Fragmentation of peptides with electrons and light

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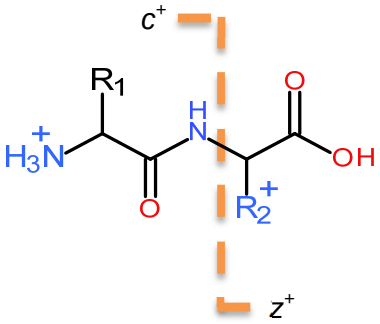

Fig. 1: Schematic drawing of a doubly charged dipeptide. R_1 and R_2 are amino acid side chains. Cleavage of the N-C_α bond produces *c* and *z* ions.

Fragmentation of peptide cations by electrons in combination with mass spectrometry is an efficient way to obtain the amino acid sequence. The advantage is the large sequence coverage and the specific fragmentation, *i.e.* N-C_α bond cleavage producing *c* and *z* ions (Figure 1).

Our goal is to understand the mechanism behind electron capture induced dissociation, *ECID* from experiments on small, doubly charged peptides [1, 2, 3]. The electron donor in our experiments is either Na or Cs (Figure 2).

Recently, we have combined electron capture with photoexcitation. Peptides are excited either before or after electron capture. Our goal is to understand the link between peptide conformation and fragmentation pathway. We also have the possibility to measure absorption spectra of larger peptide cations.

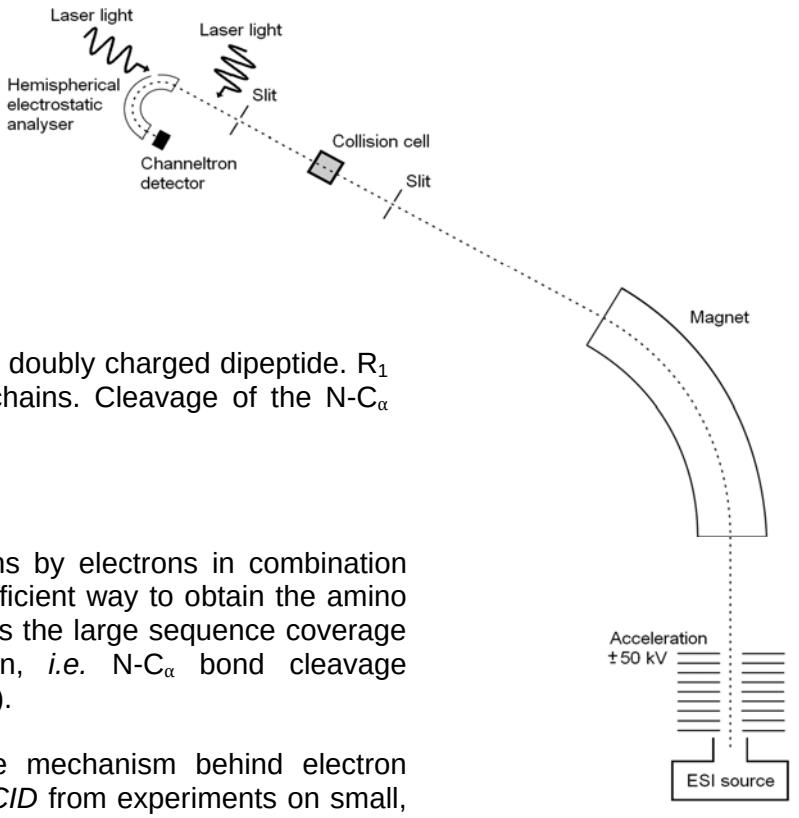

Fig. 2: Experimental setup

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