**BACE enzyme kinetics detected by MALDI-TOF mass spectrometry**

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Matrix-assisted laser desorption/ionization mass spectrometry was introduced for the analysis of enzyme kinetics and inhibition. The *Km* for selected substrate and *IC50* values for enzyme inhibitor were in a good agreement with results obtained by capillary electrophoresis coupled to electrospray mass spectrometry. More specifically, it was focused on β‑secretase (BACE), an enzyme playing important role in Alzheimer’s disease development. Its selective inhibition in brain could be beneficial for the patients; thus, specific inhibitor of this enzyme was examined as well. In comparison with traditional fluorometric or colorimetric methods, the both mass spectrometric approaches offered faster, sensitive and more precise BACE analysis.