MASENA MIKROSKOPIJA

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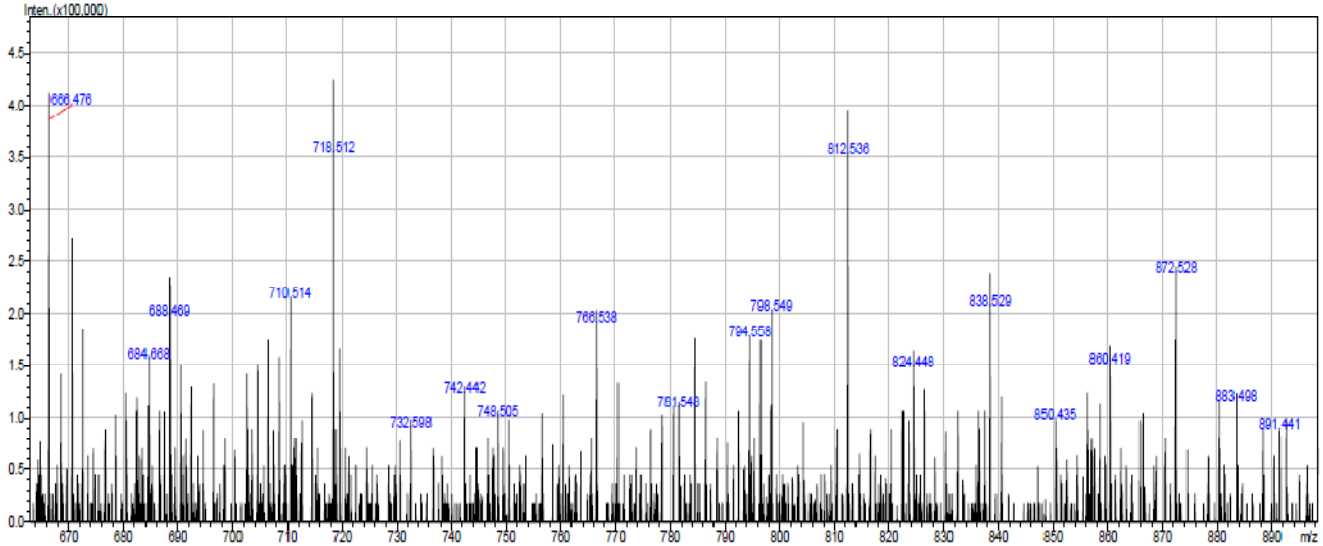
Spektri masa

- Signali: **m/z intenziteti** koji ovise o prisustvu molekularnih iona i iona fragmenta molekula

