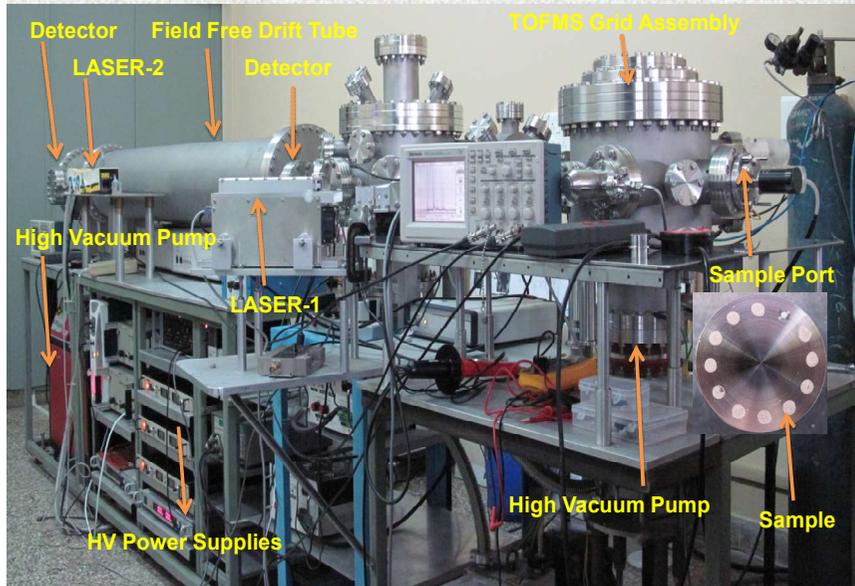


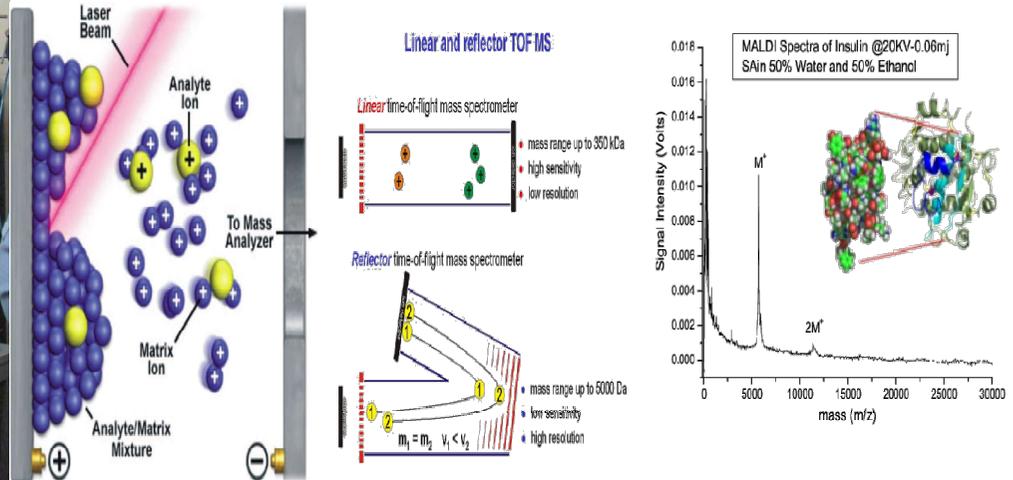
MALDI Mass Spectrometry for Macro Molecules

[Peptides, Proteins, Carbohydrates, Lipids, DNA, Clusters, Synthetic Polymers,
and Metal ion + Ligand Complexes]

Indigenously Developed MALDI-TOFMS



Schematic of Matrix Assisted Laser Desorption Ionization Time of Flight Mass Spectrometry (MALDI-TOFMS)



Objective: Metal Ion Binding Neuro-Peptides for Molecular Imaging and Targeted Drug Delivery

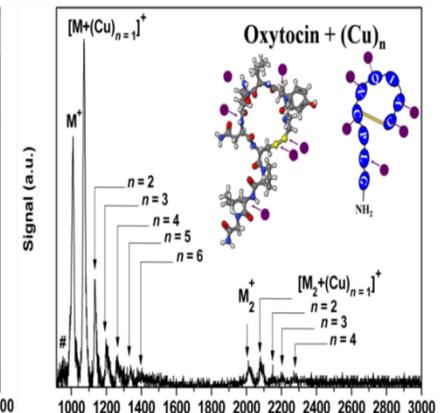
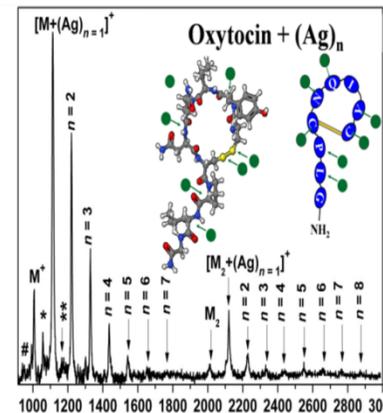
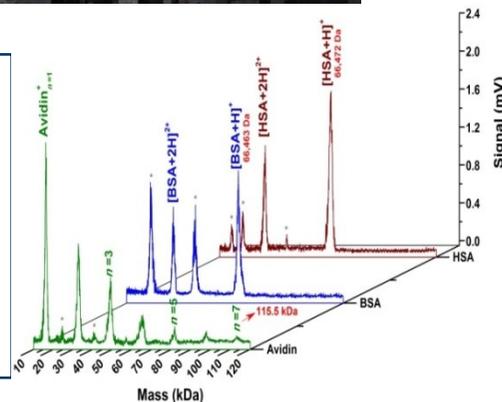
Salient Features

