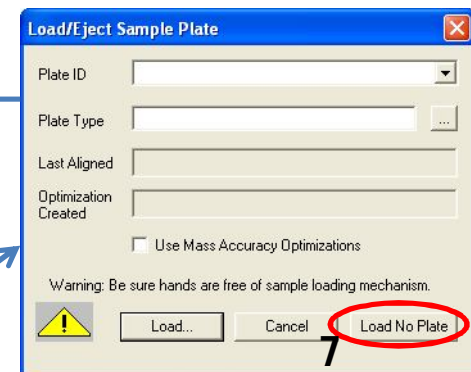
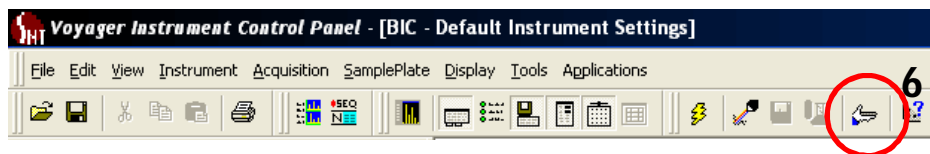
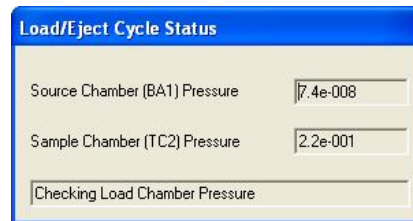
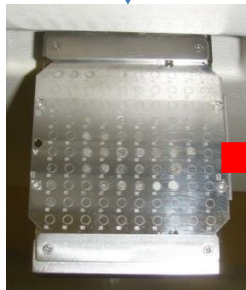
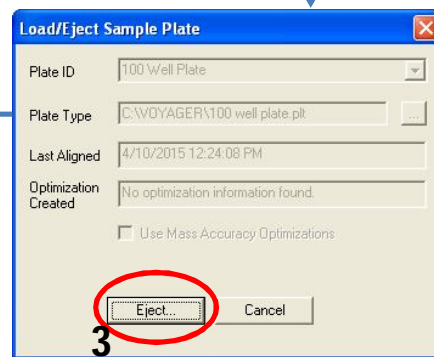
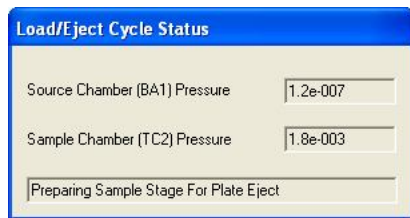


The screenshot displays the Voyager Instrument Control Panel interface. The top toolbar contains various icons, with the save data icon (a floppy disk) circled in red and labeled '1'. To the right, the 'Data Storage' dialog box is open, showing the 'Directory' field set to 'C:\VOYAGER\Data\MSfacility' and the 'Filename' field set to '73711MALDI', both fields circled in red and labeled '2'. Below the dialog box, the output window shows a list of messages: 'The spectrum was written to the file C:\VOYAGER\Data\Horne\Werner\AFK peptides check\73712-MALDI_0001.dat.', 'The spectrum was written to the file C:\VOYAGER\Data\Horne\Werner\AFK peptides check\73712-MALDI_0002.dat.', 'The spectrum was written to the file C:\VOYAGER\Data\MSfacility\73711-MALDI_0001.dat.', 'The spectrum was written to the file C:\VOYAGER\Data\MSfacility\73711-MALDI_0002.dat.', 'The spectrum was written to the file C:\VOYAGER\Data\MSfacility\73712-MALDI_0002.dat.', 'The spectrum was written to the file C:\VOYAGER\Data\MSfacility\73712-MALDI_0003.dat.', 'The spectrum was written to the file C:\VOYAGER\Data\MSfacility\73712-MALDI_0004.dat.', and 'The spectrum was written to the file C:\VOYAGER\Data\MSfacility\73712-MALDI_0005.dat.'. The third line is circled in red and labeled '3'. The bottom status bar shows 'Instrument-ON' and 'High Voltage-OFF'.

