



MICROB·AI·OME

Federated artificial intelligence for privacy-preserving international stratification of colorectal cancer patients

Microb-AI-ome PR Videos

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Table of content

1	Microb-AI-ome as a whole	4
2	Microb-AI-ome PR Videos	5
2.1	Rationale.....	5
2.2	Description	5
2.2.1	Introductory Project Video	5
2.2.2	Recruitment-Focused Video	7
2.2.3	Planned Videos.....	8
2.3	Microb-AI-ome partners involved	9
3	Conclusion, next steps.....	10
4	Annexes.....	11
4.1	Annex I: Microb-AI-ome introductory video Storyboard.....	11
4.2	Annex II: Microb-AI-ome recruitment-focused video Storyboard.....	13

History of changes

Revision table			
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0.1	Marta Ferrandis Vila (TP21)	04.02.2026	Template
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0.6	Marta Ferrandis Vila (TP21)	20.03.2026	Amended version
1.0	Marta Ferrandis Vila (TP21)	27.03.2026	Final version

List of Figures

Figure 1: Microb-AI-ome introductory video opening screen.....	6
Figure 2: Example screenshot of the content of Microb-AI-ome’s introductory video	6
Figure 3: Screenshot from the Microb-AI-ome recruitment video featuring Robert Benamouzig.....	7
Figure 4: Screenshot from the Microb-AI-ome recruitment video featuring Jan Baumbach	8

Table of acronyms and definitions

Acronym/Abbreviation	Full name/Description
AI	Artificial Intelligence
APHP	Assistance Publique Hôpitaux De Paris, Hôpital Avicenne Service de Gastroentérologie
CRC	Colorectal Cancer
FIT	Fecal Immunochemical Test
GDPR	General Data Protection Regulation
GND	Egnosis
INRAE	Institut national de recherche pour l'agriculture, l'alimentation et l'environnement
MMUH	Mater Misericordiae University Hospital and National Cancer Screening Service, Department of Gastroenterology
RI	Research Institute AG & Co KG
TP21	tp21 GmbH
UCC	University College Cork – National University Of Ireland, Cork
UHAM	Universitaet Hamburg

1 Microb-AI-ome as a whole

Colorectal cancer (CRC) is the second most common cancer worldwide, but early detection significantly improves outcomes. Current screening relies on the fecal immunochemical test (FIT) to determine the need for a colonoscopy. However, FIT has a high false-positive rate leading to unnecessary and costly procedures. It is known that the microbiome is altered in colorectal neoplasia. The Microb-AI-ome project, funded by the European Commission, explores whether AI-assisted stool microbiome analysis combined with clinical and nutritional data can offer a more accurate, non-invasive, and cost-effective addition to national CRC screening programmes. In this project, federated AI will be used to facilitate international collaboration while improving data security and privacy. Patients in France and Ireland undergoing colonoscopy will be invited to contribute stool samples and relevant clinical and nutritional information. These data will be analysed through federated AI to develop and test improved screening approaches.

2 Microb-AI-ome PR Videos

2.1 Rationale

Dissemination and communication are core components of the Microb-AI-ome strategy. Given the interdisciplinary and technically complex nature of the project, combining microbiome science, AI, federated learning, clinical research and GDPR-compliant data infrastructures, clear and accessible communication is essential to ensure awareness, trust and stakeholder engagement.

CRC screening involves sensitive health information, and the project's innovation relies on advanced AI methodologies and cross-border collaboration. Therefore, our communication actions aim to inform but also build confidence in:

- The scientific validity of microbiome-based CRC stratification.
- The ethical and privacy-preserving nature of federated AI.
- The clinical relevance and societal impact of the project.

Audiovisual communication was selected as a strategic communication tool because it allows complex concepts to be explained in an intuitive and engaging format. Video content supports transparency, enhances accessibility across different literacy levels, and facilitates broader outreach beyond traditional academic channels.

This document outlines the concept and structure of a video series designed to address the needs of distinct target groups, including:

- The general public and patients.
- Potential clinical study participants.
- Clinicians and tumour boards.
- Regulatory and policy stakeholders.

