

# \*Team

Universitätsklinikum Würzburg



UNIVERSITÀ DI PISA

Centro E. Piaggio  
bioregenerative and robotics research center



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"All for health"



The drug delivery network

beWarrant

tinexta  
innovation hub



[www.tentacle-project.eu](http://www.tentacle-project.eu)



# Project details

Project number: 101191747

Project name: InnovaTivE in situ 4D biopriNTing for regenerAtion of CoLoREctal mucosa and submucosa

Project acronym: TENTACLE

Topic: HORIZON-HLTH-2024-TOOL-11-02

Granting authority: HADEA

Project starting date: 01 January 2025

Project duration: 48 months

EU Contribution: 7 555 750.00 Euro

# Contacts

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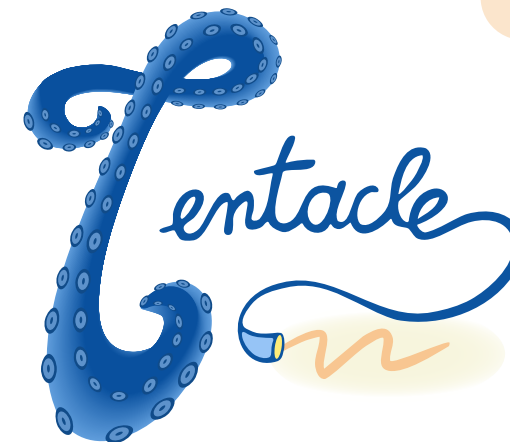
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InnovaTivE in situ 4D biopriNTing  
for regenerAtion of CoLoREctal  
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# \*Our Project

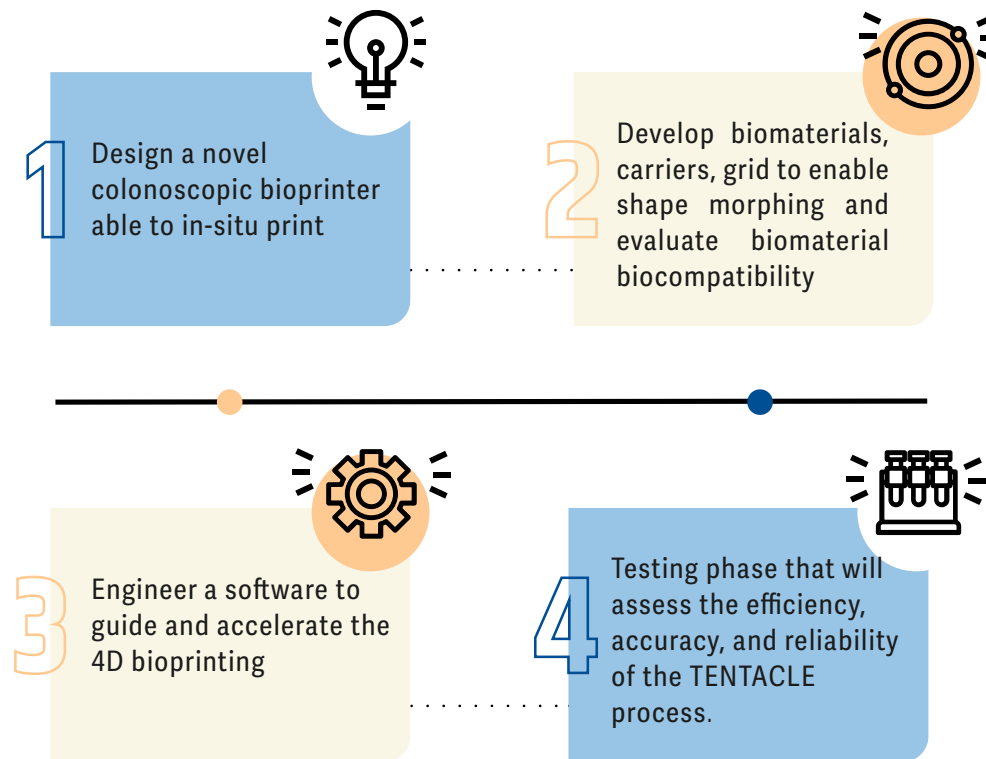
TENTACLE pioneers a radically new way to treat colorectal diseases thanks to an innovative bioprinting strategy, marking a new chapter in **regenerative medicine** thanks to a cutting-edge use of **biomedical engineering**.

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**.



# \*Methodology



# \*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 micro- and 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.

# \*Expected Results

-  ► **Improve the quality of patients' life with colorectal diseases**
-  ► **Less invasive treatment and advanced endoscopic innovations**
-  ► **New uses for the TENTACLE kit on other diseases**