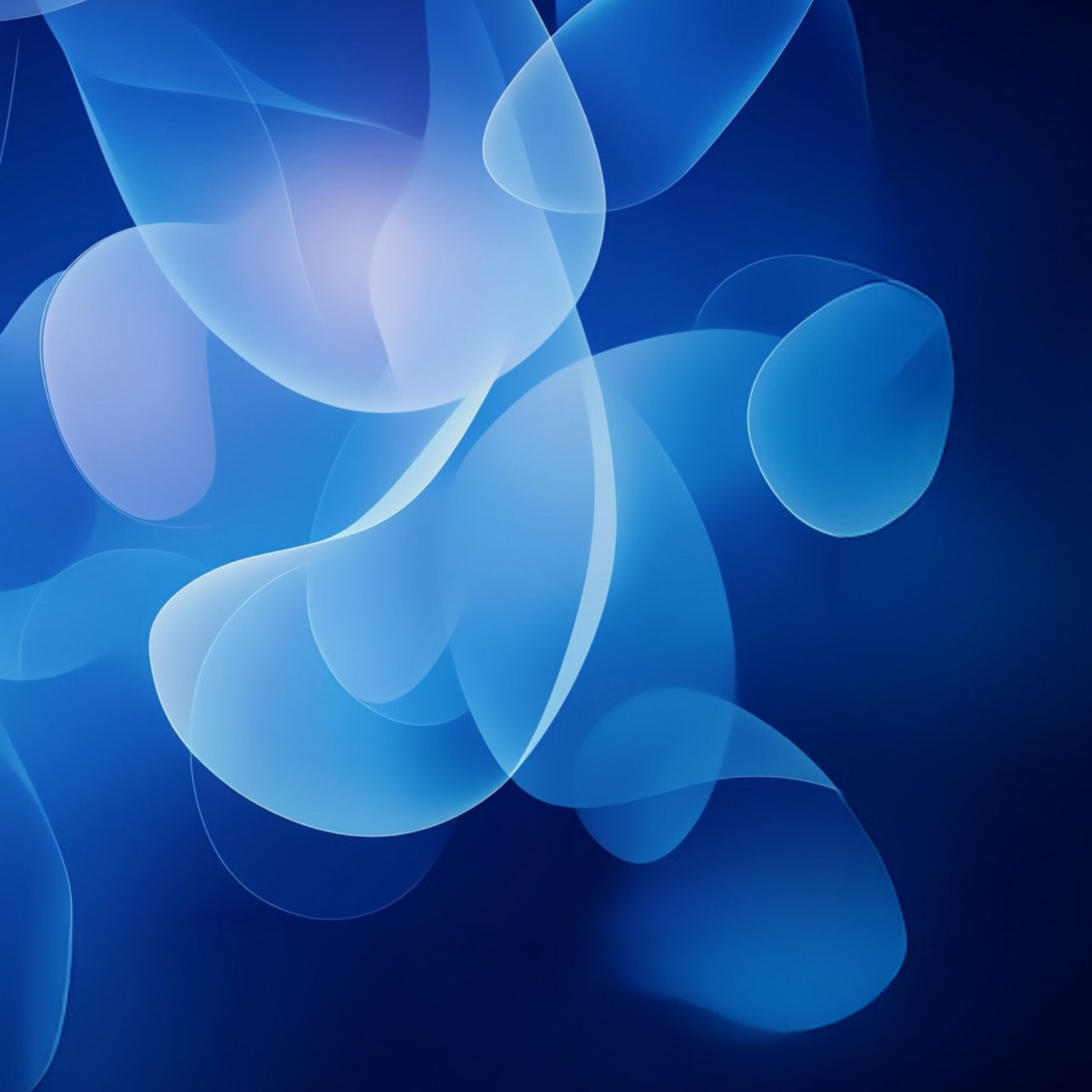




ILLUMINATE

Increasing lutetium production
while leveraging metabolic
imaging to enhance
theranostics effectiveness



