



Newsletter

NetwOArk

The European Network on OsteoArthritis

ISSUE 2, JANUARY 2025

Welcome to the second issue of the CA21110 - Building an open European Network on OsteoArthritis research (NetwOArk) newsletter! We would like to start by wishing you all a happy and productive 2025.

Below is a message from our Action Chair Mr. Corne Baatenburg de Jong.

“Times pass... but new times also dawn. This is also the case for Cost Action NetwOArk 21110. To date, good results have been achieved in the previous two periods of the network. People from many countries within and to a limited extent outside Europe have become involved in NetwOArk. The first results of the various work packages are available and/or are on the way. At the same time, there are new plans for GrantPeriod 3, in which we want to add new results and achieve our objectives together. We also want to think together about the future, how we can sustainably maintain this network together. We are grateful to COST and our project supervisors Angelo and Aldona for the hard work they do for us, the tips they give us and the guidance and hope to be able to use them in the coming period. There are of course good intentions... but working together to create a sustainable network of patients, clinicians, researchers and industry is not only a good intention and a good plan, but essential to be able to offer patients stratified care and solutions. Together with all of you, we hope to work towards these objectives and results. Wishing you all a good year!”



Action Chair Mr.
Corne Baatenburg
de Jong

Let's get to know a little bit about some of the STSM grant Winners from 2024:



Nádia Santos during her visit at Chalmers University.

“My name is Nádia, and I am a PhD student at CICECO & LAQV, University of Aveiro, Portugal, under the supervision of Dr. Filipe Paz and Dr. Susana Braga.

My research focuses on metal-organic frameworks (MOFs), which are promising candidates for drug delivery systems in osteoarthritis. These materials are particularly effective because they can deliver therapeutics directly to deeply embedded chondrocytes within the extracellular cartilage matrix (ECM), thanks to their unique drug-loading and controlled-release capabilities.

Although several MOFs have demonstrated excellent drug-carrying potential, concerns regarding their toxicity remain a significant challenge. To address this, I needed to evaluate the biological profile of my materials to ensure their safety and advance my work.



During a COST meeting, I had the pleasure of meeting Dr. Alexandra Stubelius and was greatly impressed by her research. Her work inspired me to apply for a Short-Term Scientific Mission (STSM) to collaborate at her lab. After being awarded the STSM, I spent four weeks at Chalmers University, where I conducted experiments to assess the cell viability and inflammatory response of macrophages and chondrocytes exposed to my MOFs.

The results were highly encouraging: my MOFs were confirmed to be safe, paving the way for further progress in my PhD research. These findings are a significant milestone, and we plan to publish them soon.

I am deeply grateful to COST for this incredible opportunity and to Chalmers University for providing an exceptional environment to advance my work.”

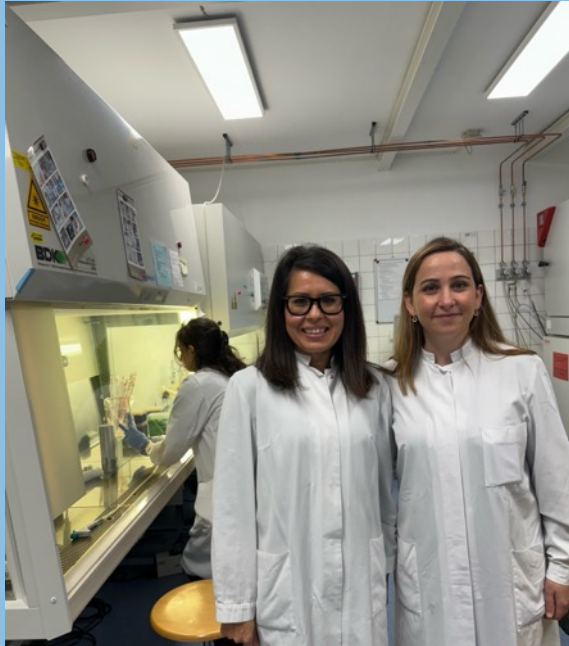
“I am Jolita Pachaleva, a PhD student in the Department of Regenerative Medicine at the Centre for Innovative Medicine (IMC) in Vilnius, Lithuania, working under the supervision of Prof. Eiva Bernotiene, Head of the Department. My research focuses on understanding the role of the STAT3 signaling pathway in cellular senescence and its impact on osteoarthritis and intervertebral disc degeneration. I applied for the STSM to gain expertise from leading experts in creating and evaluating cellular senescence models.