- Intenzitet ovisi o zastupljenosti pojedinog m/z signala

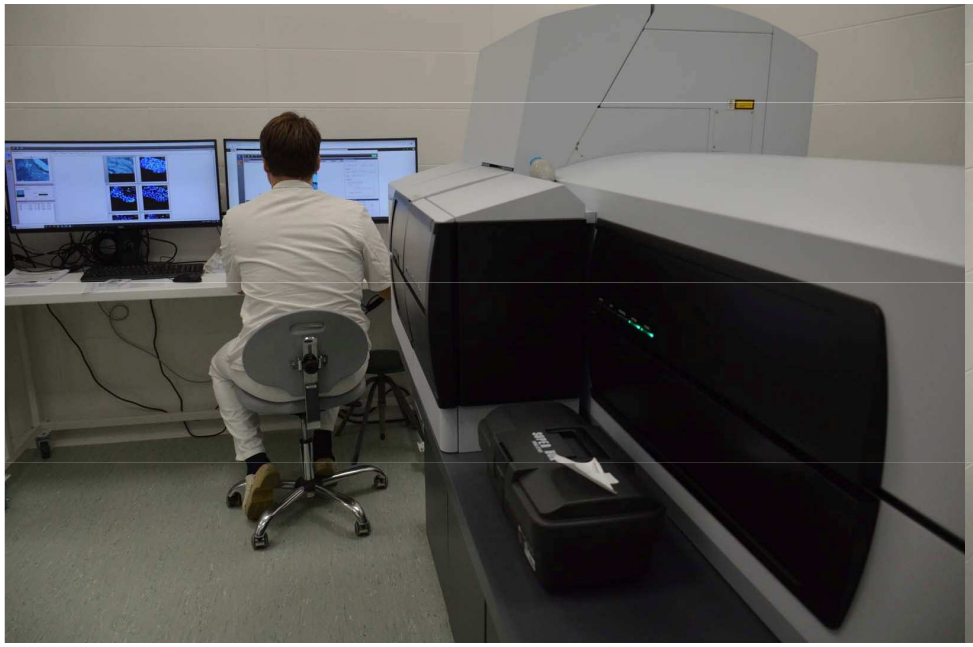


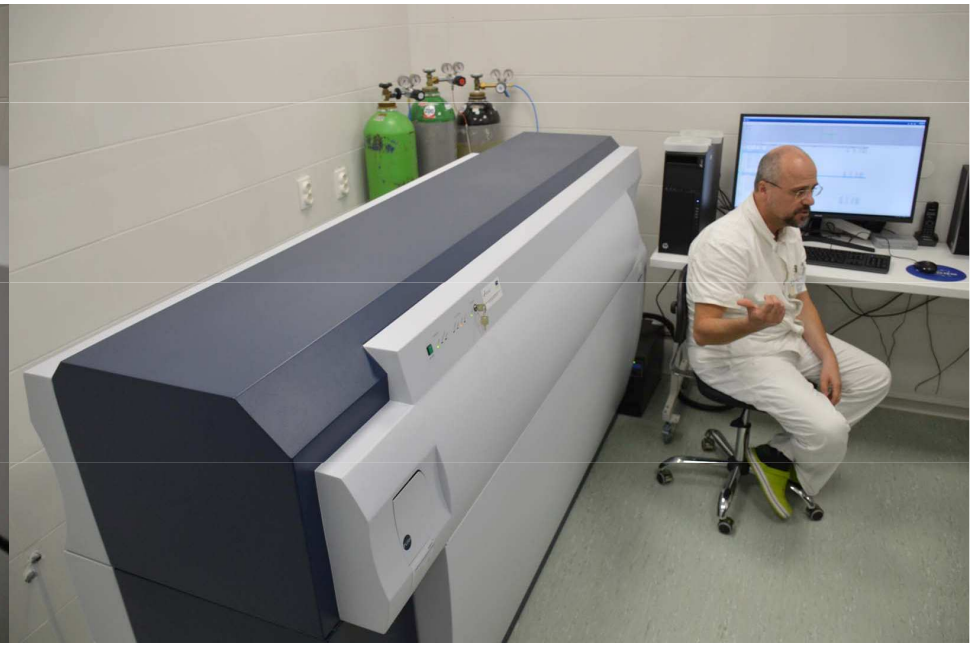
Slikovna spektrometrija masa

- **Vizualizacija lateralne raspodjele više tisuća različitih molekula** prisutnih u uzorku: komplementarna sa svjetlosnom mikroskopijom, protočnom citometrijom i imunokemijom
- **Molekularni "make-up"** stanica i tkiva
- **Slikovna spektrometrija masa** (IMS) ili **masena mikroskopija**?
- **Kvalitativna**/semikvantitativna analiza
- Lijekovi, lipidi, metaboliti, proteini

