

Preliminary study of the location of the HER2 protein by molecular imaging (MALDI Imaging) in a histological section of the breast

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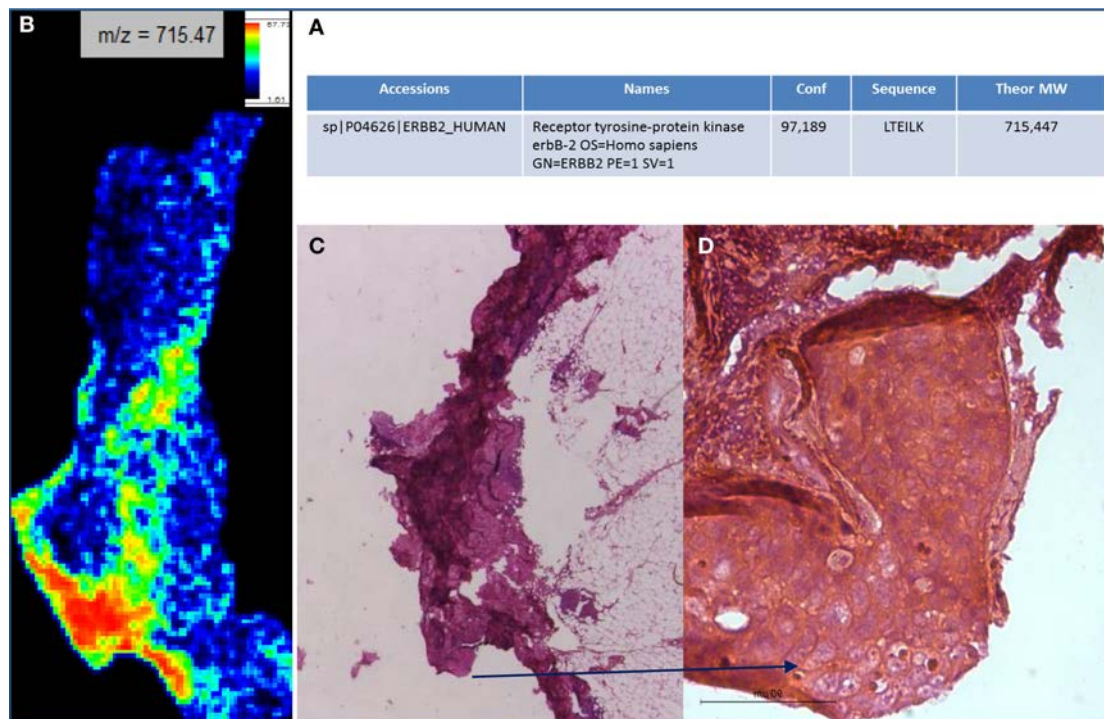
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Matrix-assisted laser desorption/ionization (MALDI) imaging is a promising molecular imaging technique in biomedical research that allows the detection and localization of markers such as proteins, peptides and metabolites directly on histological sections using mass spectrometry.

This study shows the molecular image (MALDI-time of flight mass spectrometry) of a biopsied breast tissue, which appreciates the spatial distribution of one of the tryptic peptides of the HER2 marker protein in breast cancer.

The image shows the tissue distribution of the peptide LTEILK of the HER2 protein. The peptide ion (715.4 Da) had previously been detected in the sample by mass spectrometry analysis with liquid chromatography (liquid chromatography/mass spectrometry).

Subsequent staining of the biopsied breast tissue with eosin/hematoxylin indicates that the peptide signal is located in a cell proliferation zone in the tissue.



(A) Peptide identification (715.4 Da) by liquid chromatography/mass spectrometry. (B) Molecular imaging of the peptide (715.4 Da) distribution of HER2 protein in breast biopsy tissue. (C) Subsequent staining of the eosin/hematoxylin (EH) slice. Image: 1 mm. (D) EH image with microscope (90 μm).

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