Jolita Pachaleva during her visit at INSERM. From left to right: Catherine Le Visage, Jerome Guicheux, Jolita Pachaleva, Romain Guiho, and Claire Vinatier.

In September 2024, I undertook a four-week STSM at the Regenerative Medicine and Skeleton Research Centre (INSERM UMR 1229-RMeS) in Nantes, France, supervised by the Centre’s Head, Prof. Jerome Guicheux, Assoc. Prof. Romain Guiho, Assoc. Prof. Claire Vinatier and Research and Deputy Director, Dr. Catherine Le Visage.

Over four weeks, I was taught by leading experts in cellular senescence and gained experience in cell isolation methodologies and animal models. Additionally, I successfully established a senescence model in rat nucleus pulposus cells and tested the effects of the STAT3 modulator. This STSM strengthened the collaboration between IMC and RMeS, advancing my PhD research. The skills gained and methodologies learned have enriched my understanding of senescence mechanisms and their evaluation methodologies, significantly contributing to my PhD research and career development. This experience was incredibly valuable and improved scientific collaboration and research on osteoarthritis and intervertebral disc degeneration.”



Ayca Bal Ozturk (left) and Meltem Avci-Adali at the University of Tübingen.

“I am Assoc. Prof. Ayca Bal Ozturk. I work at Istinye University, Faculty of Pharmacy, and conduct research at Stem Cell and Tissue Engineering Research and Application Center, Istinye University (ISUKOK). My research focuses on the development of smart biomaterials, including injectable hydrogels and tissue adhesives, for OA treatment. This entails the design and synthesis of new micro/nanoscale biomaterials and investigation of their applications in modulating stem cell differentiation for the development of tissue-engineered cartilage. I am also interested in next-generation bio-nanoparticles for targeted delivery in OA therapies

I applied for the STSM to explore innovative approaches for OA treatment. Minimally invasive surgical techniques, which involve small incisions and specialized instruments, offer significant advantages such as reduced invasiveness, shorter hospital stays, and fewer complications compared to traditional methods. A

promising strategy for OA treatment is the use of 3D bioprinting to create personalized, biomimetic cartilage constructs that replace damaged tissue. This cutting-edge technology enables the precise integration of different cell types and biomaterials to mimic the heterogeneous structure of cartilage. Through this STSM project, my goal was to develop synthetic mRNA-loaded self-healing injectable hydrogels for OA therapy. Additionally, I conducted a pilot study using a handheld 3D bioprinter to evaluate the potential of this approach in preventing OA progression.

I visited Prof. Dr. Meltem Avci-Adali's research laboratory at the University of Tübingen, Germany, from September 9, 2024, to September 26, 2024.

During this STSM project, I contributed to developing a novel approach for advancing OA treatment strategies. We worked on a self-healing injectable hydrogel system that incorporates synthetic mRNA, modified hyaluronic acid, and alginate for OA therapy. Using a portable handheld 3D bioprinter (BioPen X, AdBioInk Biosystem), we evaluated its potential application, achieving promising preliminary results.”

“My name is Wouter Schallig, and my research focuses on assessing accurate pathomechanics in patients with knee osteoarthritis (OA) using fluoroscopy during gait analysis. I am part of the Radiology & Nuclear Medicine department at Erasmus Medical Center Rotterdam.

In August and September 2024, I used the Short-Term Scientific Mission (STSM) award from NetwOArk to visit the group led by prof. Bill Taylor at the ETH Zurich.

This two-week visit allowed me to learn about their advanced use of a fluoroscopy system for



Wouter Schallig (left) and beautiful Zurich (right).



assessing knee pathomechanics. My goal was to gain insight into their data collection and processing pipeline, as combining dynamic fluoroscopy with motion capture data is technically challenging. This knowledge is critical for the development of our recently opened Motion Biomechanics and Imaging lab, which also combines these technologies to assess dynamic joint function initially in osteoarthritis patients.

During my visit, we successfully established a novel collaboration, gaining invaluable insights into their fluoroscopy lab protocols. Together, we laid the foundation for creating a globally accessible biomechanical database and repository, with plans for future collaborative projects already in motion.

Overall, this STSM visit was a great success. It enabled us to exchange critical knowledge for our lab development, forge a meaningful collaboration, and work on exciting new initiatives. On a personal level, the experience was enriching, offering excellent opportunities for network building and professional growth at this pivotal stage of my career, all while enjoying the stunning surroundings of Zurich.”