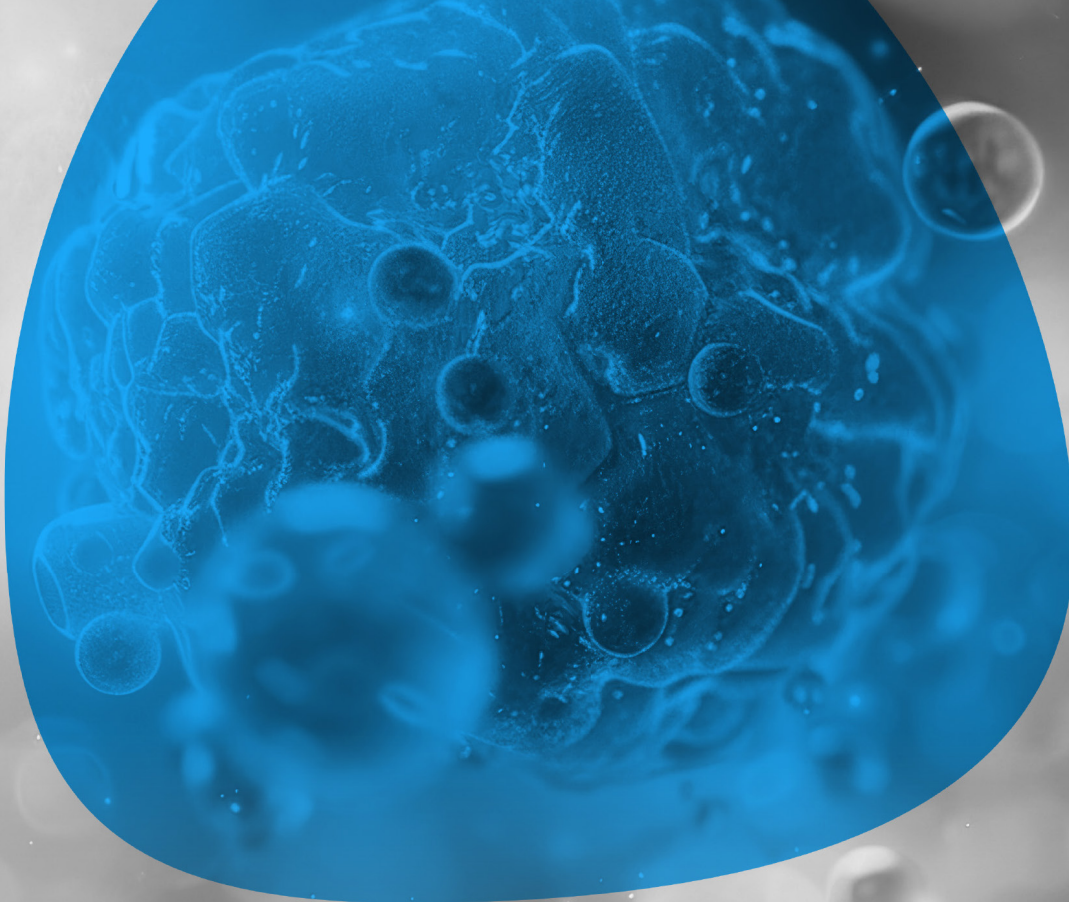
Critical medical need

Prostate cancer is the **leading** cause of death in a quarter of the world's countries. It is the **most prevalent** non-cutaneous cancer amongst men in Europe.

Lutetium treatment is effective for prostate cancer making a **theranostic approach** possible. Theranostics **combines diagnosis and treatment** targeting the same peptide, which is **Prostate Specific Membrane Antigen (PSMA)** in case of prostate cancer.

Unfortunately, **30% of patients do not respond** to the lutetium treatment. Moreover, **current approaches** used to predict and monitor treatment efficacy **lack key features** to assess whether patients are **resistant to the treatment** and what causes this on a **molecular level**.

Better **biomarkers** are needed to **predict** which patient will benefit from the treatment. **Metabolic MRI** can address this unmet medical need. **Metabolic MRI** can show **metabolic processes** in the tumour. In combination with **lutetium** treatment, it provides insight in the **response** to the treatment.



‘Cancer affects all of us and the more is achieved to improve cancer treatments, the better for our children’s and grandchildren’s future’

André and Hilly, Prostate cancer patient and his wife

ILLUMINATE's goal

ILLUMINATE seeks to revolutionise prostate cancer treatment by making **theranostics**, a combination of therapy and diagnostics, **smarter and more patient-centric**.

Our goal is twofold:

1. **Enhance the effectiveness** of Lu-177 treatment using cutting-edge imaging.
2. **Increase the availability** of the lutetium isotope across Europe by upscaling lutetium production.

A central innovation of ILLUMINATE is the use of **metabolic MRI**, a powerful imaging technique that reveals how cancer cells behave at a chemical level. Metabolic MRI may help predict which patients will respond to treatment—offering a more targeted, less invasive approach to care.



Clinical challenge

Despite Lu-177's success, **around 30% of patients experience side effects without any therapeutic benefit.** Currently, there's no reliable way to predict treatment response.

ILLUMINATE is launching a **multi-centre clinical trial** to change that. The trial will explore whether metabolic MRI can serve as a predictive tool to guide treatment decisions and monitor therapy response in patients.

This **clinical trial** marks the first clinical application of metabolic MRI in prostate cancer and could set the stage for broader use in earlier-stage prostate cancers and other tumour types.

Clinical trial set-up



Where?

Essen (Germany), Utrecht & Amsterdam (the Netherlands)



For who?