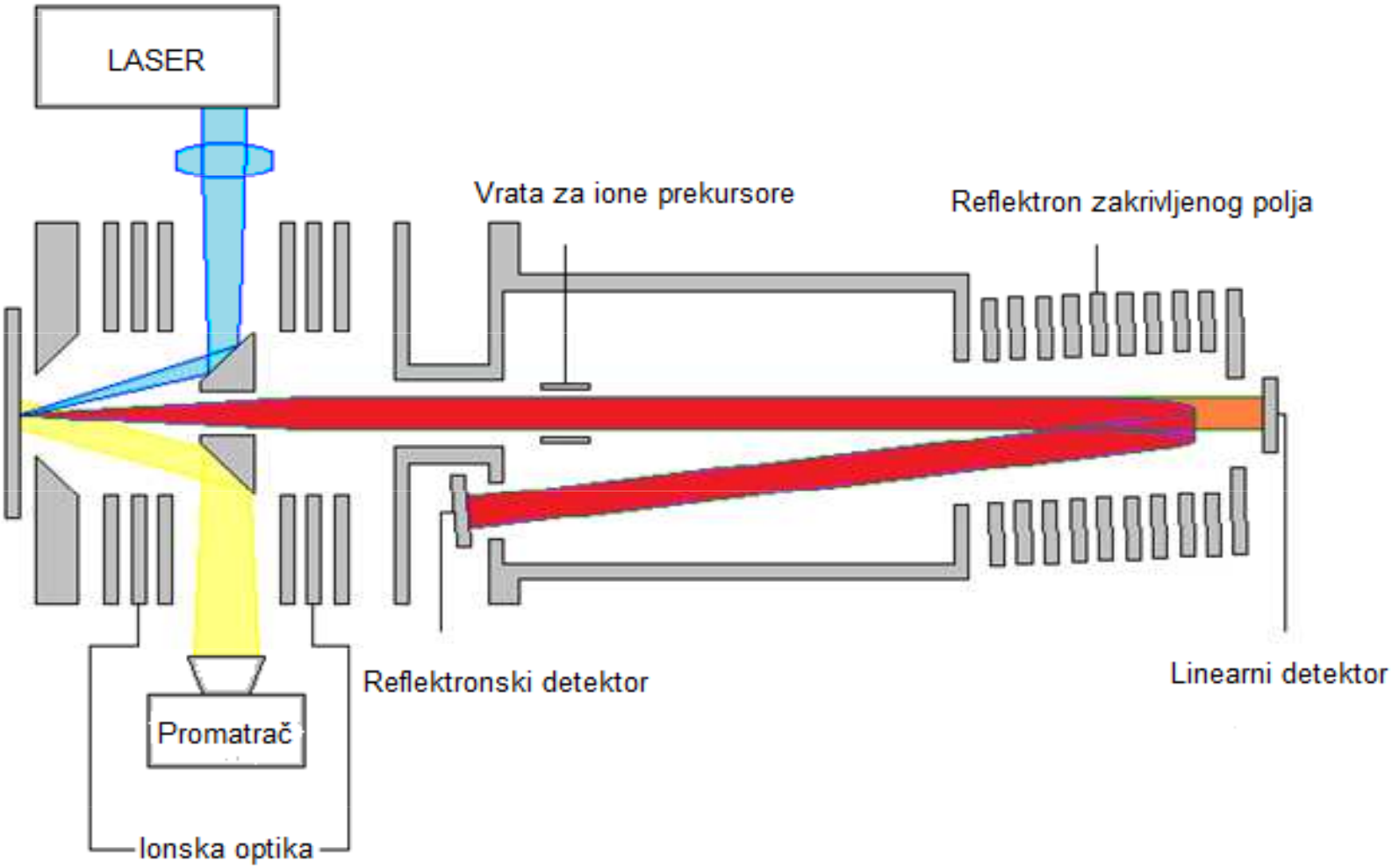
Instrumentacija

- Desorpcija/ionizacija: MALDI, DESI, SIMS, LAESI
- MS: TOF, ORBITRAP, FTICR
- Trenutno visoka cijena

