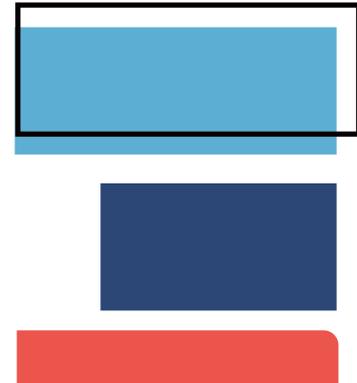




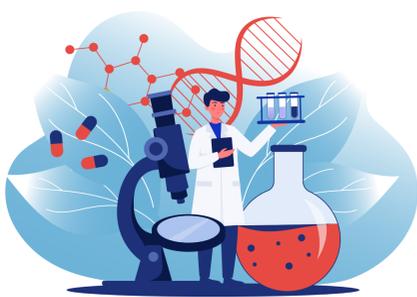
ADVANCED 4D BIOMATERIALS FOR MUCOSA AND SUB-MUCOSA TREATMENT IN PATIENTS AFFECTED BY INTESTINAL DISEASES



www.daedalusproject.eu



DAEDALUS is redefining tissue regeneration using 4D biomaterials and smart endoscopic delivery



DAEDALUS introduces a breakthrough in the treatment of **colorectal diseases** by replacing invasive surgeries with a minimally invasive, in situ regenerative approach.

The project aims to develop **injectable 4D biomaterials** that reshape within the body, release bioactive molecules, and **restore damaged tissue**

using a smart endoscopic toolhead. This innovative method has the potential to transform care for patients with ulcerative colitis, familial adenomatous polyposis, and other chronic intestinal diseases.

A newly designed multifunctional **endoscopic tool delivers** the biomaterials directly to the diseased area. Once injected, the biomaterials adapt to tissue geometry, release therapeutic agents like oxygen, glucose, and growth factors, and form a new, living tissue interface.

The approach enables tissue **repair without removing the entire colon**, reducing the need for colostomies, pouchitis risk, or permanent alterations in bowel function.

Impact and Mission



- » A less invasive clinical solution for chronic colorectal diseases;
- » A significant reduction in post-surgical complications;
- » A scalable platform for other mucosal and submucosal applications;
- » A patient-centred innovation path, driven by societal and medical needs.

The mission is clear: to offer a viable, personalised, and sustainable alternative to radical colorectal surgery, improving quality of life across Europe and beyond.

The project combines expertise in:



Materials science (biofabrication, nanoengineering)



Tissue regeneration and immunology



Medical engineering and endoscopy



Computational modelling and in silico design



Partners



Project details

Project number: 101178568
Project name: ADvAnced 4D biomATERIALs for mucosa and sub-mUcosa treatment in patients affected by intestinal diSeases
Project acronym: DAEDALUS
Project starting date: 1 June 2025
Project duration: 48 months
EU Contribution: 7 760 778.22 Euro

Contacts

Project Coordinator | Giovanni Vozzi
 University of Pisa
 E-mail: g.vozzi@ing.unipi.it
Dissemination Manager | Isella Vicini
 beWarrant - Tinexta Innovation Hub
 E-mail: isella.vicini@tinextainnovationhub.com

Follow us!

[@daedalusproject](https://www.linkedin.com/company/daedalusproject)



"Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Health and Digital Executive Agency (HADEA). Neither the European Union nor the granting authority can be held responsible for them." G.A. n. 101178568.