CAARE

NEWSLETTER NO. 2

WELCOME TO THE SECOND EDITION OF THE CAARE NEWSLETTER

Looking Back: The Launch of the CAARE Doctoral Network

In October 2024, the CAARE – Doctoral Network officially launched, marking the start of an ambitious and forward-looking initiative in the field of bionanoparticle characterization and recovery for vaccine delivery and gene therapy. This EU-funded project brought together a consortium of leading academic and industry partners with a shared commitment to advancing research and innovation, while training a new generation of talented researchers in this dynamic and impactful area. The launch set the tone for a collaborative, multidisciplinary journey that has already begun to take shape in exciting ways.

Highlights from the Past Six Months

A key milestone during this period was the Second Partner and Consortium Meeting, hosted by our esteemed partner Leiden University Medical Center (LUMC) in Leiden, the Netherlands. This gathering offered a valuable opportunity for all consortium members to meet in person, strengthen collaboration, and align our collective vision for the years ahead.
During the meeting, we officially welcomed our Doctoral Candidates and set the stage for their research and training journey. The consortium also reviewed progress on recruitment and project management, discussed upcoming training activities, and aligned on communication and dissemination strategies. Collaborative planning ensured that all partners are well-prepared for the next phase of the project. The event was a strong reminder of the collaborative spirit driving CAARE, and it set a clear direction for our work in the coming months.
Another exciting aspect of the CAARE project is our outstanding group of Doctoral Candidates (DCs), who are already deeply engaged in their research and benefiting from a wide range of specialized training activities. These trainings are designed to equip them with the skills and knowledge needed to thrive in both academic and industry settings.
Learn more about their journey and experiences in the feature article on page 3.
Looking ahead, we're already preparing for the midterm meeting, which will take place in Hamburg, Germany. In this meeting we will show to the Project Officer of the European Commission what we built during the first year of CAARE. Further, it will be a valuable opportunity to review progress, strengthen collaboration, and continue building momentum.
More details about these upcoming gatherings will be shared in our next newsletter, scheduled for release in April 2026 – stay tuned!

We look forward to sharing more updates as the project unfolds. Stay connected with us through our project website (www.caare-project.eu.) and social media for the latest news, research highlights, and upcoming events.

Yours sincerely,
The CAARE Team

TRAININGS AND IMPACT OF DC

Training the Next Generation of Experts in Bionanoparticles

One of the core missions of the CAARE Doctoral Network is to equip our Doctoral Candidates (DCs) with advanced, hands-on training in both scientific and transferable skills. Over the past months, our DCs have already taken part in several high-impact training sessions across Europe, combining technical expertise with professional development.

Leiden: Our First In-Person Training Experience
The 2nd Consortium Meeting in Leiden marked a special milestone – it was the first in-person gathering for our DCs. Alongside the meeting, participants engaged in two enriching training sessions:

ST-01: "Mass Spectrometry (MS) and Chromatography for In-Depth Characterisation"
Led by Elena Dominguez Vega, this two-day training offered both theoretical and hands-on experience in mass spectrometry. DCs learned about MS techniques for bionanoparticle characterization, conducted practical sample analyses, and interpreted their own data.

TST-01: Presentation Skills
A dynamic workshop by Wolfgang Kainz focused on body language, tone, and structure in scientific presentations. DCs prepared and delivered their introduction presentations for the consortium – an excellent exercise in professional communication.

Lisbon: Deep Dive into Bioprocess Development
Our next training stop was Lisbon, Portugal, hosted by iBET and Christina Peixoto. This session provided in-depth insights into industrial-scale bioprocessing and Good Manufacturing Practice (GMP):

ST-07: Bioprocess Development
Topics included upstream and downstream processing, chromatography, filtration, and modeling strategies for bioprocess design. The training also explored GMP manufacturing – from bench to clinical trials – and tech transfer processes.
In addition to in-person sessions, the CAARE Doctoral Network has also delivered a series of online training modules to provide flexible, high-quality learning opportunities for our DCs. These webinars focused on essential skills that support both scientific excellence and responsible research practices:

TST-02: Good Scientific Practice & Open Science
This session introduced DCs to the principles of research integrity, data transparency, and open access, highlighting the importance of responsible science in today's research environment.

TST-03: Scientific Writing
Jing Zhu from Wiley provided key insights into scientific writing – including how to select the right journal, structure a compelling manuscript, and navigate the peer review process.

ST-08a: Economic and Environmental Modelling
Focusing on sustainability and cost-efficiency, this module explored tools and approaches for evaluating the economic and environmental impact of bioprocesses.
These virtual sessions complement our in-person training program and ensure that all CAARE researchers are equipped with a well-rounded set of skills to succeed in both academic and industry careers.