Through this approach, this deliverable directly supports public outreach recruitment efforts , regulatory preparation and long-term exploitation and sustainability objectives .

2.2 Description

2.2.1 Introductory Project Video

Microb-AI-ome's initial PR video is an introductory project video, publicly available on Microb-AI-ome's public website (<https://microbaiome.net>, video available under: <https://microbaiome.net/vision>) and YouTube (<https://youtu.be/vUWhzcg-99U?si=BFixRCaEhmaeSBWH>)

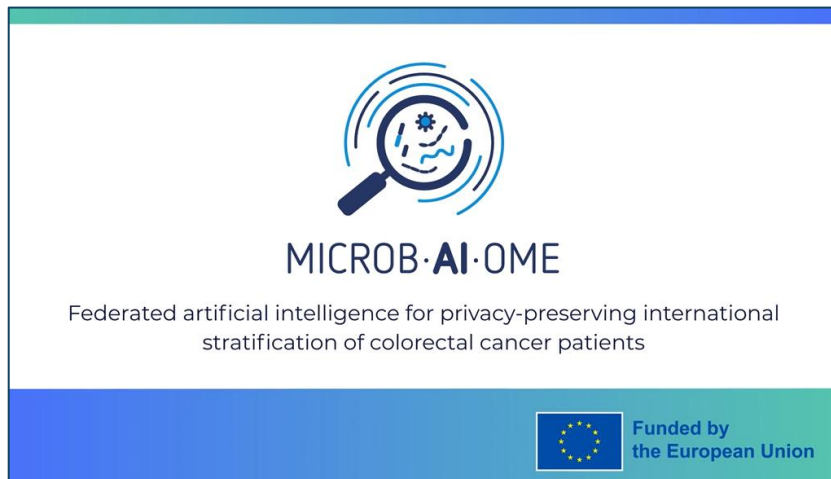


Figure 1: Microb-AI-ome introductory video opening screen

This video presents:

- The societal challenge of CRC.
- The limitations of current screening approaches (e.g. FIT).
- The scientific rationale behind microbiome-based risk stratification.
- The innovative use of federated AI to ensure data privacy.
- The overall vision and expected impact of the Microb-AI-ome project.

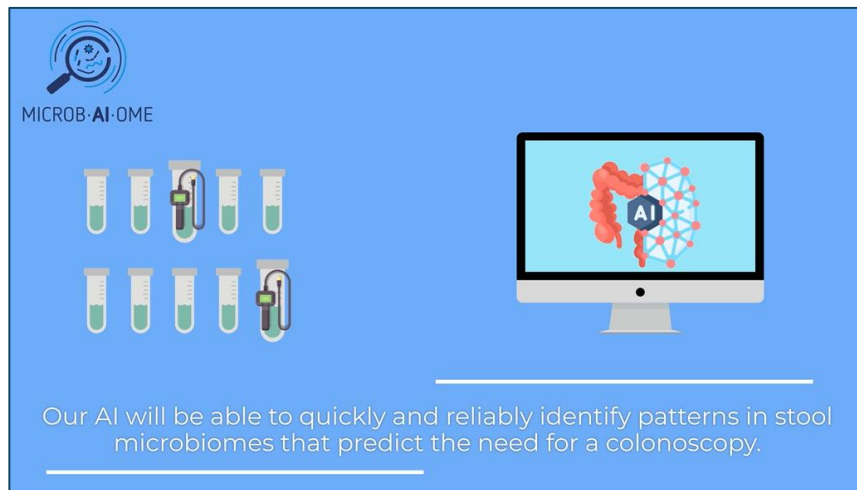


Figure 2: Example screenshot of the content of Microb-AI-ome's introductory video

The video was fully produced by partner TP21 in coordination with the project coordinator UHAM. It is intended for a broad audience, including the general public, patients, researchers, and other stakeholders, and functions as a key communication asset on the project website and social media channels. It is fully animated to maximise accessibility and engagement. The narrative and language are

adapted for viewers without a scientific background, ensuring that the project's objectives and core concepts can be easily understood.

