

# InnovaTivE in situ 4D biopriNTing for regenerAtion of CoLorEctal mucosa and submucosa

www.tentacle-project.eu



TENTACLE pioneers a radically new way to treat colorectal diseases thanks to an innovative bioprinting strategy, marking a new chapter in **regenerative medicine** thanks to a cutting-edge use of biomedical engineering.

The project plans to do so by integrating multiple health-related **biotechnologies** into a single device which will incorporate two different bioprinters. The procedure consists of using an **endoscopic surgery** to remove the diseased mucosae and replace them with biomaterials.



This project focuses on the patient, therefore the main goal is to offer individuals with specific conditions an improved outlook, free from long-term disabling sequelae or post-surgical complication using regenerative medicine.





# **Tentacle's solution**

TENTACLE wants to attain a complete **in situ bioprinting kit**.

The bioinstruments will be a combination of the patient's own cells and **natural biomaterials** specifically designed to be printed directly onto the remaining layer of colorectal tissue and enriched with microand nanocarriers that provide advanced active pharmaceuticals. Once proven its effectiveness, the TENTACLE kit could be used for **other clinical applications** where mucosal and submucosal regeneration is required.





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Less invasive treatment and advanced endoscopic innovations



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