

PERsonalised Adaptive MEDICine

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1 Introduction

1.1 Publishable summary

This document presents the PERAMEDIC project website and newly created logo.

1.2 Project background

Personalised drug formulation is a hot topic, but state of the art approaches are limited by low scalability, cost, and regulatory hurdles. Meanwhile, current polypill formulation efforts are hindered by liquid form or hot melt addition approaches, posing stability issues.

These bottlenecks carry a great societal price, as the synergic boost of drug combinations was recently demonstrated to reach significant improvement in treatment outcomes, while keeping active substances in the ideal physiological concentration window is known to maximise efficiency and reduce side effects. In addition, polypharmacy is a real problem leading to dosing errors and significant loss in patient adherence. Finally, while Big Data Health IT system concepts on the far horizon hold potential to gather the large amount of reliable dosage-patient data required for evidence-based personalised medicine, the technology to deliver such data – well-tracked patient/dosing procedures with bi-directional digital information flow – is missing.

The PERAMEDIC project proposes to resolve these problems with a breakthrough solution: a stand-alone drug formulation system for personalised medicine, offering locally prepared, individually customised, segmented release polypills, with an inherently digital technology drive. The system relies on integrating several novel technologies: personal release profiles, in situ 3D printing of release matrix using adaptive toolpaths, and ultra-precise multichannel dosing of drugs into sealed microcompartments. The envisaged device would be a tabletop-size pill/capsule printing machine, using canisters of drugs and bioresorbable polymer matrix material. Application scenarios would be first clinical settings, then at later stage, pharmacy locations and medical practices such as GP's office.

PERAMEDIC will deliver a lab-scale proof-of-concept prototype system of the functionally combined novel technologies, with a preview design of the future technology.

2 Methodology

The project website is the main communication platform of the project results. It will be continuously updated during (and beyond) the project, but it is important to have it running from the start of the project. The website creation is closely linked to the logo design and branding of the project.

Following the incorporation of the first wave of community feedback and concept maturation, more detailed information will be presented in D5.3 at Month 6.

3 Logo

Following some preparatory work, 4 initial concepts were elaborated that were presented to and discussed at the kick-off meeting. Different colour schemes were also presented, but the consortium agreed that the green scheme is a good direction, as it has a “medical” interpretation.

Based on the discussion some fine tuning was carried out and a shortlist of 2 was created.

Over the next months, we will be carrying out community testing and a creative maturation process to establish the most effective design. For the present webpage version, we are using option ii:

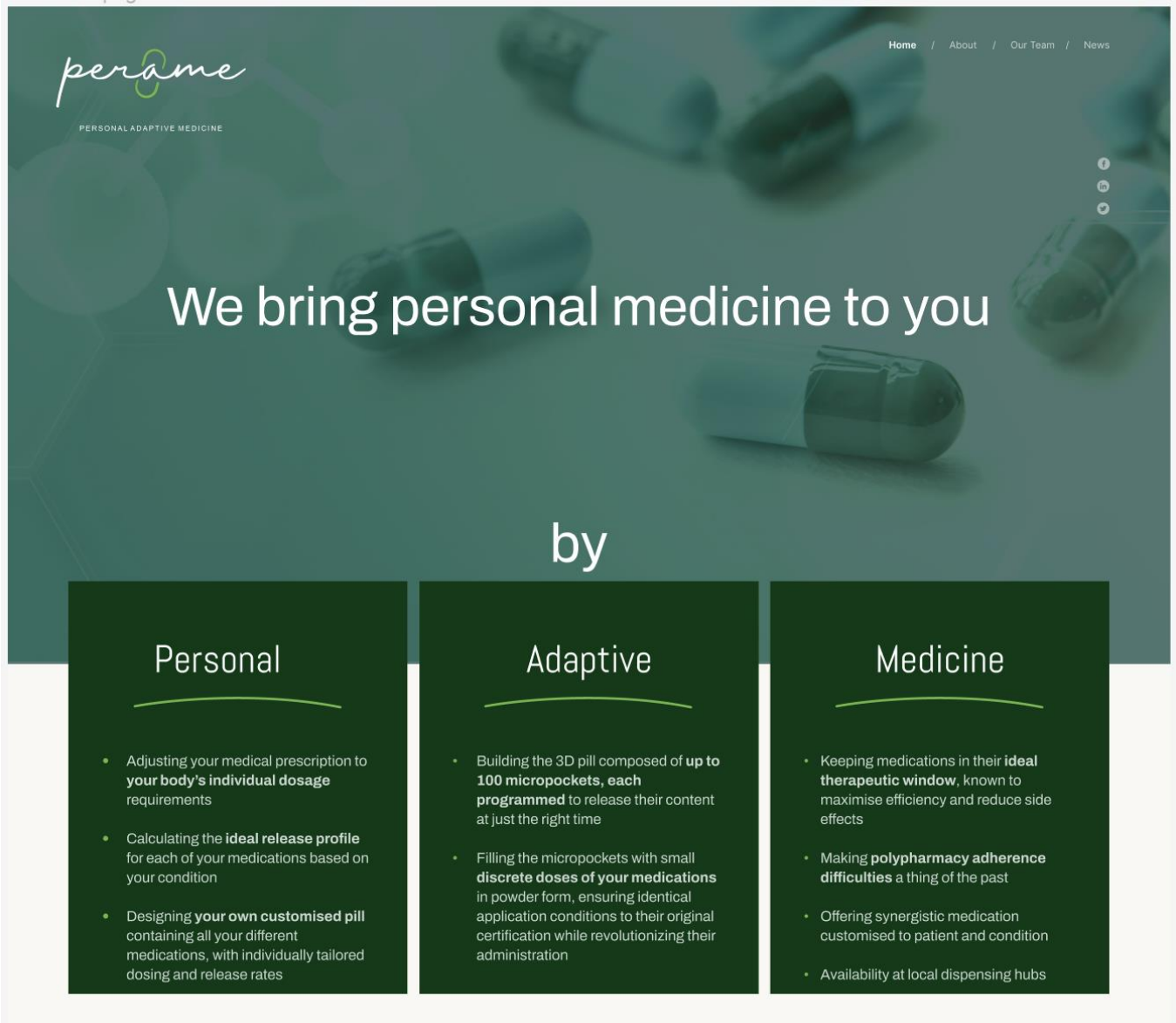


4 Website

The website as present has been developed to be simple, but it will be expanded as the development advances. The main role of the website is to give basic information about the project to any interested parties and allow them to get in contact with the consortium.

Currently live on: <https://peramedic.eu/>

4.1 Home



perame
PERSONAL ADAPTIVE MEDICINE

Home / About / Our Team / News

We bring personal medicine to you

by

Personal

- Adjusting your medical prescription to **your body's individual dosage** requirements
- Calculating the **ideal release profile** for each of your medications based on your condition
- Designing **your own customised pill** containing all your different medications, with individually tailored dosing and release rates

Adaptive

- Building the 3D pill composed of **up to 100 micropockets**, each **programmed** to release their content at just the right time
- Filling the micropockets with small **discrete doses of your medications** in powder form, ensuring identical application conditions to their original certification while revolutionizing their administration

Medicine

- Keeping medications in their **ideal therapeutic window**, known to maximise efficiency and reduce side effects
- Making **polypharmacy adherence difficulties** a thing of the past
- Offering synergistic medication customised to patient and condition
- Availability at local dispensing hubs

4.2 The Technology

The technology

PERAMEDIC is developing a stand-alone drug formulation system for personalised medicine, offering locally prepared, individually customised, segmented release polypills, with an inherently digital technology drive. The system integrates several novel technologies: personal release profiles, in-situ 3D printing of release matrix using adaptive toolpaths, and ultra-precise multichannel powder dosing of drugs into sealed microcompartments.

The PERAMEDIC device will be a tabletop-size pill/capsule printing machine, using canisters of powdered drugs and bioresorbable polymer matrix material. Application scenarios would be first clinical settings, then at later stage, pharmacy locations and medical practices such as GP's office. For patients, a single pill each day will contain all their medication, complemented by supplements if needed, in quantities and release distributions that are optimised for the individual's needs and condition.



Personalised drug formulation is a hot topic, but state of the art approaches are limited by low scalability, cost, and regulatory hurdles. Meanwhile, current polypill formulation efforts are hindered by liquid form or hot melt addition approaches, posing stability issues.

Due to these difficulties, pill-split grooving is still the prevalent state-of-the-art in individual dosing.

The first development stage towards PERAMEDIC's breakthrough solution will deliver a lab-scale proof-of-concept prototype system of the functionally combined novel technologies, with tangible preview design of the future technology.

4.3 The Consortium

The Consortium

<p>Fraunhofer IPA</p>		<p>ATS ADVISORY</p>	<p>UEA University of East Anglia</p>	
<p>Fraunhofer Institute for Manufacturing, Engineering and Automation IPA (DE)</p> <p>European leader in applied research</p> <p>Role: Project coordination & technology integration</p> <p>Go to Site</p>	<p>Bulkei Tanacsado Kft (HU)</p> <p>Precision dosing innovator</p> <p>Role: Powder dosing development & exploitation</p> <p>Go to Site</p>	<p>ATS Advisory SRL (BE)</p> <p>Sustainability pro</p> <p>Role: Policy framework & communication</p> <p>Go to Site</p>	<p>University of East Anglia (UK)</p> <p>Pharma expert</p> <p>Role: Pharmaceutical design & regulatory compliance</p> <p>Go to Site</p>	<p>Loughborough University (UK)</p> <p>Additive manufacturing specialist</p> <p>Role: Microstructure printing & process engineering</p> <p>Go to Site</p>

4.4 News

News

- Kick-off meeting in Stuttgart Feb 2024
- Funding of 3M€ secured to implement development Jan 2024
- Our development plan receives top rating from EC Aug 2023
- Development phase launched 01 Feb 2024
- Industry expresses interest of joint development Jan 2024

4.5 Contact and Acknowledgement

A contact form that will be forwarded to the relevant consortium partner.

At the bottom of the page the EIC is referenced as the funding body for the project.

Get in touch

Write to us if you are interested in development.

Type your email

Type your text here

Send

Thank you for contacting us.
We will get back to you soon!

perame
PERSONAL ADAPTIVE MEDICINE

Quick Links
About the Project
About Us
Our Team
News
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European Innovation Council

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