

# SIMULATOR OF THE MIDDLE MENINGEAL ARTERY FOR EMBOLIZING SUBSTANCES



## DATOS DE CONTACTO:

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### RESUMEN

The **Joint Research Unit in Biomedical Design and Manufacturing (BioFab)**, consisting of researchers from the University of Alicante and the Institute for Health and Biomedical Research of Alicante (ISABIAL), has developed a **simulator of the middle meningeal artery to improve training in the surgical practice of chronic subdural hematomas (CSDH) with embolizing substances**. The system, manufactured by **3D printing**, replicates the anatomy of the meningeal artery in a realistic and calibrated way, providing the medical team with **experience and testing** both the approach and the use of the different embolizing substances, prior to the intervention with real patients.

BioFab is looking for **medical device companies or healthcare entities** interested in validating the simulator or in the design and manufacture of other new devices.

### VENTAJAS Y ASPECTOS INNOVADORES

#### MAIN ADVANTAGES OF THE TECHNOLOGY

Some advantages are worth noting:

- **Great realism with real anatomy**, even replicating the complicated internal tortuosities that other commercial models simplify (0.5 mm internal lumens).
- **Improved physician training** (current embolising simulators focus on aneurysms) so they can make more accurate decisions about the appropriate embolising substance and the best possible approach.
- Made of a **transparent material** that allows healthcare staff to directly observe the behaviour of the embolising substance.
- Facilitates the **evaluation of the behaviour of new embolising substances** under development in a quasi-real environment.

#### INNOVATIVE ASPECTS

**3D printing** and three-dimensional models are being used in a large number of sectors as production technologies for small series as they offer great flexibility and the possibility of customisation.

Therefore, it is a manufacturing process that is characterised by the low cost of the materials and equipment required, as well as the possibility of being produced anywhere in the world with the consequent savings in logistics and distribution.

In the case of the present invention, it has the limitation of being single-use because once the formation with the embolising substances has been carried out, the inside of the duct becomes clogged and can no longer be used for other formations. Furthermore, numerous hours of post-processing are required to obtain a functional prototype.

### APLICACIONES DE LA OFERTA

It is primarily aimed at the **health technology and innovation** sector with the objective of improving medical training and surgical planning for specialists.

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Companies interested in acquiring this technology for its **commercial exploitation** through patent licensing agreements are sought, as well as **healthcare entities** interested in validating the simulator or in the design and manufacture of other new devices.

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