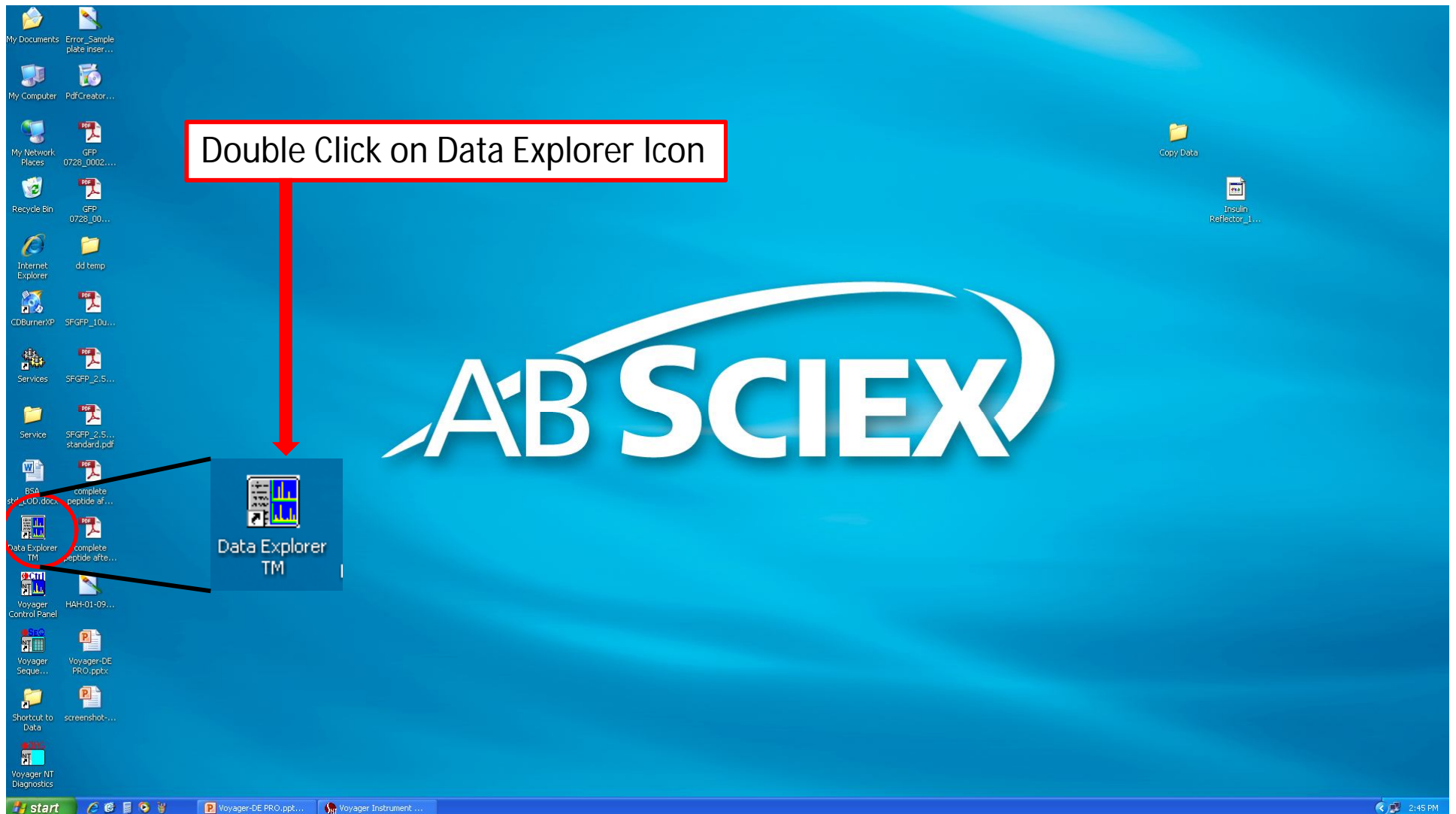
G) Removing plate



- 1) Click on the high voltage icon on toolbar. Wait for voltage to turn off on status bar.
- 2) Click on "hand" icon on tool bar.
- 3) Click on Eject... button.
- 4) Holder will be exposed.
- 5) Slide Plate out of holder.
- 6) Click on "hand" icon on tool bar.
- 7) Click on Load No Plate. Holder will then move inside instrument.



Viewing Data



Opening Data Files

1) Click on open file icon on toolbar.

2) Select folder to look in.

3) Select data file.

4) Click Add button.

5) Repeat process to add additional files.

