

System to create *in vitro* tridimensional cell spheres by means of ultrasounds

CSIC has developed a new ultrasound system that allows to create spherical tridimensional cell aggregates, to be used for *in vitro* studies of cellular processes (e.g. tumors). Through an adequate selection of materials and an improved design of the process, our system can create cell aggregates in only a few minutes, therefore avoiding the need to use live animals in the study of tumoral processes.

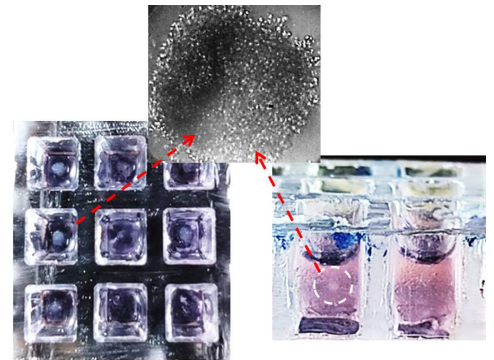
Industrial partners in the field of laboratory equipment are being sought to collaborate through a patent licence agreement for the manufacturing and commercialization of the ultrasounds device.

An offer for Patent Licensing

Obtaining spherical tissues in just a few minutes

In vitro cell cultures are commonly used in tumor research, mostly in the form of 2D cultures. However, such cultures fail at representing the tridimensional structure of live tissues, therefore losing representativeness of studies. By using spherical cultures, it is possible to accurately reproduce the real behavior and processes of tumors, what increases the fidelity of *in vitro* studies and reduces the need to use live animals for testing.

Our method to synthesize such tridimensional cell aggregates relies on ultrasound technology and allows obtaining quasi-spherical cell structures from a liquid cell suspension in only a few minutes. Our method uses simple ultrasound systems and therefore allows maintaining manufacturing costs low and optimizing manufacturing processes in comparison with other tridimensional synthesis systems, which are costly in terms of time and money.



Stable cellular spheroid synthesized through ultrasounds in 5 minutes, from pancreatic cancer cells PANC-1 and in an ultrasonic array of 3x3 squared plates.

Main innovations and advantages

- Allows to obtain stable tridimensional cell agglomerates (tissues) with a simple method and in a few minutes.
- Accurately represents tumoral structure of live tissues, including multiple cell populations, reducing therefore the use of live animals in testing.
- Is an efficient system in terms of energy and materials, being therefore sustainable and consistent with European Union requirements.
- Its main use is in the study of tumor processes, and for the study of any cell tissue.
- It is especially interesting for the pharma and medical industry, for the *in vitro* testing of drugs and treatments in tumoral processes, research of molecular targets, clinical analysis, or tissue engineering.
- It is a versatile system, so its use can be extended to other fields (agglomeration of particles, microelements).

Patent Status

Priority patent application filed suitable for international extension

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