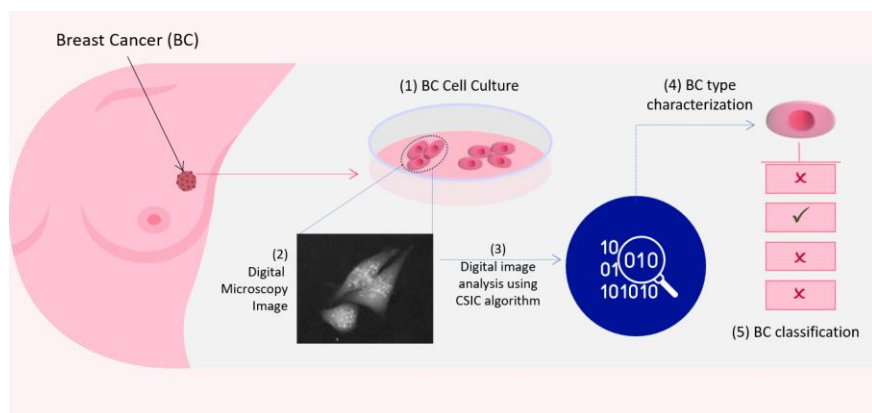


Technology Offer

CSIC/AI/006

Fast and accurate diagnosis system for breast cancer cells using digital microscopy



System based on an algorithm that allows for highly accurate diagnosis of breast cancer through the analysis of stochastic intracellular fluctuations of tumor cells, using images obtained through digital microscopy.

Intellectual Property

PCT application filed.

Stage of development

Laboratory tested

Intended Collaboration

Licensing and/or co-development

Contact

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Market need

Digital holographic microscopy (DHM) is a well-established technique that enables cell classification as well as the dynamic study of their basic processes. However, one of its limitations, up until now, has been the inability to determine and quantify intracellular fluctuations accurately, due to noise sources inherent to this type of microscopy.



Proposed solution

The developed algorithm allows DHM to reach detection limits never before achieved by eliminating any type of correlated noise. This has enabled, for the first time, the quantification and differentiation of different types of breast cancer by their intracellular fluctuations. By increasing the precision of the DHM technique (~2 nm), cancer can be classified within very short time intervals, on the order of minutes. This opens the door to individualized studies of treatments at the level of a single cell.

Competitive advantages

- Non-invasive, label-free technique performed under physiological conditions.
- High precision, detects changes in the intracellular environment on the order of 2 nanometers.
- Allows differentiation and classification of cells from different types of breast cancer with potential expansion to other types of cancer.