CLARIFY. Clarification technique and multiphoton microscopy.

DESCRIPTION OF TECHNOLOGY

In the investigation of certain pathophysiological processes, it is essential to observe the samples at a three-dimensional level. Three-dimensional (3D) images allow us to obtain a large amount of information that would not be possible to obtain through two-dimensional (2D) images. To obtain a good 3D image we need the sample to have optimal optical quality and light penetration capacity. To achieve these optical requirements, the tissues are first subjected to a chemical treatment for clarification called "Clarity", and then images are taken by multiphoton excitation fluorescence optical microscopy (MP). The combination of both techniques offers a substantial improvement in the quality of 3D images.

The “Clarity” technique consists of a chemical treatment of the tissues for the polymerization of their proteins and the elimination of all their lipids in order to turn them into a completely transparent tissue. With this clarification we improve the penetration capacity of the light in its interior and therefore its optical quality.

The MP fluorescence microscopy uses a two-photon laser as an illumination source for the excitation of the fluorescent markers of the tissue, whose main virtue is its better ability to penetrate the tissues and its lower phototoxicity compared to single lasers photon, allowing higher resolution images to be extracted in greater depth.

MARKET APPLICATION SECTORS

- Public or private research entities for basic research.
- Biotechnology companies for a broader study of their applications.
- Pharmaceutical companies for a better understanding of the results of therapeutic treatments.

TECHNICAL ADVANTAGES AND BUSINESS BENEFIT

- Study of biological mechanisms that develop inside tissues.
- Study of biological mechanisms in real time within the natural environment itself, "live imaging"
- Trace the location of a molecule for therapeutic purposes to better understand its effects.
- Study of the relationship and interaction between cells for the optimization of treatments.
- Characterization of molecular markers, function and location.

CURRENT STATE OF DEVELOPMENT

CLARIFY, the tissue clarification technique in combination with multiphoton microscopy are two well established techniques. The technology in both cases is fully developed, and the perfect complementarity of both techniques and the sum of their benefits significantly improves the results obtained.

INTELLECTUAL PROPERTY RIGHTS

- Industrial Secret.

COLABORATION SOUGHT

Basic and applied research projects at national and international level, as well as provision of services related to available technologies.

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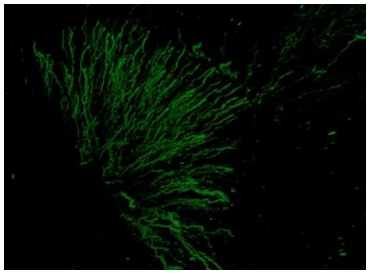

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