

# New device enables guided biopsies in real time and personalized treatment of cancers

January 28 2021

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Credit: Asociacion RUVID

A team from the Gamma and Neutron Spectroscopy Group of the Corpuscular Physics Institute (IFIC) has patented a new device for real-time guided biopsies, with direct application in any type of cancer that requires a biopsy and whose process must be carried out using

ultrasound. The system makes it possible to personalize the treatment, reduces the number of biopsies, and reduces costs by facilitating its insertion in the market.

Cancer tumors are not homogeneous, but rather have heterogeneities and areas of greater aggressiveness. Therefore, for [effective treatment](#) it is essential to take the sample from the most representative area. This innovative device patented by the IFIC makes it possible to direct the biopsy needle to the areas of greatest tumor activity. It combines the [ultrasound image](#) with the gamma image, that is, it adds the metabolic information provided by the image from the radiotracers that are injected into patients to the morphological information provided by the ultrasound machines.

Project Director Luis Caballero says, "The only way that currently exists to obtain this metabolic information is by injecting patients with a radiotracer, a substance with radioisotopes that emit [gamma radiation](#) when decaying." This radioisotope, attached to glucose, is mainly absorbed by [cancer cells](#), because its high replication rates require a high energy consumption that, fundamentally, they extract from glucose.

"Obtaining an image of the radiotracer distribution from the gamma radiation provides information about the intratumoral activity. Thus, integrating this metabolic information with the morphological information provided by the ultrasound machine used to guide the biopsy in [breast cancer](#) would allow the extraction of samples from the most active areas of the tumor and, therefore, improve the precision of said procedure and personalize treatment for patients," Caballero says.

### **Three advantages of this novel system**

Luis Caballero says, "in the current market there is no system like this one, which also has three great advantages: due to its precision it allows a

customisation of cancer treatment, it reduces the number of biopsies and its design makes it possible to adapt it to different current ultrasound systems and, therefore, reduce costs and facilitate their insertion into the market."

The type of companies that may be interested in this patent are both those that are already marketing ultrasound systems and wish to incorporate this molecular imaging technology, as well as companies that are dedicated to molecular imaging in the field of nuclear medicine. The device is a PCT (Patent Cooperation Treaty) international patent that has already entered phases in both the United States, Japan, and Australia.

Caballero says, "At the moment, the objective would be to license the technology or constitute its own spin-off and be the promoters of the device. Besides the application in the guidance of the [biopsy](#), this technology opens up new technological perspectives in nuclear medicine."

Provided by Asociacion RUVID

Citation: New device enables guided biopsies in real time and personalized treatment of cancers (2021, January 28) retrieved 19 April 2024 from <https://medicalxpress.com/news/2021-01-device-enables-biopsies-real-personalized.html>

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