Mass Range = 1-120,000 Da

Resolution = 1 amu at 1000

Sensitivity = Sub Femto mol

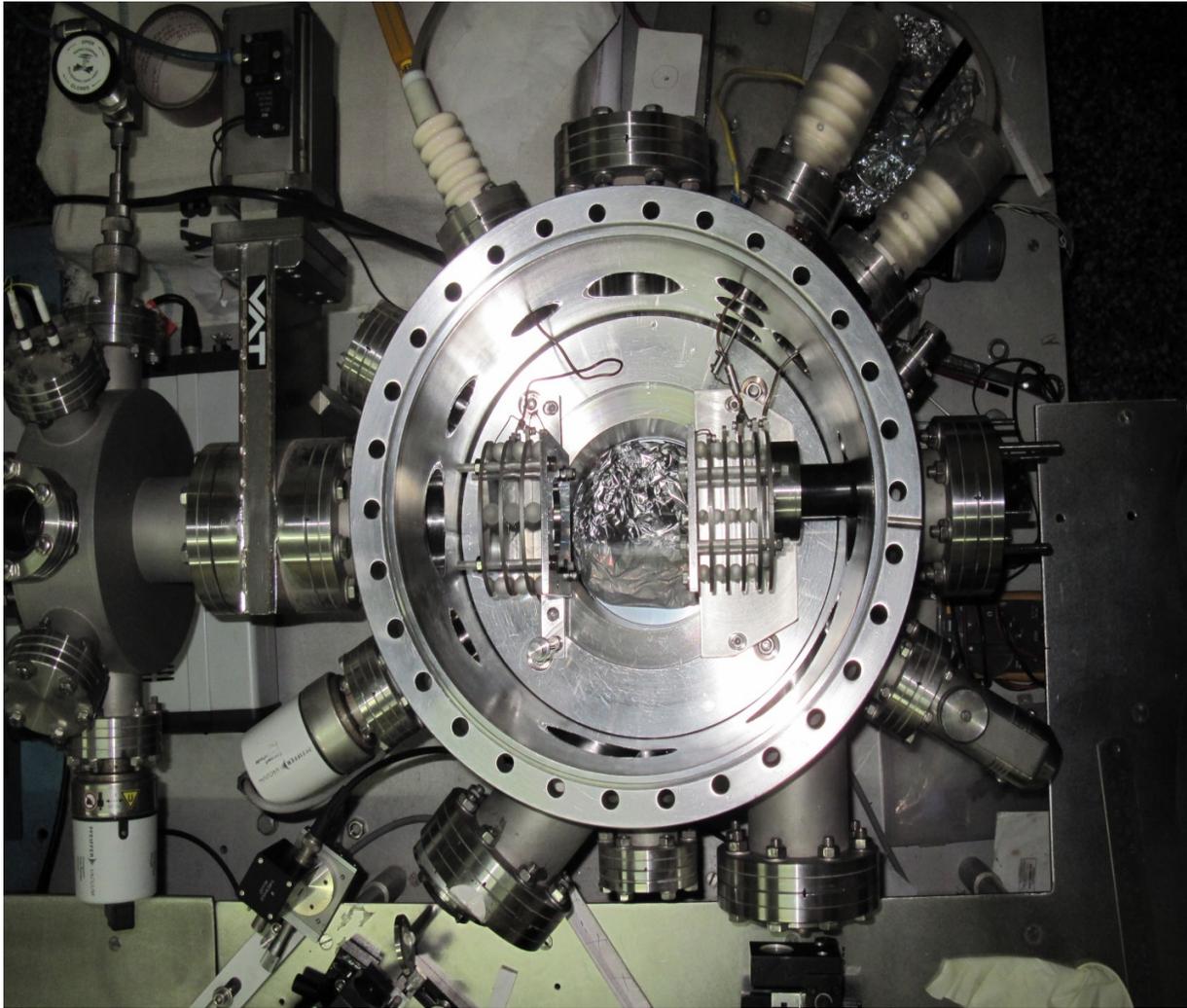
Both the Positive and Negative ions present in the Laser Induced Plasma can be Analyzed



Mass spectra of Proteins viz., Avidine, Albumin, and Insulin (mass range \approx 120,000 Da) detected using MALDI-MS

MALDI Mass Spectra of [Oxytocine + Ag/Cu]⁺ Complexes

Inside View of Time of Flight Mass Spectrometer (ToFMS)



Assembled TOF GRIDs inside a Vacuum Chamber



Sample Probe attached to a Stepper Motor



Salient Features of MALDI-TOFMS

Specifications	Achieved Limits	Remarks
<i>Mass range</i>	<i>1-1,20, 000 Da</i>	<i>Tested with various inorganic, organic, peptide/protein molecules</i>
<i>Mass Accuracy</i>	<i>± 0.01% (< 1000 Da) ± 0.02% (1-10 kDa) ± 0.05 - 0.2% (10-50 kDa) ± 0.2 - 0.5% (50-100 kDa)</i>	<i>Tested with various inorganic, organic, peptide/protein molecules</i>
<i>Resolving Power</i>	<i>4000 @720amu</i>	<i>Tested with C₆₀</i>
<i>Detection Sensitivity</i>	<i>Sub pico mole</i>	<i>For peptides and proteins</i>
<i>Samples analyzed</i>	<i>Oxytocin, Vasopressin, Bradykinin, Angiotensin, Substance-P, Bombesin, Somatostatin, Neurotensin, Insulin, Cytochrome-C, Lysozyme, Albumin, avidin, and other molecular complexes etc.</i>	<i>Tested at different concentrations</i>
<i>Matrices used</i>	<i>α-Cyano hydroxy cinnamic acid, 2,5 dihydroxy benzoic acid, Sinapinic acid, Nicotinic acid, Ferrulic acid, Caffeic acid etc.</i>	