



RTA: Real-time Tracking of Apoptosis assay for functional precision medicine



CHALLENGE

Cancer patients are treated following therapeutic regimens based on pathologic and molecular information (mostly genomic). However, tumors rapidly adapt leading to resistance and relapse and certain patients do not benefit from therapies selected based on this strategy. Alternatively, functional assays directly expose patient's tumor cells to potential therapeutic agents to determine which will be the best treatment for each patient. Overall, functional assays, such as RTA and others, require specialized equipment to be performed. To solve this general problem, we developed a novel microfluidic device that generates the logarithmic gradient needed to perform these determinations.



MARKET

The global oncology drug market was valued at approximately \$150 billion in 2022, and it is expected to grow to reach X in 20XX (CAGR of around 6.7%).

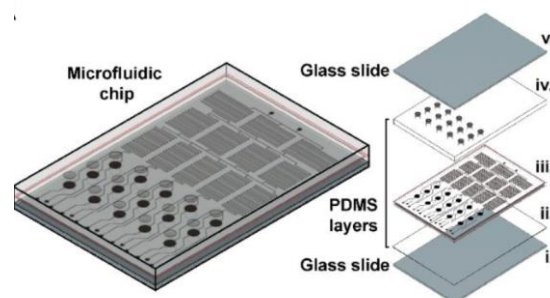
The RTA solution would be key in providing value in the Translational Oncology Solutions (TOS) segment market. We can estimate its size by comparing to its Preclinical Oncology CRO proxy market that is estimated in \$4.25 billion (2024) and projected to reach \$8.9 billion (by 2033).



ASSET

The technology enables testing multiple anticancer treatments for precision medicine in less than 24 hours. Furthermore, the team is currently developing a new benchtop instrument to perform these analyses in situ in an inexpensive and accessible manner. We envision a device capable of routinely performing RTA assessments on non-surgically obtained biopsies from cancer patients, which could significantly enhance precision medicine, improve patient outcomes, and increase cure rates.

Through our collaboration with Vall d'Hebron Institute of Oncology, we obtained clinical proof of concept using two sarcoma patient-derived xenografts (PeComa and Myoepithelial Carcinoma).



Team

Joan Montero - Scientific Leader
Albert Manzano-Scientist
Bruno Santos - Tech Transfer Manager
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Stage of Development

Successfully done:

- Preliminary results using different tumor models
- Primary samples treated with multiple anticancer treatments

Intellectual Property Status

Priority date: 12 July 2022
PCT Publication: WO2024/013236
Patent pending in BR, CA, CN, EU, JP, KR, MX, US
Applicants: IBEC, ICREA and UB

Exploitation Plan

Product available for licensing or services.

Contact

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ASSET VALUE

- Analysis in less than 24 hours under ex vivo conditions.
- Performs better than cytotoxic assays, organoids and patient-derived xenografts (PDXs), because the assay is directly performed in living patient-isolated cells, obtaining clinically relevant results.
- RTA keeps the cells alive and it is compatible with other analyses.
- Its integration in a microfluidic assay minimizes the number of cells needed, increasing the number of therapies that can be tested with samples obtained using non-invasive methods.

USES

- Cytotoxicity and efficacy testing
- Biomarker discovery
- Combination therapy evaluation
- Tumor sensitivity/resistance profiling
- Personalized medicine