

# IHI Call Days | Call 9



# MELTS

Membrane Extraction based Liquid phase Tides Synthesis



Dominic Ormerod

dominic.ormerod@vito.be

Link to the IHI brokerage platform:

[IHI Call Days - Call 9 | Dashboard](#)

Participant profile

# Challenges and objectives

MELTS will be directed towards the needs expressed in SO-2

MELTS will increase the flexibility and resilience of European Pharmaceutical supply chain, and enable flexible patient centric production of peptides and oligonucleotides by:

- Creating decentralized therapeutic molecule production processes, that reduce economic and environmental burden, so increasing sustainability and resilience
- Enabling on-demand localized production of advanced personalized medicine as well as generic molecules

# Approach to solve the problem

- By combining advanced solvent stable membranes, membrane extraction and liquid phase synthesis we aim to develop a **novel platform technology** applicable to **peptide** or **oligonucleotide** synthesis that aims to:
  - Reduce Process Mass Intensity
  - Decrease environmental impact
  - Reduce production costs
  - Create modular and flexible production units for localised on-demand production
  - Simplify logistic
  - Make orphan drugs economically attractive to industry

# Suitability for IHI?

- Without a PPP construction funding of this project would be unjustifiable for a single partner.
- PPP construction will accelerate development due to the diverse nature of the required expertise being brought together.
  - Scientific Equipment manufacturer – for design and engineering of a transportable production unit
  - Pharmaceutical industry – for application testing, industry requirement advice, strategy towards industry role out.
  - Pharma or Scientific support services group – for advanced analytical requirements

# Outcomes and Impact

- MELTS will develop of a novel synthesis methodology for peptide and oligonucleotide, and we will implement it in a flexible synthesizer unit.
- The inclusion of expertise along the value chain, from technology developers to equipment providers and end users, will ensure the fast translation from research to implementation.
- MELTS will strengthen European pharmaceutical industry resilience, sustainability and the competitive position of European healthcare system by decreasing production cost of peptides and oligonucleotides while increasing sustainability and scalability as compared to state of the art
- MELTS will benefit patients by enabling:
  - On-demand local production to solve acute supply chain problems.
  - Reduction in production costs of “orphan drugs”, making them accessible.
  - Sustainable production of therapeutic molecules with a lower environmental impact.

# Expertise and resources

- We have:
  - Vito – Membranes, membrane processes, organic chemistry
  - University of Bologna – Peptide & oligonucleotide synthesis, organic chemistry
- We are looking for:
  - Engineering/synthesis unit building, possibly automation.
  - End user company for industrial implementation studies and/or needs.
  - Analytical capacity/expertise.