150 patients receiving standard Lu-177- PSMA treatment



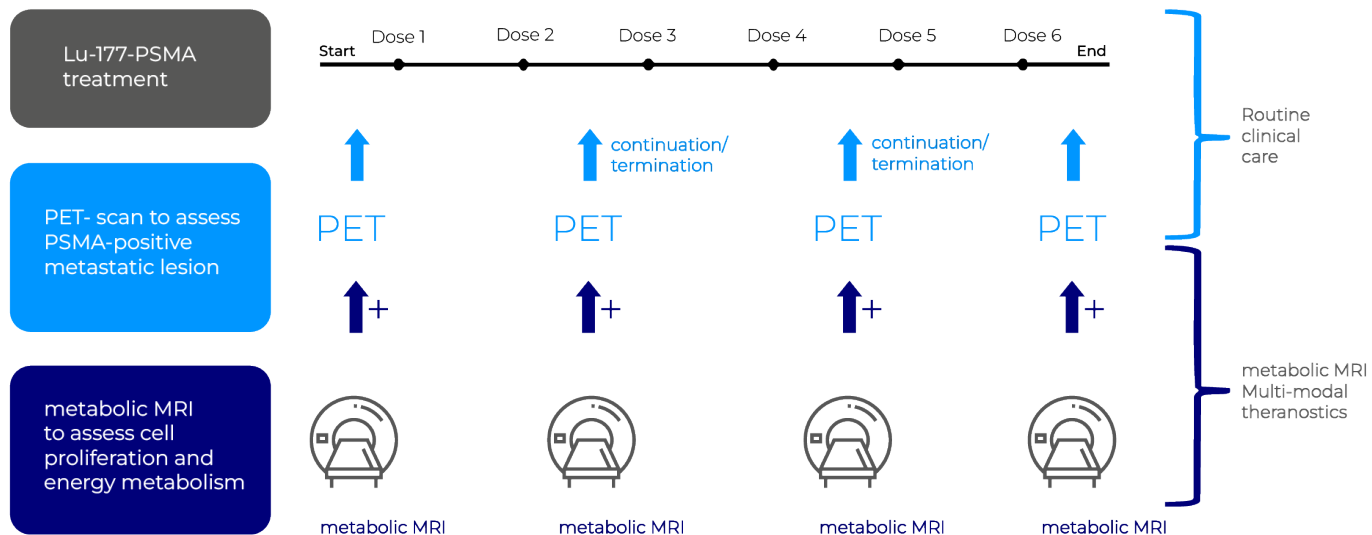
How?

Patients will undergo metabolic MRI in addition to routine care



Why?

Identify biomarkers that signal response to treatment



The ILLUMINATE observational study aims to show that multi-modal imaging by addition of metabolic MRI to current care can improve treatment efficacy and decision-making in continuation/termination of treatment.

ILLUMINATE'S impact

Scientific & clinical Impact

- ILLUMINATE will develop a new and validated approach to use metabolic MRI in optimising personalised treatments.
- ILLUMINATE will educate and train healthcare professionals to make metabolic MRI more broadly available.



Economic & technical Impact

- Bring to market available and affordable metabolic MRI-based solutions.
- Contribute to a safe, high quality and reliable use of radiological and nuclear technology in healthcare.
- Arrange for central preparation of Lu-177 at NRG PALLAS for research and regular care.



Societal Impact

- Improved treatment outcomes and less side effects for patients.
- Personalised care for patients by using metabolic MRI technology.
- ILLUMINATE's project employs a scaling approach for metabolic MRI implementation.
- Strengthening radioisotope supply



For and with prostate cancer patients

At ILLUMINATE, we put patients at the heart of our work. By establishing a **Stakeholder Involvement Community (STIC)** we ensure that patient voices and clinical insights guide the project from start to finish.

In ILLUMINATE, the STIC:

- Helps to interpret findings from a patient perspective
- Shapes how results are communicated and implemented
- Collects feedback from healthcare providers using metabolic MRI in practice

This inclusive approach ensures that the project remains grounded in **real-world patient experiences and needs.**

Facts and figures

ILLUMINATE: A public-private partnership between 15 European organisations, including academic institutions, small- and medium-sized enterprises, public organisations and industry.



1 Oct 2024



4.5 years



**21 million
Euros**

(including in kind
contribution from
industry partners)



Funder



ILLUMINATE's partners



UNIVERSITÀ
DI TORINO



LUND
UNIVERSITY



Tesla Dynamic Coils



LIFE FROM INSIDE

PHILIPS



lygature

Funding statement

This project is supported by the Innovative Health Initiative Joint Undertaking (IHI JU) under grant agreement No 101172722. The JU receives support from the European Union's Horizon Europe research and innovation programme and COCIR, EFPIA, Europa Bío, MedTech Europe, and Vaccines Europe and Bracco, Synlab, NRG Pallas, Tesla DC and Wavetronica B.V.

www.ihj.eu

Disclaimer

Funded by the European Union, the private members, and those contributing partners of the IHI JU. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the aforementioned parties. Neither of the aforementioned parties can be held responsible for them.