What's Next ?
We're already looking forward to the next training sessions, which will take place in Hamburg, Germany. These will continue to build our DCs' expertise as they progress in their research and professional development.
Stay tuned for more highlights in the next issue!

DOCTORAL CANDIDATE

SOLEDAD LOPEZ FELIX

Tartu
Estonia

Scientific mission:

Soledad Lopez Felix is a PhD student based at Icosagen in Estonia, where she plays a key role in advancing the CAARE project. Her research focuses on the development of innovative bionanoparticles with desirable properties for therapeutic applications. Specifically, Soledad is working on the design of novel proteins capable of forming virus-like particles (VLPs) that can encapsulate specific cargos when expressed in mammalian cells. Her work is a vital step toward enabling next-generation solutions in vaccine delivery and gene therapy.

Academic Journey:

"I am interested in immune's processes and how Virus-like particles can improve vaccine delivery. In both my Bachelor's and Master's thesis I worked with immune system and novel synthetic drugs."

She completed both degrees at the University of Cádiz, beginning with a strong foundation in Biotechnology, and later specializing in Medical Chemistry during her Master's studies. Alongside her coursework, Soledad gained valuable research experience as a student collaborator at IVAGRO, participated in an Erasmus traineeship at the University of

Naples Federico II, and completed an internship that deepened her practical understanding of the field.
These academic and hands-on experiences have laid a strong foundation for Soledad's continued exploration in immunology, therapeutic innovation, and scientific collaboration.

Favorite Lab Gadget:

Bunsen burner - A Small Flame, A Big Spark

Beyond the Lab:

When Soledad trades her lab coat for leisure, her curiosity and creativity continue to thrive. She finds joy in travelling, capturing moments through photography, and expressing her artistic side by crafting epoxy resin necklaces. Whether she's exploring new landscapes or creating intricate designs by hand, Soledad brings the same passion and attention to detail to life beyond science.

"Turn your wounds into wisdom."

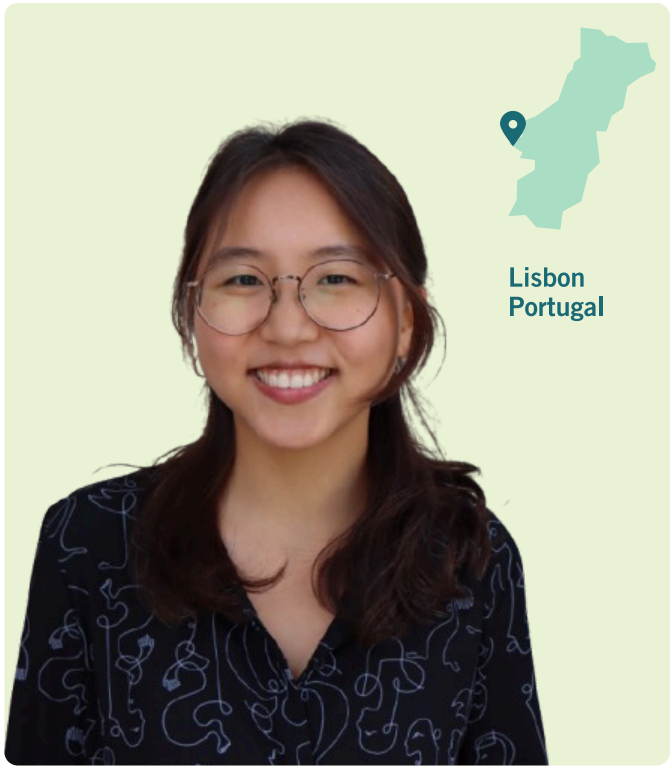
Oprah Winfrey

Spirit Animal:

Snake – a symbol of transformation, intuition, and resilience.

DOCTORAL CANDIDATE

ENEREL ARIUNBOLD



Scientific mission:

Enerel Ariunbold, a PhD student at the Institute for Experimental Biology and Technology (iBET), is bringing innovation and precision to the CAARE project. Her mission within the project is to develop a continuous purification process for virus particles, replacing traditional batch-based methods. By converting these unit operations into a continuous flow, Enerel aims to significantly enhance environmental sustainability and improve economic efficiency in biomanufacturing. With a strong foundation in biotechnology and a commitment to sustainable innovation, Enerel's work plays a vital role in shaping the future of scalable, green bioprocessing technologies.

