

# PUMP IT



“Development of an unique multifunctional system for microfluidic devices to solve several critical problems easily and work as one stop solution. The innovative implementation of extremely precise (~100nm) piezoelectric materials differentiate our product in the microfluidics market through its high impact.”

## Need

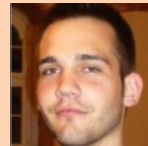
- General microfluidic problems:
  1. Bubbles in the device:
    - a. Interfere in the detection system.
    - b. Hinders the flow homogeneity.
  2. Mixing reactants is complex.
  3. Need of an external pump.
- Aeroespacial market:
  1. Long lifetime.
  1. Reusable
  2. 100% reliability.

## Solution

- Our system, through a mechanical actuation, is capable of:
  1. Eliminate bubbles (also in microgravity).
  2. Mix reactants easily.OR
  1. Pump liquid from the inside of the device.
  2. Mix reactants easily.
- The conditions for the Aeroespacial market are met too because of the long lifetime of piezoelectric materials.

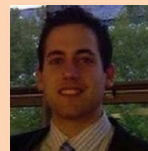


## Team



### Carles Rubio

Nanoscientist and Nanotechnician. MSc Advanced Nanoscience and Nanotechnology (Nanomaterials specialization)



### Andreu Enfedaque

Lawyer + Economist. Founder of 3 Companies.



### Dr. Francesc Xavier Muñoz

Director BioMEMs + Researcher at IMB-CNM. Founder of 6 Tech Companies and owner of 22 IP patents.



### Dra. Mar Alvarez

PhD. Physics, Ramon y Cajal Researcher at the IMB-CNM. Involved in 10 EU & National Projects and owner of 3 IP patents.

## INNOVATIVE AND DIFFERENTIATING FEATURES

Microfluidics is revolutionizing the fields of chemical and biological analysis. However, although it's few years in the market, the development lines have kept focused on the principles of this field early research.

Our value proposal lies on the innovative application of piezo materials as actuators in microfluidic devices, offering alternative solutions and widening its scope.

The system we have designed:

- Has been validated by CNM-CSIC experts.
- Eliminates bubbles in the system easily. Unique solution for the aeroespacial field.
- Allows the mixing of different liquids easily.
- Pump the liquids with high flow rate control.
- An innovative system completely differentiated from its market competitors.

Advantages for the clients:

- The system is integrated directly in the production chain of the microfluidic device.
- It does not depend on the microfluidic device purpose.

## Development status

The design has been evaluated and validated by experts and we are currently studying its patentability (TRL 2). As the engineering methods and piezo materials are well known, the prototype is expected to be presented during the first year.

The business model has been set based on technology licensing and business development and will be set up as soon as the patentability of our product is confirmed. We expect our product to be completely developed by 2017.

## Future steps

The expected future steps are:

- Constitution of Pump it S.L.
- Patent request.
- ESA BIC application.
- Prototype development and validation in microfluidic systems (Industrial PhD.)
- Contact with the potential partners.
- Licensing Pump It Technology worldwide.

## Intellectual and industrial property

We own the intellectual property of Pump It Technology. Upon confirmation of patentability, we will apply for the patent with the Worldwide patent in scope in early, 2017.

Nowadays we protect our technology under the scope of trade secret.

## TARGET MARKET AND COMPETITION

The Microfluidics market is relatively young (10-20 years) and is experiencing a fast expansion. With around 3.000M€ world-market turnover (2015) and an expected 20% annual growth rate for the next 5 years, all indicators point to a revolution in the Microfluidics field in a mid-long term.

Nowadays, around 300 companies such as Chip-Shop, Elveflow or Pharmafluidics work in the Microfluidic market worldwide, mainly in North-America, Europe and Far East. Nevertheless, our goal is not to compete with already experienced companies but to offer added value to their products by using our unique technology.

## FINANCIAL NEEDS

We have arranged of the initial investment (6.000€) for the patent study, Pump it S.L.constitution and USA Patent costs.

Moreover, we aim to have different public and private funding: Pump it will apply for the ESA BIC program (50.000€), Industrial PhD (55.650€) and has to, to the YUZZ program (prizes up to 30.000€)

The total financial investment consist in 80.000€ which will include the first prototype development and administrative costs.

## FINANCIAL PROJECTIONS

	2015	2016	2017	2018
Investment	6.000 €	68.520 €	118.520 €	168.520 €
EBITDA	0	0	39.338 €	786.764 €
-Licensees	0	1	5	20

## ALLIANCES, GOALS AND OTHERS

This project count with the support of the Parc de Recerca de la UAB (PRUAB) and the Centre Nacional de Microelectrònica (IMB-CNM) together with a budget of UAB professors and researchers interested in this investment.

A first row of contact with Spanish Microfluidic companies or related (such as SENER) has shown their interest in our product. We expect to undertake joint strategies to achieve a WIN-WIN relation.

Our goal is to find partners interested in investing in our Company, providing resources for the development of our first prototype or mentoring us throughout the process.