For more detailed information on the video content, please see **Annex I: Microb-AI-ome introductory video Storyboard**.

2.2.2 Recruitment-Focused Video

The second PR video is specifically designed to support recruitment for the clinical trials in Ireland and France.

The video has been produced by partner TP21 in coordination with the project coordinator UHAM, with contributions from clinical and scientific partners APHP and INRAE through expert interviews featured in the video.

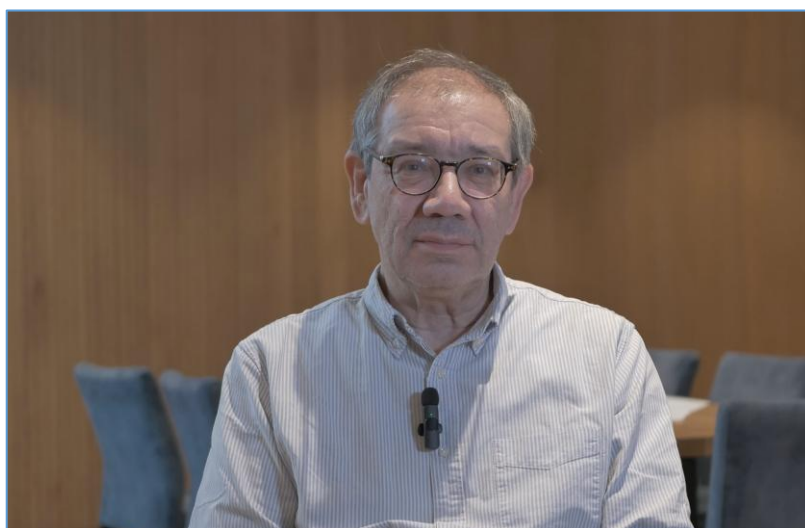


Figure 3: Screenshot from the Microb-AI-ome recruitment video featuring Robert Benamouzig (Assistance Publique Hôpitaux de Paris), presenting clinical perspectives on colorectal cancer screening. The content is based on a recorded interview.

This video:

- Provides clear and accessible information about CRC screening and testing.
- Explains the importance of participation in clinical research.
- Describes how stool samples, clinical and nutritional data contribute to improving CRC detection.
- Emphasises privacy protection through federated AI.
- Features interviews with Microb-AI-ome clinicians, scientists and the project coordinator.

The video is produced using a combination of AI, animated visual elements and recorded interviews to present complex scientific concepts in a clear and engaging manner. The narrative and visual style are tailored for a non-scientific audience, ensuring that potential participants and members of the public can easily understand the objectives of the project and the role of clinical research.



Figure 4: Screenshot from the Microb-AI-ome recruitment video featuring Jan Baumbach (University of Hamburg, project coordinator), outlining the project’s scientific approach and objectives. The content is based on a recorded interview.

The video aims to strengthen engagement, increase awareness of the project and support participation in the ongoing clinical studies across the recruitment regions.

For more detailed information on the video content, please see **Annex II: Microb-AI-ome recruitment-focused video Storyboard**.

2.2.3 Planned Videos

In line with the objectives of the project, two additional videos are planned:

1. Policy and Law Maker Video

- Target group: regulatory authorities, policy makers, health ministries and EU-level stakeholders.
- Focus: regulatory relevance, privacy compliance, alignment with EU AI and data protection frameworks, and the potential integration of microbiome-based stratification into screening guidelines.

2. Clinicians and Molecular Tumour Boards Video

- Target group: clinicians, gastroenterologists, oncologists and tumour boards.
- Focus: clinical workflow integration, validation results, benefits compared to current screening pathways, and potential use of the CRC Stratifier in practice.

These videos support the broader goals of the Microb-AI-ome project by helping inform clinicians, researchers, policymakers and other stakeholders, and by preparing them for the future adoption and implementation of the project’s results.