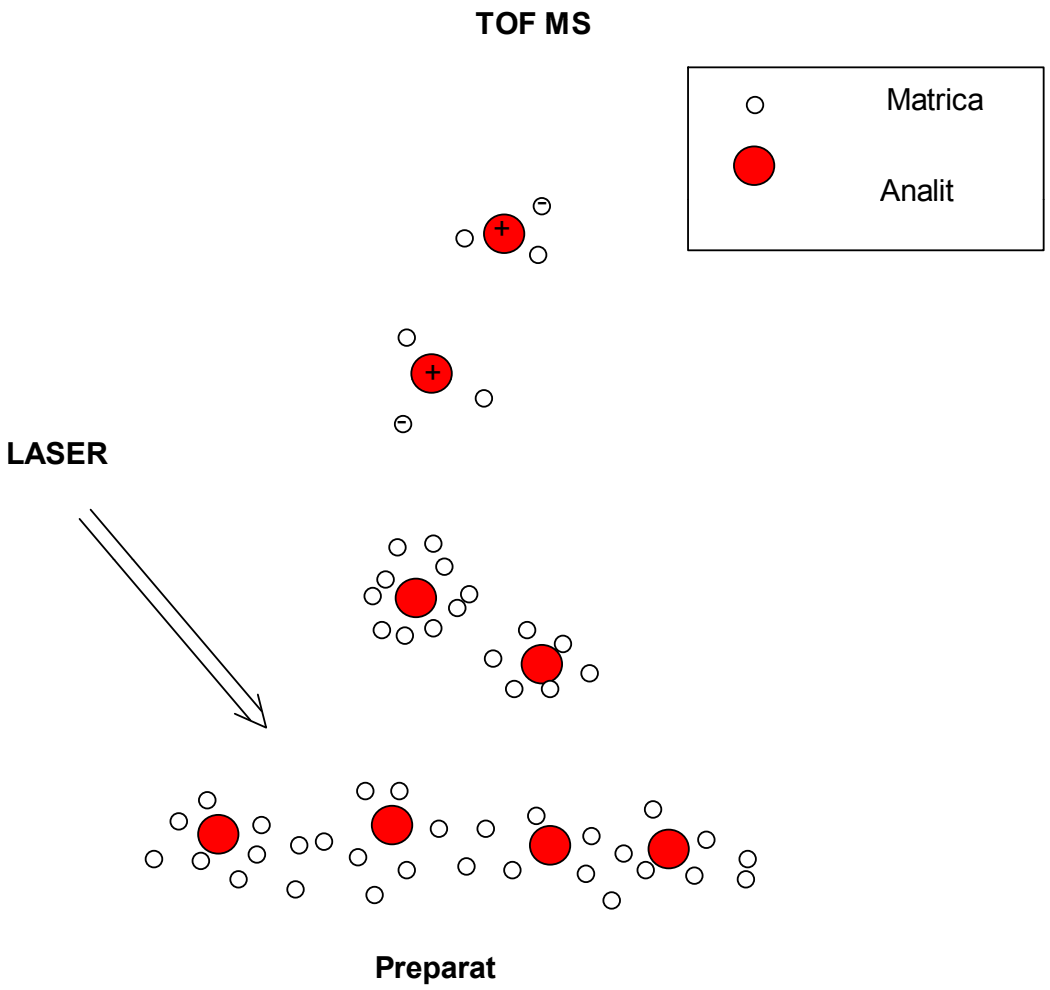




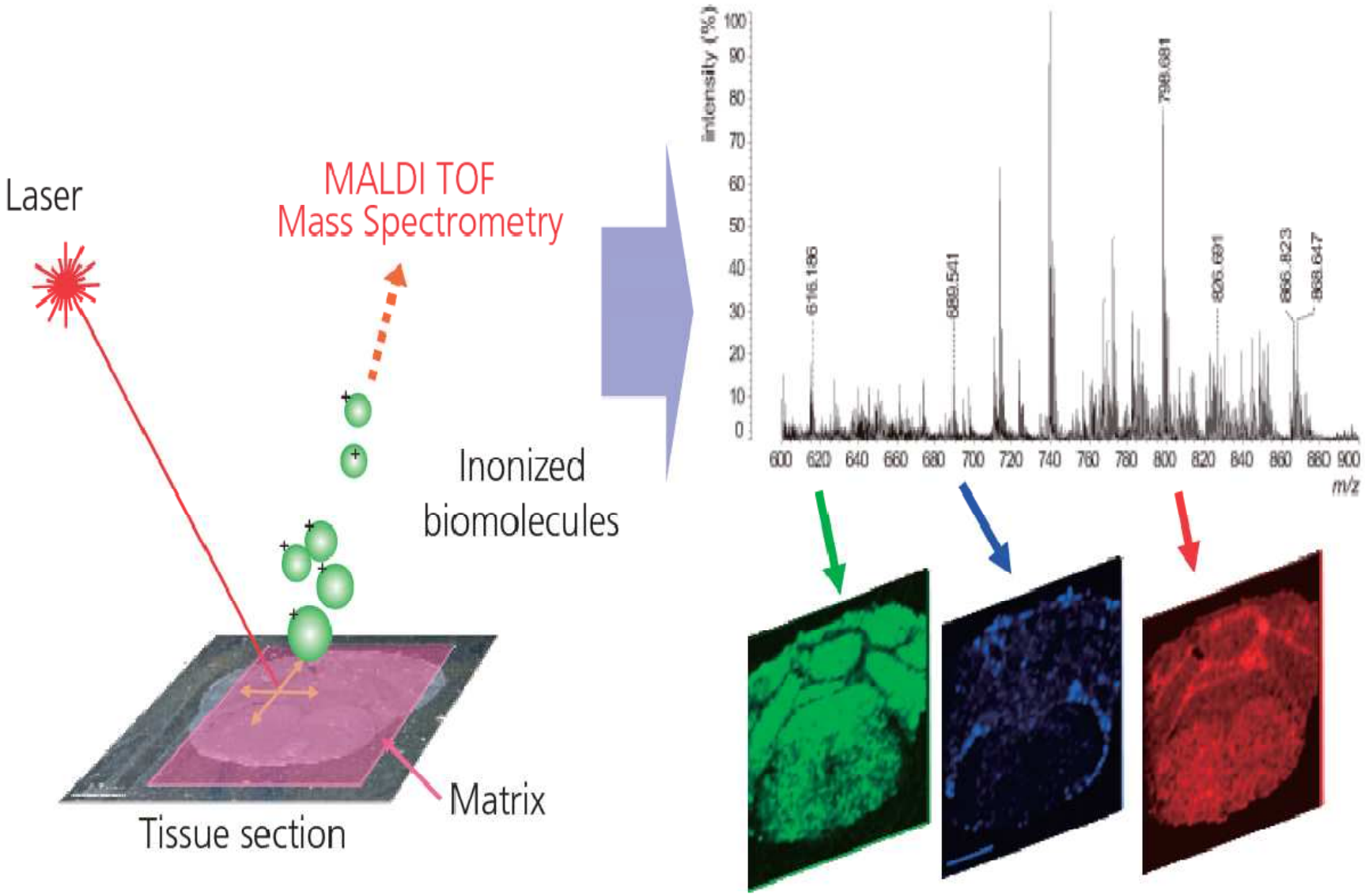
Shema masenog mikroskopa



MALDI ionizacijski izvor



