

# Interactions UTC

1. [Home](#)
2. [Themes](#)
3. [Pluridisciplinarity](#)
4. [18 : Ils créent, inventent et imaginent le futur](#)
5. Predicting toxicity in products

## 18 : Those who create, invent and imagine our future

01 Sep 2012



### Summary

- [Predicting toxicity in products](#)
- [The inventor of the new Danone yog. Pot](#)
- [This one imagines bio fuels for tomorrow](#)

- This one developed the first energy-wise, smart city precinct

Cosmetology, pharmaceuticals, chemistry ... these are areas of research in which the development of new substances, new molecules requires that they be tested in vivo, i.e., on living cells.

*"The traditional way to do this, for example, was to use Petri dishes or to proceed in vivo with live animals. This led to both ethical and economic problems",* explains Eric LECLERC, a research scientist with the UTC-BMBI (biomechanics and bio-engineering)

Laboratory. So, how were we to improve the in vitro approach to obtain more relevant biological responses, or to predict as accurately as possible the degree of toxicity of certain molecules? Classical methods are not sufficiently efficient and do not represent the complex organisation of an organ; on top of this, there can be a loss of properties that are induced by blood flows.

Thus, since 2001, Eric LECLERC has been working on design aspects of micro-systems and cellular micro-fluid bio-chips that would lead to an in vitro reproduction, using an extremely low number of cells, the conditions needed for an in vivo cell culture.

*"The idea is to make a miniature reproduction of tissue functions or organs in a bio-artificial manner. Moreover, industrial constraints, as are set out in the EU REACH Directive, are such that they require analysis of a great many molecules, or an important concentration level of products. To answer this challenge, we therefore started working on a device (box form), that incidentally has been registered under several patents, which allow you to install up to 12 labs on chips and to test their contents in parallel and/or several types of cell simultaneously, or again a single cell under varying conditions".*

This innovative project carried the code name IDCCM standing for "Integrated Dynamic Cell Cultures in Microsystems", and has recently been presented, in a partnership with INSEAD to the investment committee of a SATT (acronym for a technology transfer acceleration company) called LUTECH who have UTC Compiègne as an academic partner. "Two INSEAD managers were

put in charge of carrying out a market study and the establishment of a business plan for our concept/product" adds Eric LECLERC, optimistically. To be continued...

## **Predicting toxicity in products**