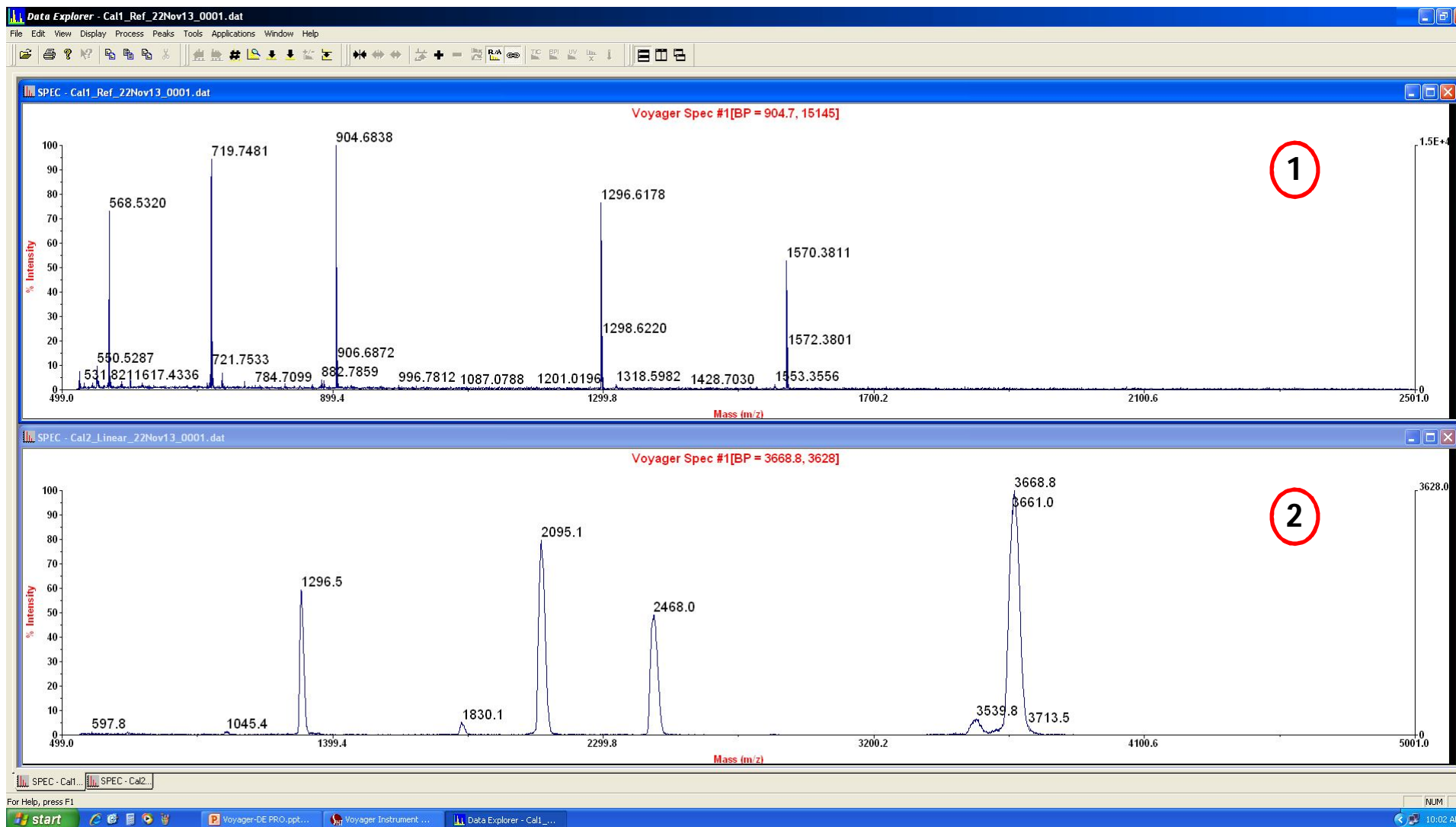
6) Click on Finish button.

The image shows three sequential screenshots of the 'Data Explorer' software interface, illustrating the steps to open data files. The first screenshot shows the 'Open' icon on the toolbar circled in red (1). The second screenshot shows the 'Select Files' dialog box with the folder 'Bhaskar' selected (2) and the file 'Cal1_Ref_22Nov13_0001.dat' selected (3). The 'Add' button is circled in red (4). The third screenshot shows the 'Select File(s)' dialog box with the file 'Cal1_Ref_22Nov13_0001.dat' selected (5) and the 'Add' button circled in red. The final screenshot shows the 'Select Files(s)' dialog box with two files selected and the 'Finish' button circled in red (6).

