



A COMMON EXPERIMENTATION BETWEEN CC & C AND IBDM

- Mechanical Signals and Cancer: A New Experiment on colon cancer. First results expected early 2019.

Arles, September 20, 2018 - CELL CONSTRAINT & CANCER, a company specializing in the treatment of cancer by mechanical signals, with pancreatic cancer as a first indication, and [the Institute of Developmental Biology of Marseille](#), pole of research of global reach in Developmental Biology and Human Genetics, announce a joint experiment on the study of mechanical signals in the treatment of solid tumors.

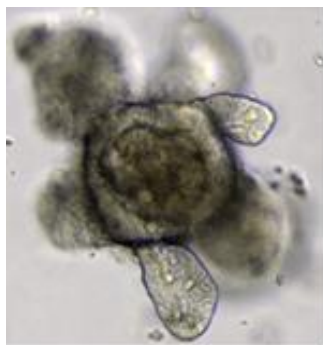
IBDM

Based in Marseille, IBDM brings together some twenty research teams exploring the field of Biology and development pathologies, with a daily collaboration between physicists and biologists. Among the major objectives of the IBDM: Cancer and new therapeutics.

THE PROJECT

The experimental device:

It is in vitro in 3 dimensions, with an organoid surrounded by magnetizable iron particles. Magnets are placed around the organoid itself surrounded by iron. The iron particles are "BioActuators": they transform the magnetic energy of the magnets into mechanical energy; they therefore apply a pressure on the tumor.



Intestinal organoid grown from stem cells

The model: intestinal tumoral organoids available at Luminy, the campus where IBDM is located.

An organoid is a three-dimensional multicellular structure that reproduces in vitro the micro-anatomy of an organ; it is therefore a model of the organ (or a mini-organ).

The techniques of obtaining and producing organoids of different tissues have developed in an accelerated way since the years 2010. These methods were considered as one of the greatest scientific advances of the year 2013 by the magazine *The Scientist*.

The study will be conducted by Elsa Bazellières, CNRS and Aix-Marseille University researcher at the Laboratory of Cell Polarity and Epithelial Morphogenesis.

THE GOALS OF EXPERIMENTATION

To verify by a simple, inexpensive and fast way the mechanisms of the action of Mechanical Signals on tumor tissue. Indeed, the action of the pressures on the tumor tissue is widely known for more than 10 years but this device allows to go further and to show how the pressures act on the cancer not just at the level of the cells but also at the level of the tumor. Recall that CC & C is developing a method that aims to reduce the volume of tumors to make them resectable, or even reverse the process of cancerization and turn malignant tumors into benign tumors.

Inspired by our methodology and using the magnetic field generator that we used, this new experiment allows us to validate that our technology can be applied to other cancer lines, here colon cancer.

Colon cancer is highly studied by biologists but very little by physicists. These works therefore present the additional interest of acculturating the physical sciences to a lineage whose biologists are perfectly familiar with. This project is in line with our findings on breast cancer ([Brossel, R., Yahi, A., David, S., Velasquez, L. M., & Guinebretière, J. M. \(2016\). Mechanical signals inhibit growth of a grafted tumor in vivo: Proof of Concept. PloS one, 11\(4\), e0152885](#)).

The League and the ARC, the two largest French NGO's against cancer, are asked to subsidize this experiment. The first results are expected for early 2019 with the publication of an article in stride.

A COLLABORATION THAT ANNOUNCES OTHERS

The IBDM is a prestigious institution, geographically close, one of the few research centers in France to work in areas close to us and to be able to quickly appropriate physical oncology. This first collaboration paves the way for more ambitious experiments. To be continued...

Find all the information on CELL CONSTRAINT & CANCER:

<http://new.cellconstraintcancer.com/>



About CELL CONSTRAINT & CANCER

Founded in 2009 by Rémy BROSSEL, medical oncologist and physicist, CELL CONSTRAINT & CANCER develops innovative treatments based on [physical oncology](#), complementary to current approaches to oncology. Addressing primarily non-metastatic non-operable tumors, such as cancer of the pancreas, brain, or liver, the company published in May 2016 a proof of concept of slowing the growth of an in vivo grafted cancer tumor, by the action of mechanical signals (read our article: [Mechanical signals inhibit growth of a grafted tumor in vivo: Proof of Concept](#)).

The establishment of major partnerships (CNRS, INSERM, Stanford University) and the support of its shareholders since its beginning allow it today to initiate a new phase of experiments on animals intended to provide proof of the effectiveness of its technology on unmet medical needs.

CONTACTS

Press Relations

Barthélémy BROSSEL

Tél. : +33 (0)6 50 22 79 64

Mail : barth.brossel@gmail.com

Shareholders & Investors Relations

Christine GRAU

Tél. : +33 (0)4 90 18 48 50

Mail : investisseurs@cellconstraintcancer.com