



## Automatic device for suture in anastomosis surgery interventions

A new automatic, fast and biocompatible new surgical manipulator device has been developed and patented. This new technology allows cross-cutting of tubular tissue using absorbable yarn and avoids the common complications of traditional anastomosis interventions. Partners to further develop the device and/or to establish commercial agreements along with technical cooperation are sought.

### The Challenge

A common procedure in the treatment of cancer of colon, which has big incidence in occidental population, is the union of the two extremes of intestine after removing a tumor (see image 1). This procedure, called anastomosis can be done in two different ways:

- With manual suture, where the surgeon sews with special yarn and needle the ends of the intestine in a complex and long procedure.
- Using a surgical stapler (special mechanic device) that unites the two extremes with metallic staples.

However, the hand suture is really difficult (needs highly skilled surgeon) and is slow, increasing significantly the infection risk. On the other hand, the metallic staples are not absorbed by the organism, creating a ring in the intestine with poor elasticity, really below the rest of intestinal tissue, so this can create obstructions that can appear during the rest of the life of the patient.

### The Technology

This new technology consist on a surgical manipulator device focused in the improvement of surgical interventions with anastomosis. These interventions consist basically in doing a cross-cutting of a tubular tissue (usually the intestine) removing a piece of it and uniting again the resulting ends. The device unites the two extremes of the intestine by means of a sewing with absorbable yarn, doing it fast, automatically and in a robust way, under supervision of the surgeon. Thus, improving the quality of life of the patient and reducing the risks associated to the surgery intervention. On the other hand, the device handling is very similar to the existing stapling devices commonly used, therefore diminishing the training of the surgeons.

### Innovative advantages

This automatic device will avoid the disadvantages of the existing methods: it will do a fast sewing suture with yarn that can be absorbed by the organism, thus keeping the affected zone elastic after the intervention. This will avoid obstruction problems and also will improve the regeneration of the tissues in the sewed zone.

The device will consist on a fixed part and a disposable part, which means that the total costs could be very similar to the current devices.

### Current stage of development

A real size prototype device has been designed and built. A proof-of-concept test with pig intestine (very similar to human intestine) has been carried out, being evaluated as successful by the surgeons assessing the project.

Additional development is required for reduction of external actuators in the prototype as well as additional tests (starting the legal roadmap to introduce it in the market).

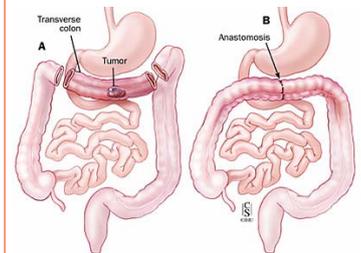
### Applications and Target Market

The target market is defined by replacing the use of stapling devices, currently used in almost all the anastomosis interventions for cancer of colon (the 3rd with more incidence worldwide, with more than 1.000.000 new cases per year).

### Reference number

MKT2012/0142\_H

**Fast and biocompatible  
sewing suture useful for a  
tubular tissue surgery**



**Anastomosis scheme**



**Fully functional prototype**



**Successful sewing test  
carried out with pig  
intestine**

### Business Opportunity

Technology available for licensing with technical cooperation

### Patent Status

Priority application

### Contact

Mr. Xavier Estaran Latorre  
Licensing Manager  
T. + 34 934 134 094  
M. +34 626 260 596  
f.xavier.estaran@upc.edu

### See more technologies at

[www.upc.edu/patents/TO](http://www.upc.edu/patents/TO)  
UPC—BarcelonaTech