Academic Journey:

Enerel Ariunbold's academic path is grounded in industrial biotechnology, with a strong focus on bioprocess optimization, high-throughput cultivation, and downstream processing. She holds both her Bachelor's and Master's degrees in Biotechnology and Industrial Biotechnology from the Technical University of Berlin, where she built a solid foundation in applied biosciences. Her studies were enriched by an exchange semester at the Technical University of Denmark, further broadening her international and interdisciplinary perspective. Alongside her academic achievements, Enerel actively contributed to research and innovation through multiple roles — including positions as a student research assistant at TU Berlin, intern at the Technion, Sartorius, and the Biological and Chemical Research Centre. She also gained clinical research experience as a student assistant at Charité – Universitätsmedizin Berlin. This diverse experience reflects Enerel's dedication to bridging scientific theory with real-world biotechnological applications, preparing her for impactful contributions in sustainable and efficient bioprocessing.

Favorite Lab Gadget:

Parafilm - Stretchy, reliable, and essential, the quiet hero of every lab bench.

Beyond the Lab:

Outside the lab, Enerel finds balance through a mix of creativity, movement, and relaxation. She enjoys pottery, where working with her hands offers a calming contrast to scientific precision. Climbing fuels her love for challenge and focus, while travelling allows her to explore new cultures and perspectives. And sometimes, there's nothing better than winding down with a good TV series to recharge.

Spirit Animal:

The Rabbit, sunny and gentle, bringing joy and curiosity to every moment.

"Cool, cool, cool, cool, cool, cool, cool, cool"