Od uzorka do vizualizacije



Primjene MALDI TOF MS

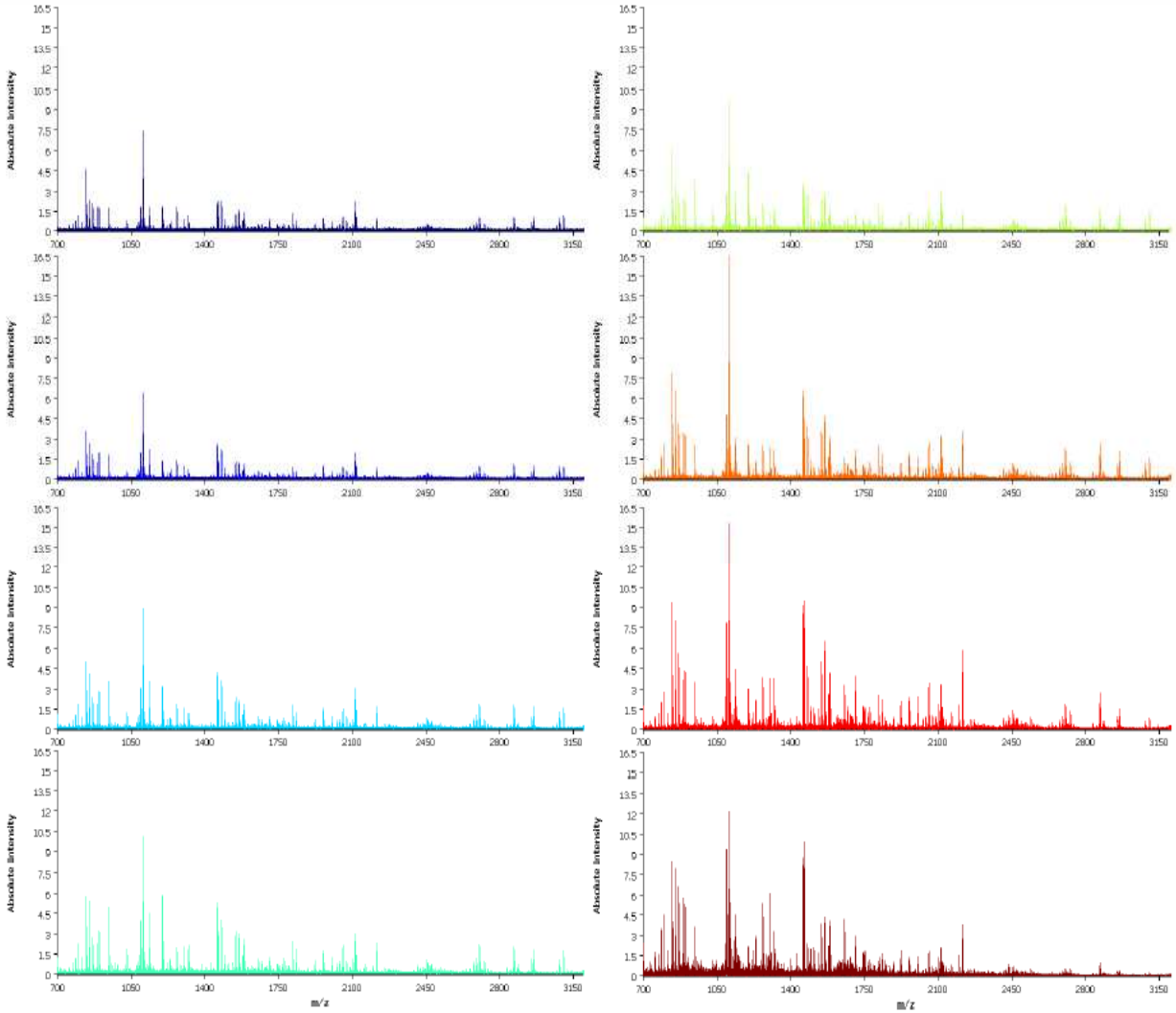
- Rutinska klinička dijagnostika:

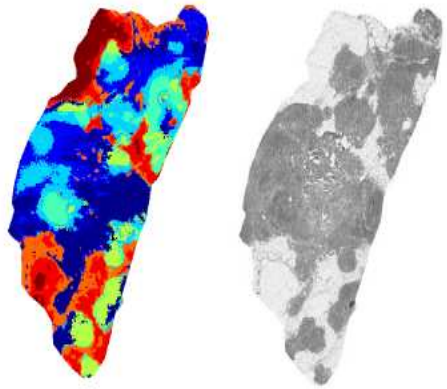
✓ **identifikacija (patogenih) mikroorganizama**
✓ **patohistologija**

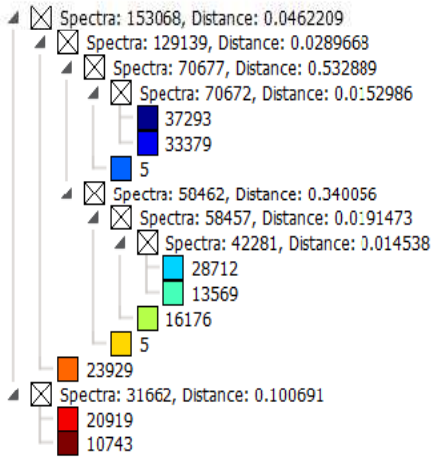
- Istraživanje:

✓ metabolomika i proteomika: **biomarkeri**
✓ kemijska karakterizacija tkiva i stanica: **fiziologija, his tologija, molekularna stanična biologija**
✓ farmakokinetika i farmakodinamika …

CA dojke: maseni spektri tkiva







CA dojke: identifikacija proteina

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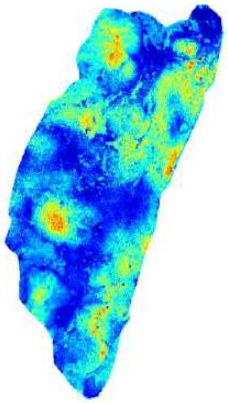