2.3 Microb-AI-ome partners involved

The development of Microb-AI-ome'S PR videos is led by **TP21**, with contributions from multiple consortium partners:

- **tp21 GmbH (Germany)** - Coordination of video concept, scripting, production management and dissemination.
- **University of Hamburg (Germany)** - Scientific coordination input; presentation of federated AI concept; participation in interviews; feedback on storyboards.
- **Assistance Publique Hôpitaux de Paris (France)** - Clinical expertise; participation in interviews; communication support for French recruitment.
- **Mater Misericordiae University Hospital (Ireland)** - Clinical expertise; communication support for Irish recruitment.
- **Institut National De Recherche Pour l'Agriculture, l'Alimentation et l'Environnement (France)** - Microbiome and AI expertise; scientific input and interviews.
- **University College Cork (Ireland)** - Clinical and microbiome expertise; support for Irish recruitment communication.
- **Egnosis SRL (Romania)** - Support regarding technical components and visual presentation of software concepts.
- **Research Institute AG & Co KG (Austria)** - Input regarding data protection and ethical aspects when relevant for messaging.

The videos are communicated via the official project website (www.microbaiome.net, available under <https://microbaiome.net/vision>), YouTube (https://www.youtube.com/@CoSy.Bio_UHH), Institutional partner channels, Social media platforms, such as X (https://x.com/MicrobAlome_EU), BlueSky (<https://bsky.app/profile/microb-ai-ome.bsky.social>), LinkedIn (<https://www.linkedin.com/in/microb-ai-ome-project-0409b9275/>), and at suitable events and stakeholder meetings.

3 Conclusion, next steps

The current deliverable establishes a structured audiovisual communication strategy for Microb-AI-ome, aligned with the projects' communication and dissemination objectives laid out in the Grant Agreement.

The introductory video has been successfully published and serves as the core public communication asset of the project. Building on this foundation, the recruitment-focused video is designed to directly support clinical trial enrolment. In addition, two further targeted videos addressing policy/regulatory and clinical audiences are under development to strengthen stakeholder engagement, foster regulatory dialogue and support future uptake.

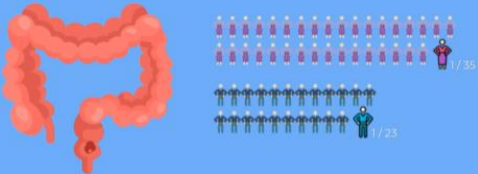




In the next phase, the consortium will:











- Develop and produce the policy and clinician-focused videos.
- Monitor engagement metrics (views, shares, feedback).
- Integrate video content into stakeholder events and dissemination activities.

Through these actions, this deliverable contributes to awareness raising, trust building, recruitment support and preparation for clinical and regulatory adoption of the Microb-AI-ome solutions.

4 Annexes

4.1 Annex I: Microb-AI-ome introductory video Storyboard

 <p>In the EU, 1 in 35 women and 1 in 23 men will be diagnosed with colorectal cancer in their life span.</p> <p><small>Source: ECIS, European Cancer Information System (2020)</small></p>	<p>Video opening. Introduction of the societal challenge of colorectal cancer, highlighting that it is one of the most common cancers and affects many people worldwide.</p>
 <p>More accurate and cheaper screening tools to reduce the need for colonoscopies.</p>	<p>Explanation of why early detection is important, emphasising that colorectal cancer often develops slowly and may not cause symptoms in early stages.</p>
 <p>Currently a two-step screening method is used.</p>	<p>Overview of current screening approaches, focusing on the fecal immunochemical test (FIT) used to determine the need for colonoscopy. Presentation of the limitations of current screening, explaining that some patients undergo colonoscopy unnecessarily while others may still be missed.</p>
 <p>MICROB-AI-OME</p> <p>In Microb-AI-ome, we will develop a new AI-based approach for early colorectal cancer detection.</p>	<p>Brief introduction of the project's main goal</p>
 <p>MICROB-AI-OME</p> <p>Researchers have identified an association between the microbiome, the community of bacteria and other microorganisms that live in the human gut,</p>	<p>Introduction of the human gut microbiome, explaining that microorganisms living in the intestine can provide important signals about health and disease. Explanation that changes in the microbiome may be linked to colorectal cancer, and that analysing these patterns could improve screening accuracy.</p>

