

## PRESS RELEASE

### Spinal injuries: a biomedical device was developed thanks to a SISSA patent

Starting from basic studies on the neuromodulation of the neuronal circuits of the spinal cord, a SISSA neuroscientist has developed an innovative technique with the collaboration of the University of California at Los Angeles (UCLA) and the University of Southern California (USC). The device will soon become a biomedical product available on the market



Trieste, 8 Nov 2022

An experimental intuition turned into an application in the treatment of spinal injuries. This is what happens to the innovative electrostimulation technique developed in the Laboratory of Applied Neurophysiology and Neuropharmacology of the SISSA Neuroscience Area, led by Giuliano Taccola and based in the Gervasutta Hospital in Udine. The technique is about to transform into a biomedical product that will be soon available on the market thanks to an agreement developed with the US company SpinEX.

"This result demonstrates that basic research can be oriented towards the resolution of clinical problems and need to receive resources and to be carried out in hospitals to explore revolutionary approaches compared to current treatments."

Giuliano Taccola has developed an electrostimulation technique that facilitates the activity of the neuronal circuits of the spinal cord for motor and autonomic functional recovery in those who have suffered a spinal injury. The innovation got the attention of the global market of the electro-medicine devices of the future and caught the interest of SpinEX (<https://spinexmed.com/>) a company dealing with biomedical device based on neuro-modulation.

A 10-year project with the collaboration of other bodies both nationally and internationally, first of all the Gervasutta hospital in Udine which houses the SISSA laboratory where the first experiments on the new neuromodulation technique were carried out.

## **From basic research to industry**

This innovation turned step by step into a device used for clinical researchers and companies dealing with neuromotor disorder.

It all began with the research carried out at SISSA-IMFR laboratory in 2009 partially funded by Friuli Venezia Giulia Region and focused on basic research for the technological transfer of new rehabilitation treatments. Consequently, the first results of *in vitro* research were published in 2011 in the Journal of Neurophysiology. Then, the new neuromodulation approach was tested in preclinical models in the United States. From the tests to the realization of the first new stimulation interfaces is a short step. It was developed thanks to the contribution of the University of California at Los Angeles (UCLA) and the University of Southern California (USC) and supported by European Marie Skłodowska Curie funding. Thanks to the international team gravitating towards Giuliano Taccola's research, the technology was developed and subsequently patented.

## **A success story**

The patent was recently licensed to the SpinEX Company to produce devices to be put on the market that will therefore have a practical application in the treatment of numerous neuromotor disorders.

"This story is made up of many elements: international scientific collaboration, a multidisciplinary research team, enhancement of intellectual property, and above all it is a successful example of creating Impact in the context of the so-called third mission of Accademia" Taccola says. "I wish to see soon this innovative device in the Gervasutta clinical gyms located near the SISSA Laboratory: this would return the clinical, technological and socio-economic benefits of a long research path to the territory".

A desire that perfectly fit with the expectations of the IMFR Gervasutta.

"As soon as the device is marketed – Gervasutta Director Luca Lattuada says - we will begin the procedure for starting the experimentation in our gyms, thus confirming the Institute's aptitude for experimentation in the rehabilitation field: an evaluation to use an innovative gym machine patented by AKUIS, a young company in our area, is already underway and other projects are in progress. It is certainly no coincidence that our institute is one of the few rehabilitation hospitals in Italy to be accredited for excellence by Joint Commission International, a prestigious international and independent accreditation agency".

---

**IMAGE**

The last version of the device developed thanks to a  
SISSA patent  
Credits: SpinEX

**SISSA**

Scuola Internazionale  
Superiore di Studi Avanzati  
Via Bonomea 265, Trieste  
**W** [www.sissa.it](http://www.sissa.it)

**Facebook, Twitter**  
[@SISSAschool](#)

**CONTACTS**

Nico Pitrelli  
→ [pitrelli@sissa.it](mailto:pitrelli@sissa.it)  
**T** +39 040 3787462  
**M** +39 339 1337950

Marina D'Alessandro  
→ [mdalessa@sissa.it](mailto:mdalessa@sissa.it)  
**M** +39 349 2885935