

# 1998 Award

## Pain, deficiency and physical handicap

### The laureate

First Prize  
Kappa Biotech -France

#### A new cell micro-encapsulation robot



In 1998 the Altran Foundation prize was awarded to the Toulouse-Rangueil University laboratory, and to the company Kappa Biotech for their pain-treatment project based on cell micro-encapsulation.

Two years later, Altran's technological patronage has resulted in the marketing of the cell micro-encapsulation process. Treating chronic pain by inoculating living cells, which produce an active constituent with analgesic effects similar to morphine, had proved clinically effective, but issues of supply and biological compatibility were slowing down subsequent developments.

The micro-encapsulation process, developed by Kappa Biotech, stops the organism from rejecting cells by protecting them in a sphere, thus preventing the immune system from recognizing them. The process involves creating biocompatible micro-membranes which are implanted using in-vitro fertilization technology. Until recently, the implantation posed a number of major productivity problems, making the entire Kappa Biotech team wonder if they would ever actually get out of the laboratory and start marketing the technique as it was taking 15 minutes for one micro-membrane to be implanted! Altran teams stepped in to help solve precisely this problem.

#### Altran support

The Altran teams were faced with having to identify and develop a number of possible research directions:

- Protection of the cells during the micro-encapsulation phase
- Piercing phase;
- Micro-needle technology.

The studies demonstrated that the automated implantation option, using a laser optical guidance system, was the most promising approach. With the cooperation of Tarbes E.N.I. students, Altran consultants developed a robot to automate the microcapsule filling operation using a dual-needle system.

#### The theme

For its 1998 Award, the Altran Foundation chose "technological innovation in the field of treating all forms of pain, deficiency and physical handicap" as its theme.

#### After the Award

This robot, which patent was filed under the name Kappa Biotech, started work on May, 20th 2000. Clinical tests started at the end of 2001. Kappa Biotech's patents now belong to Bionov, a company located in Montpellier, France. At present, the technology is mostly used by the food and cosmetic industries.

## The jury

### President of the jury

**Dr François BOUREAU**

Neuro-physiologist, and Director of the Centre for Assessment and Treatment of Pain at the Saint-Antoine Hospital – Paris.

### Pr Olivier DIZIEN

Director of the functional rehabilitation unit at the Garches Hospital.

### Pr Christian HERVE

Director of the medical ethics laboratory and head of public health at the Necker Faculty of Medicine.

### André LEBEAU

Former president of the CNES, France's national space research centre, and of the Météo-France (the national Meteorology Office)

### Yves QUERE

Academician, chairman of the Association Bernard Gregory, which helps newly qualified doctors to find jobs.

### Anne REYSS

Biologist.

### Raymond SAINT-PAUL

Economist.

### Philippe STREIFF

Former Formula 1 driver