Favorite Quote

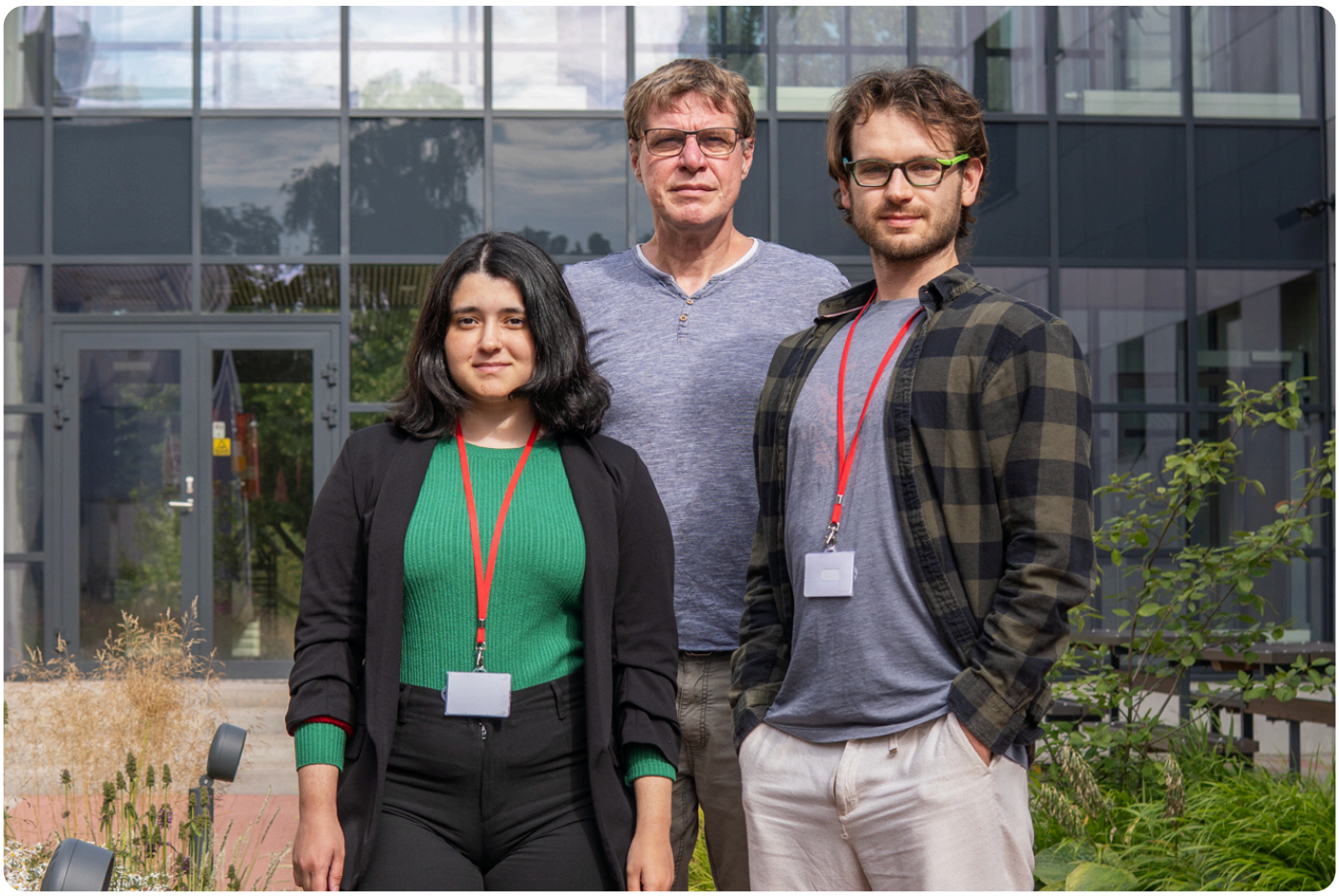
PARTNER INTRODUCTION

ICOSAGEN

In the CAARE project, Icosagen develops methods for the production of enveloped bionanoparticles with the aim of enhancing productivity and minimizing host cell–derived impurities. In parallel, it establishes technologies for their functionalization, including the targeted incorporation of specific RNAs and the pseudotyping of particles to tailor their properties and applications.

A little history session: Icosagen was founded in the late 1990s under the name Quattromed. Now is Estonia's largest biotechnology company and a leading European CRDMO (Contract Research, Development, and Manufacturing Organization). Icosagen Cell Factory OU is the research and development division of the Icosagen Group. Over the years, it has evolved into a comprehensive mammalian CRDMO for the biopharmaceutical, biotechnology, and diagnostic industry.
Icosagen's campus in Tartu, Estonia, houses R&D laboratories, bioprocessing suites, and a newly built GMP manufacturing facility. Icosagen provides a full spectrum of customized services that span the entire development pipeline, from upstrem to downstream: Antibody and protein discovery, their recombinant production, stable cell line development and large scale GMP manufacturing on site.

ICOSAGEN



Our Icosagen team: From left to right: Soledad Lopez Felix (PhD Student), Andres Mannik (Principal Investigator), and Pietro Voltan (PhD Student)

CAARE AT ISPPP 2025

Our CAARE team was delighted to take part in the 44th International Symposium on the Separation of Proteins, Peptides and Polynucleotides (ISPPP), held from 9–12 November 2025 at Campus Garching, Technical University of Munich, Germany.

Our CAARE team was delighted to take part in the 44th International Symposium on the Separation of Proteins, Peptides and Polynucleotides (ISPPP), held from 9–12 November 2025 at Campus Garching, Technical University of Munich, Germany. ISPPP 2025 once again brought together leading scientists and industry experts to discuss the latest advances in bioseparation and biomolecule analytics. It was a pleasure to connect with colleagues, exchange insights, and contribute to discussions shaping the future of purification science.

One of the highlights of the symposium was Workshop 4, held on Sunday, November 9, titled "Purification and characterization of viral cell and gene therapy vectors." The session was led by Alois Jungbauer (Institute of Bioprocess Science and Engineering, BOKU University, and acib GmH), who also serves as Project Coordinator of CAARE. His workshop focused on innovative methods for purifying and characterizing complex biomolecules such as viral gene therapy vectors and lipid nanoparticles, highlighting advanced chromatographic, centrifugation, and hybrid techniques, as well as strategies for developing platform approaches to standardize purification and analysis. In addition, Patricia Pereira Aguilar from acib GmbH, our Project Manager, delivered an insightful talk on "Functionalized non-woven fibers for the harvest, clarification, and purification of bionanoparticles" on Tuesday, November 11.

Christoph Gstöttner from Roche Diagnostics GmbH, an associate partner of the CAARE project, contributed with a presentation on "Analytical techniques for rAAV genome integrity and identity assessment."
Our doctoral candidates Finja Probst, Markus Mozgovicz, and Guilherme Costa (all from acib GmbH) presented their research during the poster sessions, showcasing the breadth of ongoing work within the project. Our partners Jürgen Hubbuch from the Karlsruhe Institute of Technology (KIT) and Elena Dominguez Vega from the Leiden University Medical Center also played key roles at the conference, serving as session chairs. Meanwhile, Nico Lingg (acib GmbH/BOKU) represents CAARE at BOKU and contributes to the project's strategic direction as a member of the Supervisory Board.

We are also proud to share that Verena Beck, Project Manager at acib GmbH, was part of the ISPPP 2025 Organizing Committee, helping to shape this year's outstanding scientific program and networking experience.

Learn more about the symposium: www.isppp.net

NEWSLETTER EDITORIAL TEAM

Coordinator: Alois Jungbauer, Patricia Aguilar, acib
Newsletter text: Finja Probst, Katharina Schwaiger, acib; Verena Beck, acib **Layout:** Dietmar Cseh, acib; Pictures: CAARE & Partners
Contact: info@caare-project.eu

CAARE received funding from the European Union's Horizon Europe research and innovation programme under the Marie Skłodowska Curie grant agreement No 101168862.

CAARE