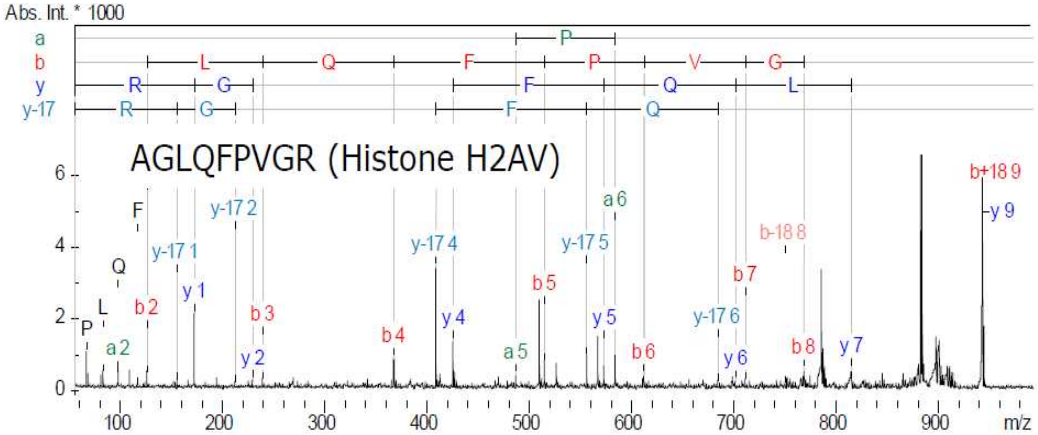

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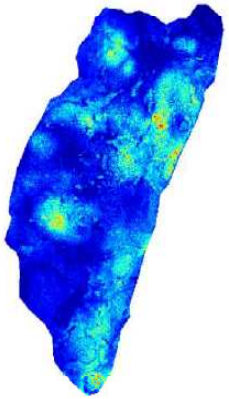
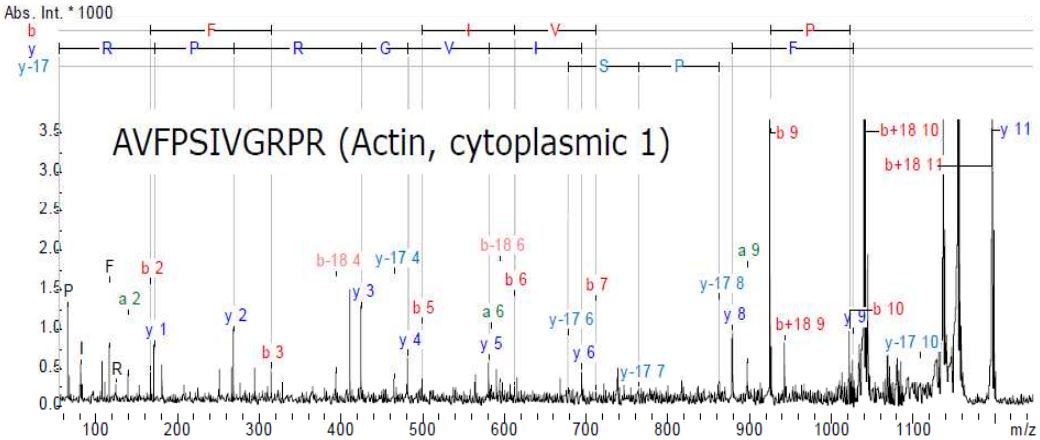
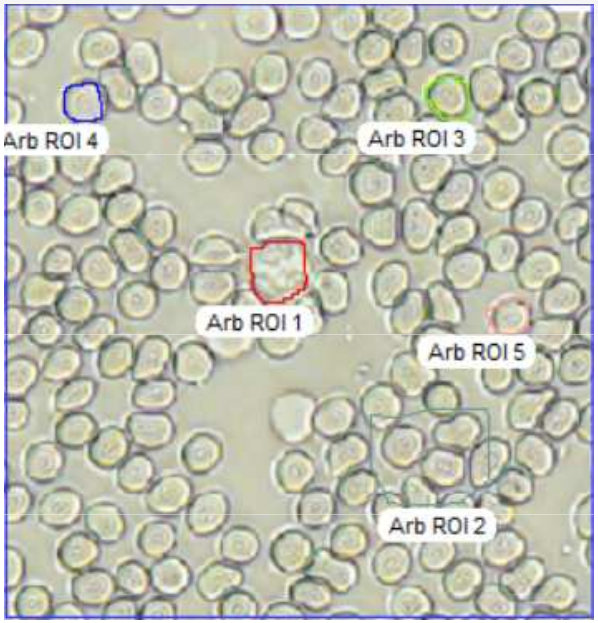
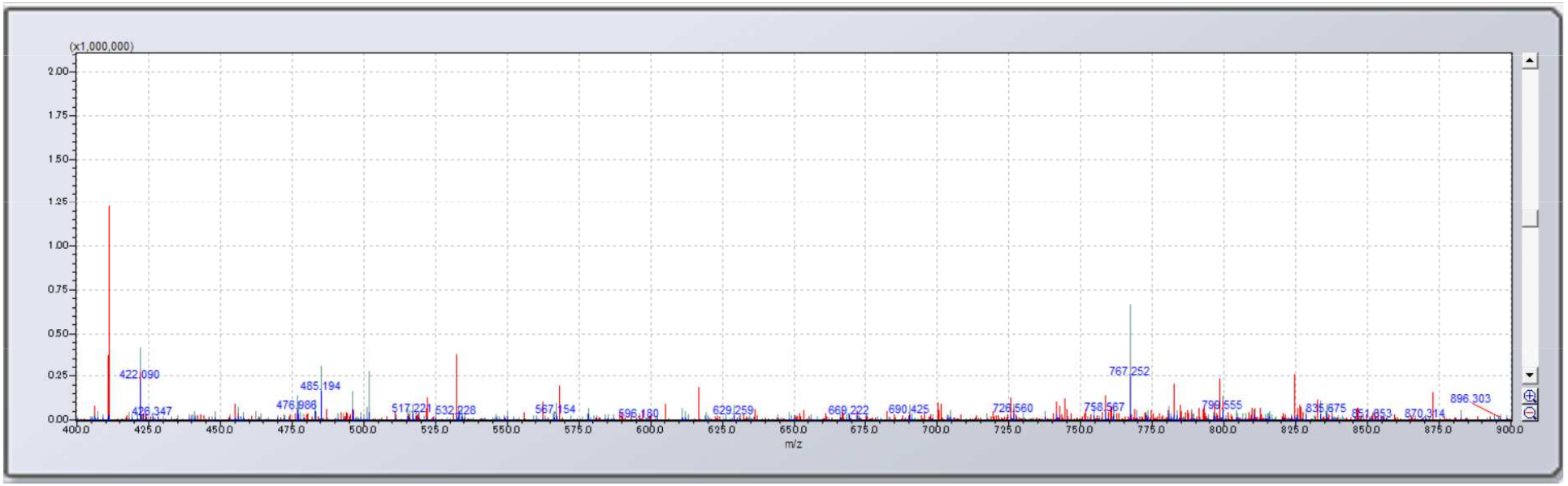


