

Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

IRMPD Spectroscopic Analysis of Peptides and Oligosaccharides Using FTICR With Mid-Infrared Free-Electron Laser¹ KAZUHIKO FUKUI, KATSUTOSHI TAKAHASHI, National Institute of Advanced Industrial Science and Technology (AIST) — The fragmentation in gas-phase peptides and oligosaccharides has been investigated by using electrospray ionization (ESI) Fourier-Transform Ion Cyclotron Resonance (FTICR) mass spectrometry (MS) with a laser cleavage infrared multiphoton dissociation (IRMPD) technique. In order to cleave the ionized sample introduced in the FTICR cell, an infrared free electron laser (FEL) is used for the technique of IRMPD as a tunable infrared light source. The gas-phase infrared spectra of protonated peptides (Angiotensin II, Substance P) and sodiated oligosaccharide (Sialyl Lewis X) are obtained in the range from 5.7 μm to 9.5 μm . The results of the IRMPD spectra of the peptides show that the peaks for the photoproducts are observed as y/b type fragment ions in the IR range from 5.7 μm to 7.5 μm , corresponding to the cleavage of backbone in the parent amino acid sequence, while the spectra of the oligosaccharide have the peaks for the B/Y type in the range from 7.1 μm to 9.3 μm .

¹This work was supported by the New Energy and Industrial Technology Development Organization (NEDO) as a part of the Research and Development Projects of Industrial Science and Technology Frontier Program in Japan.

Kazuhiko Fukui

Date submitted: 15 Jan 2006

Electronic form version 1.4