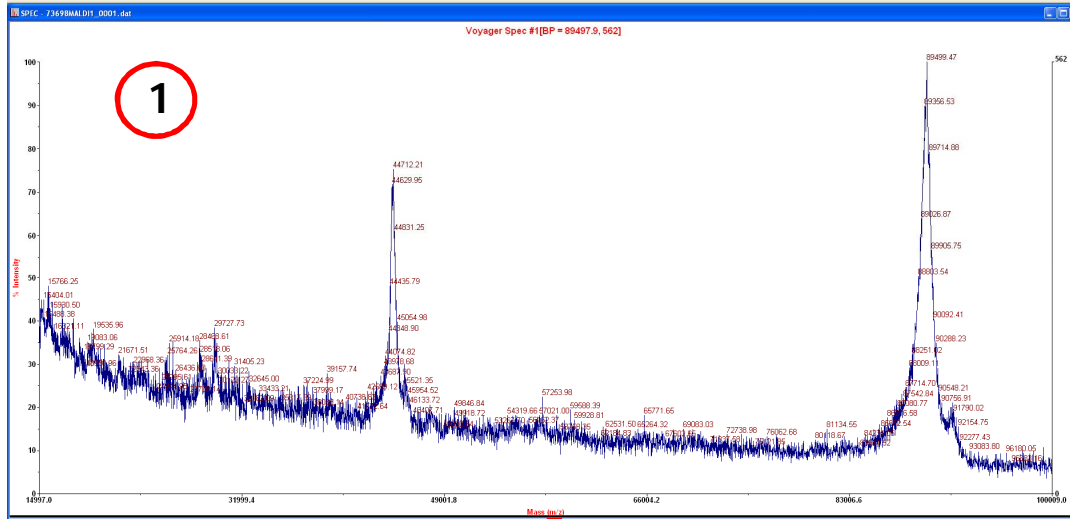
Data Explorer

Example of two data files opened.

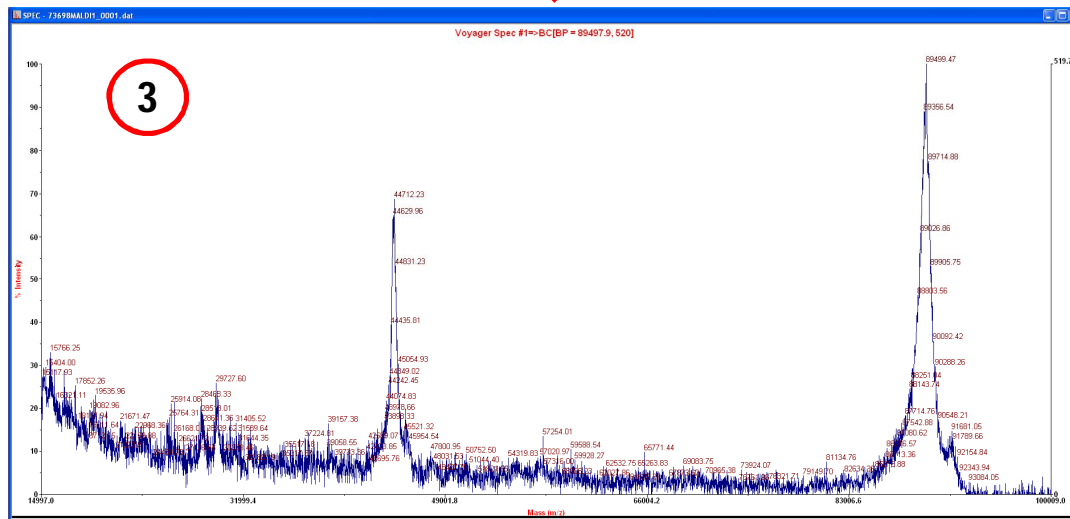
- 1) Cal Mix 1 in Reflector mode.
- 2) Cal Mix 2 in Linear mode.