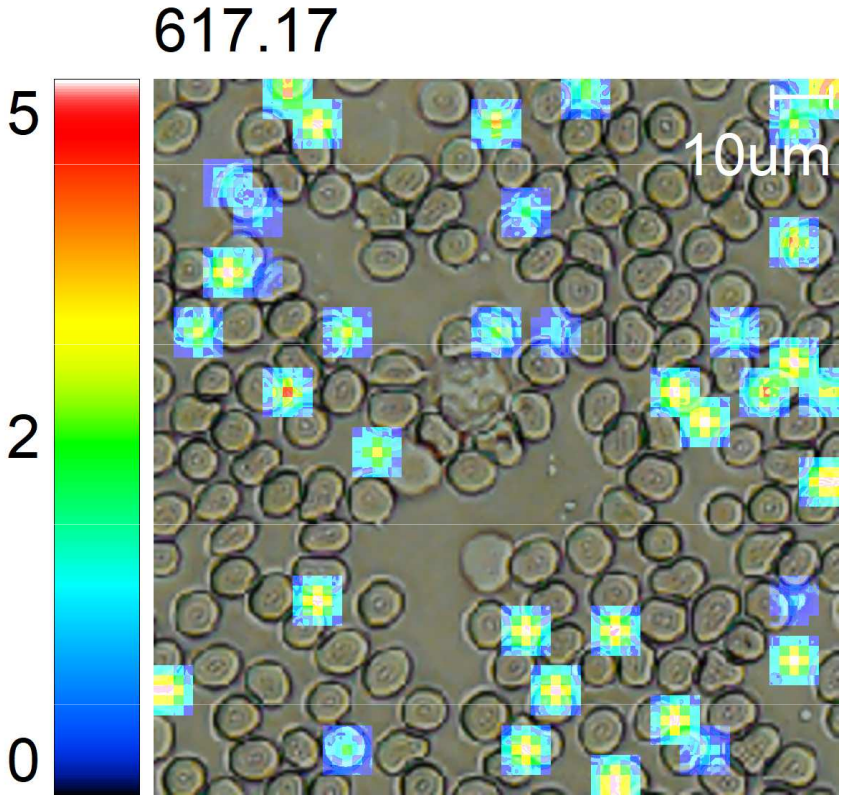


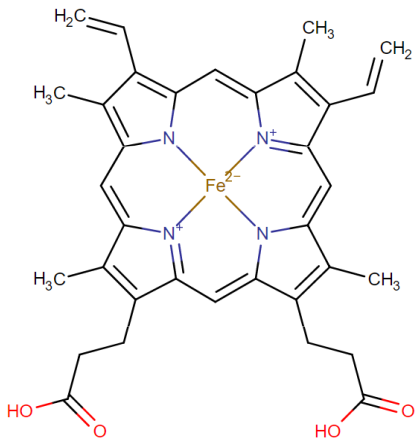
Spektri masa: RBC vs WBC



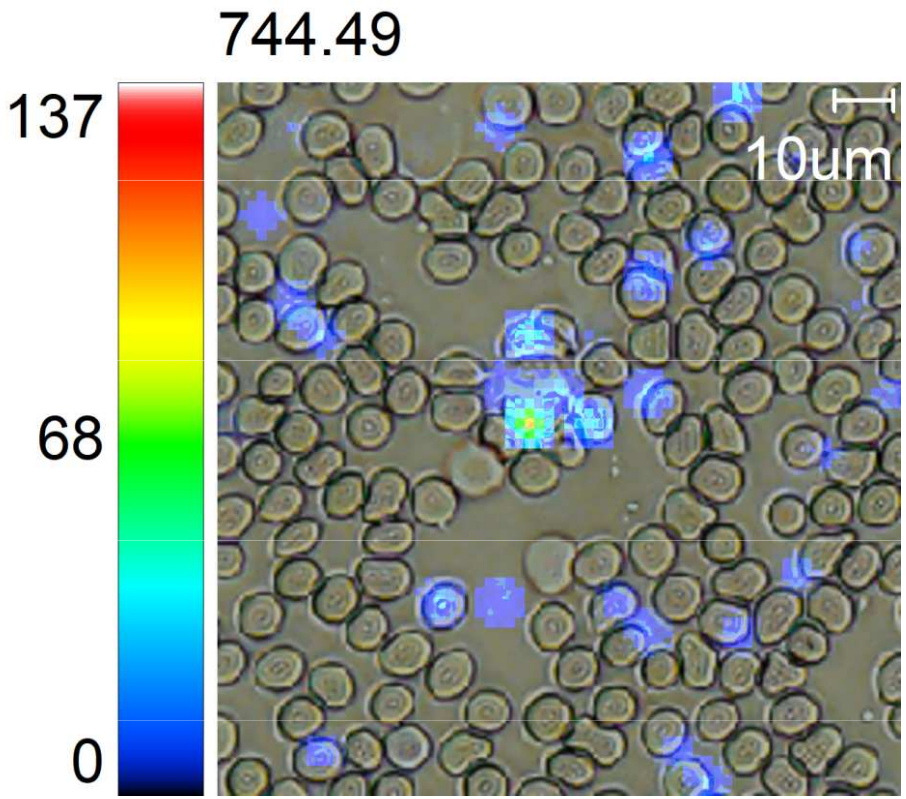


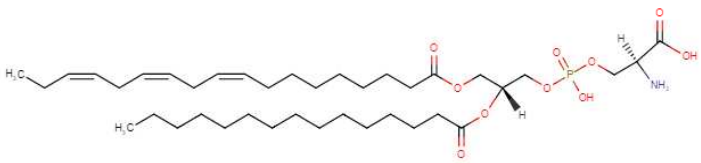
Lateralna distribucija hema



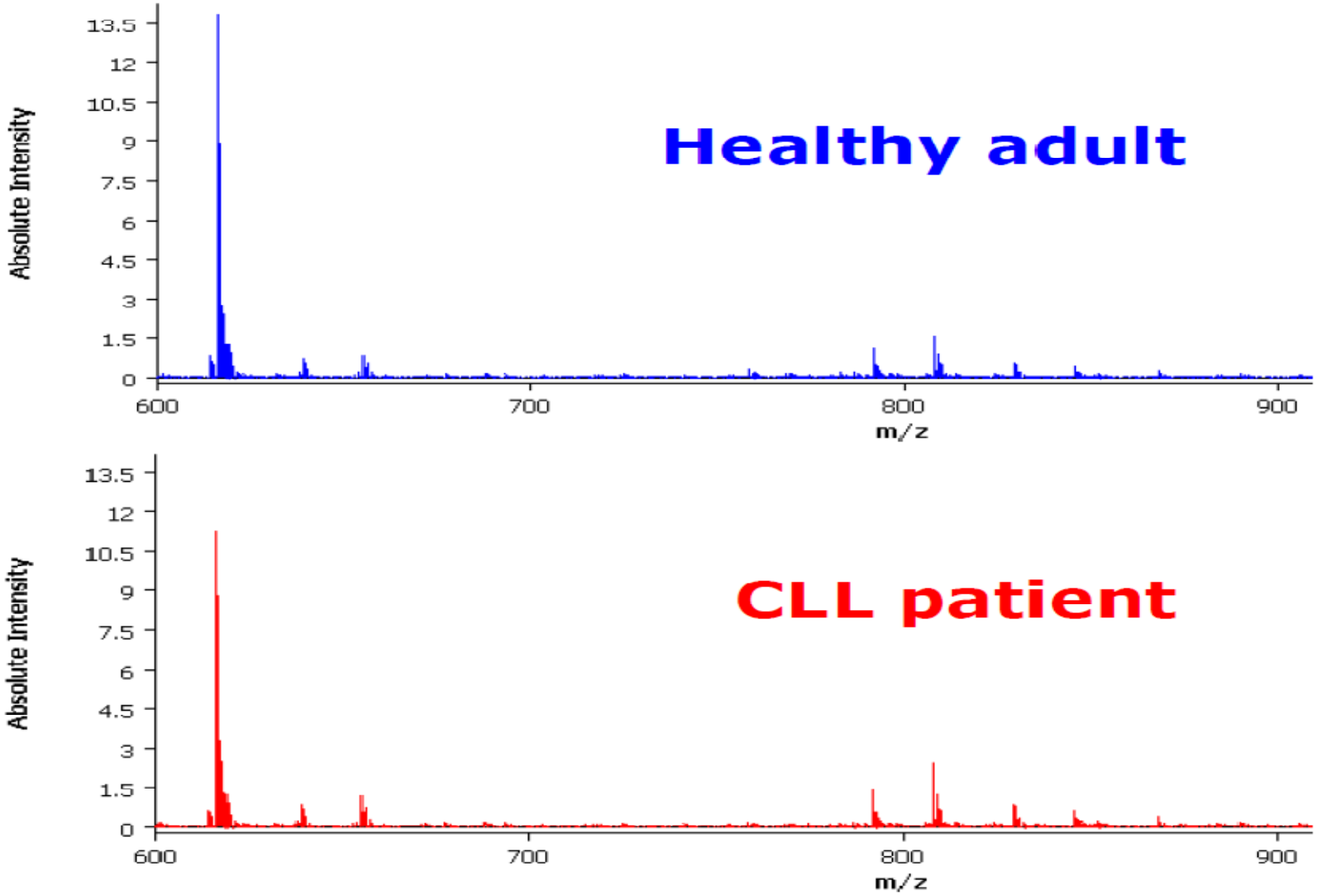


Lateralna distribucija PS





Spektar masa krvnog razmaza



Zaključci

- **Vizualizacija kemijskog sastava preparata**
- **Rutinska dijagnostika**
- **Istraživačke primjene**
- Individualizacija biomarkera: **maligne, infek tivne i metaboličke bolesti**
- Prostor za suradnju

HVALA

PITANJA?

https://clinical-maldi-tof.eu/

http://www.kbco.hr/category/eu-projekti/