

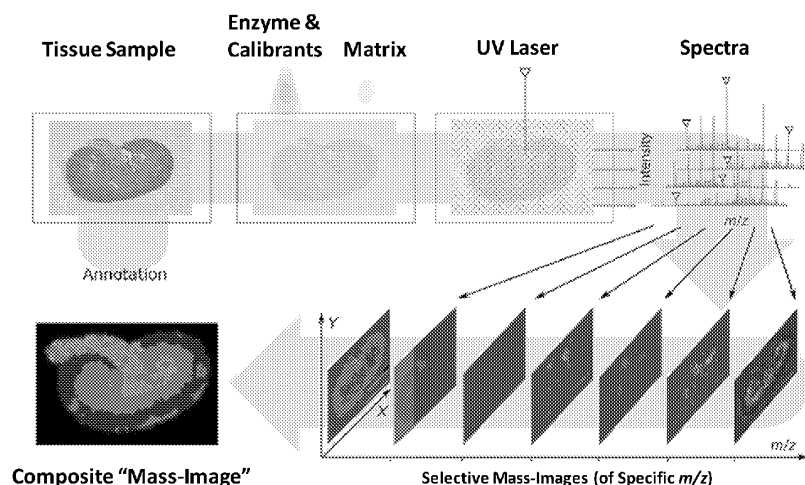
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EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV,(54) Title: NOVEL PHOTOCLEAVABLE MASS-TAGS FOR MULTIPLEXED MASS SPECTROMETRIC IMAGING OF
TISSUES USING BIOMOLECULAR PROBES

Fig. 1

(57) Abstract: Immunohistochemistry (INC) and in situ hybridization (ISH) methods for the targeted detection and mapping of bio-
molecules (e.g., proteins and miRNAs) in tissues or cells for example, for research use and for clinical use such by pathologists (e.g.,
biomarker analyses of a resected tumor or tumor biopsy) in said method comprising mass spectrometric imaging (MSI) as a mode to
detect and map the biomolecules in tissues or cells. The methods employ photocleavable mass-tag reagents which are attached to probes
such as antibodies and nucleic acids and used to achieve multiplex immunohistochemistry and in situ hybridization, with MSI as the
mode of detection/readout. The methods also encompasses multi-omic MSI procedures, where MSI of photocleavable mass-tag probes
is combined with other modes of MSI, such as direct label-free MSI of endogenous biomolecules from the biospecimen (e.g., tissue).

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