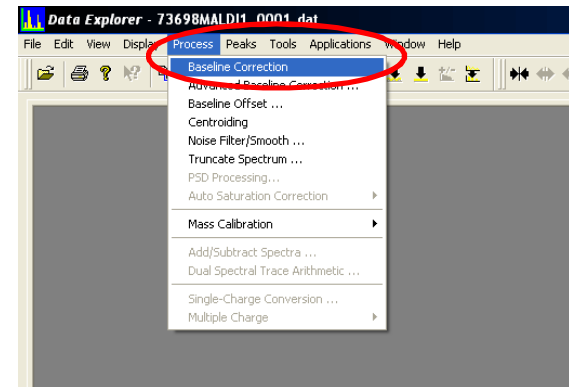
Baseline Correction



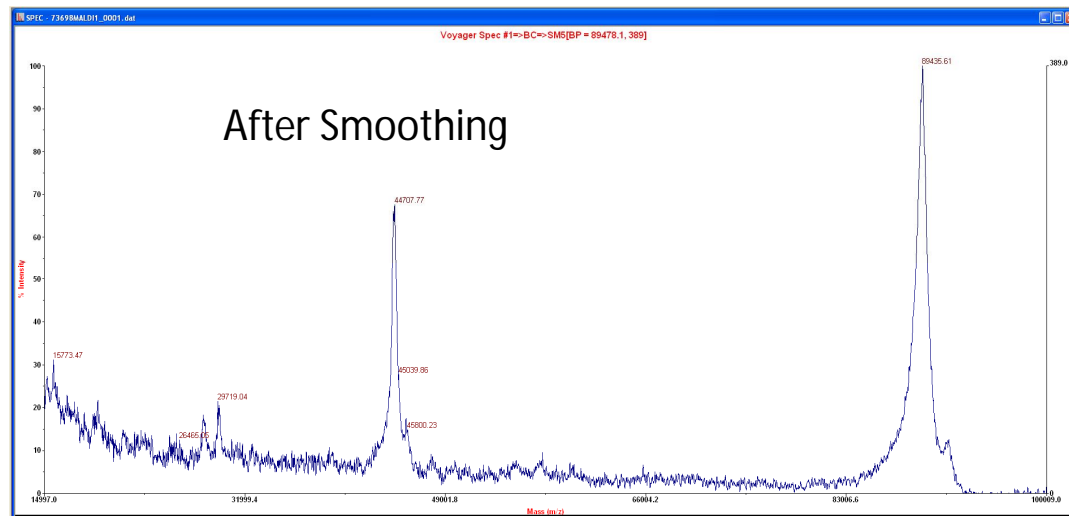
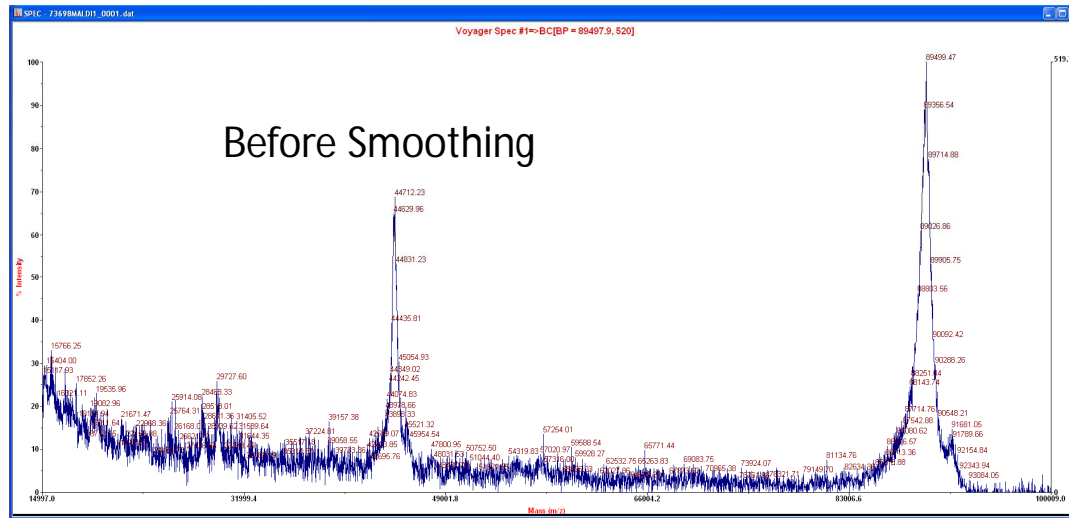
- 1) Open your data file in Data Explorer.
- 2) Select Baseline Correction from Process pulldown menu.
- 3) Baseline corrected spectrum will appear.



2



Curve Smoothing



- 1) Select Noise Filter/Smooth... from Process dropdown menu.
- 2) Select Gaussian Smooth from dropdown menu and Filter Width 5 points.
- 3) Click OK.