  <p>However, due to data protection regulations, data may not be uploaded to the cloud.</p>	<p>Introduction of the Microb-AI-ome project’s scientific approach, combining microbiome data with artificial intelligence to better assess the need for colonoscopy.</p>
  <p>In Microb-AI-ome, we will apply federated learning to train AI models locally, to ensure compliance with privacy laws.</p>	<p>Explanation of federated artificial intelligence, highlighting that data remains securely within hospitals while algorithms learn from distributed datasets.</p>
  <p>Microb-AI-ome ensures that no sensitive patient data will leave the safe harbours of the local databases.</p>	<p>Emphasis on privacy protection and secure international collaboration, enabling research across countries without sharing sensitive patient data.</p>
 <p>And the best part?</p>  <p>This method will be fast, inexpensive, will substantially reduce the occurrences of unnecessary invasive procedures,</p>	<p>Brief explanation on expected outcomes</p>
  <p>and will statistically reduce colorectal cancer mortality in Europe.</p>	<p>Closing message summarising the project’s goal: improving colorectal cancer screening through microbiome analysis and privacy-preserving AI.</p>


4.2

4.3 Annex II: Microb-AI-ome recruitment-focused video Storyboard

Note: The storyboard presented below serves as an illustrative outline of the video narrative. Specific visuals, footage, and sequencing may be adjusted during the production process to ensure clarity, coherence, and optimal communication of the project’s objectives.

	<p>Introduction to colorectal cancer as a major health issue and explanation that the disease often develops without noticeable symptoms in early stages.</p>
	<p>Explanation of the importance of screening for early detection and its role in preventing or identifying colorectal cancer at a treatable stage.</p>
	<p>Overview of organised colorectal cancer screening programmes and acknowledgement that, while effective, current screening methods can still be improved.</p>
 <p>CRC is the 2nd leading cause of cancer deaths in Europe with an estimated of 12% of all cancer deaths</p> <p><small>*Euro Research Centre, "ECIS: European Cancer Information System" European Union, (2016a) February 2016.</small></p>	<p>Presentation of key epidemiological data on colorectal cancer in Europe, including incidence, mortality and statistics related to screening outcomes.</p>

	<p>Clinical perspective on current screening approaches and the need to improve how the need for colonoscopy is assessed.</p>
	<p>Introduction to the gut microbiome and its role in digestion and overall human health.</p>
	<p>Explanation of how changes in the gut microbiome may be linked to colorectal cancer risk and why studying these changes can support improved screening strategies.</p>
	<p>Introduction of the Microb-AI-ome project and its objective to explore microbiome-based approaches to improve colorectal cancer screening.</p>
	<p>Explanation of participation in the Microb-AI-ome study and how participants already involved in screening programmes can contribute to research.</p>

	<p>Description of the participation procedure, including providing questionnaire information and a stool sample for microbiome analysis.</p>
	<p>Explanation of privacy protection and how federated artificial intelligence allows analysis of data while keeping personal information secure.</p>
	<p>Presentation of the expected impact of the project, including improved screening approaches and better understanding of the microbiome's role in colorectal cancer.</p>
	<p>Closing message encouraging participation and highlighting the potential benefits of the research for future colorectal cancer prevention and detection.</p>

Microb-AI-ome consortium partners

- Universitaet Hamburg (UHAM), DE
- University College Cork – National University of Ireland, Cork (UCC), IE
- Egnosis SRL (GND), RO
- tp21 GmbH (TP21), DE
- Research Institute AG & CO KG (RI), AT
- Institut National De Recherche Pour l'Agriculture, l'Alimentation et l'Environnement (INRAE), FR
- Assistance Publique Hôpitaux de Paris (APHP), FR
- Mater Misericordiae University Hospital (MMUH), IE



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Figures 1&2: Screenshots from the Microb-AI-ome Introductory Video, produced by tp21 GmbH (Microb-AI-ome consortium).

Figures 3&4: Screenshots from the Microb-AI-ome Recruitment Video, produced by tp21 GmbH (Microb-AI-ome consortium).

Annex images: Screenshots from the Microb-AI-ome Introductory and Recruitment Videos, produced by tp21 GmbH (Microb-AI-ome consortium).