Working Group updates:



WG1

Patient engagement & information programme on OA

WG1: Main achievements of 2024

WG1 achieved to get data from almost 600 people on the survey about patients' knowledge of OA and their treatment options. WG1 submitted an STSM proposal to work on the data analysis of the survey in 2025.

The first steps were made to get insight in patient research priorities, with an STSM. In the monthly meeting the group is steadily working on the WG1 goals.

WG1: Goals/plans for 2025

WG1 will finish the data collection of the survey about patients' knowledge of OA and their treatment options. They will start the data analysis and writing the paper about the survey.

Furthermore, they will work together with WG4 to brainstorm on how to give the patient a voice in OA research, from start until the end.



WG2

Speeding up translation from bench to bedside

WG2: Main achievements of 2024

During 2024 WG2 focused on 3 main aspects:

1. A series of Webinars on Translational aspects of drug and management of osteoarthritis: From pharma to the patients, which took place from March to June, 2024. These were organised by Christos Kontogiorgis, Luminita Labusca, Valentina Basoli, and Ali Mobasher.

2. The organisation of the First Symposium "Integrated care in osteoarthritis management - Engaging research, industry and patients", which took place on the 23rd and 24th of September 2024, and the Training School "Impact of Meta-analyses on Clinical Practice", which took place on the 25th to the 27th of September 2024. These both were organised and took place in Thessaloniki.



3. Preparation of different review manuscripts covering topics important for bench to bedside translation of new OA treatments, including: Biomolecules (and precursors) used in OA management; Pure compounds used in OA management; in vitro and ex vivo models for drug discovery and target validation in OA.

These aspects were planned and discussed during monthly online meetings of the WG and its different subgroups, and the face-to-face meetings in Vienna and Thessaloniki.

WG2: Goals/plans for 2025

During 2025, WG2 will focus on:

1. Completing and publishing the manuscripts that are currently in preparation.
2. Organizing the "Second Symposium on Integrated care in Osteoarthritis Management", that will take place in Porto, on the 11th and 12th of September, 2025 (**save the date**).



WG3

OA Phenotypes, patient stratification and comorbidities

WG3: Main achievements of 2024

WG3 is currently working on two manuscripts focused on OA stratification terminology from clinical and molecular perspectives.

WG3: Goals/plans for 2025

For the next year, WG3 plans to define a map/report based on (sub)type-based therapies or development of (sub)type-based OA therapies.



WG4

Building the European Society for Osteoarthritis (EUSOA)

WG4: Main achievements of 2024

European patient council founded, already 4 meetings in 2024, build of the structure and settlement will be ongoing in 2025

After a successful brainstorming in Umhausen/Austria the European Patient Council (EPC) was founded. Another brainstorming was held during the Thessaloniki/Greece meeting with extension to additional patient organizations. At a meeting in Brussels/Belgium with 11 countries present further refinement was achieved, leading to a vision statement: "Advice and Advocacy for improved care, support, and treatment of people with osteoarthritis in all aspects of OA. Advisory function for research and clinical councils"

As a guiding principle for the further development of the EPC under the umbrella of COST Action CA21110 NetwOArk, the founding group emphasizes an "open culture": Only in this way can a European alliance and the participation of patients in the European Society of Osteoarthritis (EUSOA) succeed. Anyone who wants to is therefore cordially invited to participate in the European (international) Patient Council. OA patient organizations - regardless of whether they are "lone fighters" or established leagues - from all European countries as well as Turkey and Israel should be addressed.



Current members of the EPC/Involved patient organisations in alphabetical order:

- Arthrose Forum Austria (A) <https://www.arthroseforumaustria.at/>
- Arthrose Kompetenz Netzwerk TEPFIT e.V. (D) <https://tepfit.eu/>
- Arthritis Ireland (IRL) <https://www.arthritisireland.ie/>
- Association Francaise de Lutte anti Rhumatismale - AFLAR (F) <https://www.aflar.org/>
- Associazione Movimenti Artrosi AMA (I)
- Fondation Arthritis + Arthritis R&D (F) <https://fondation-arthritis.org/arthritis-recherche-developpement/>
- Hellenic League Against Theumatism, ELEANA (GR) <https://www.arthritis.org.gr/>
- Liga Portuguesa Contra as Doencas Reumaticas, LPCDR (PT) <https://www.lpcdr.org.pt/>
- Osteoarthritis Foundation (B) <http://www.fondationarthrose.org/La-fondation/Intro.aspx?lang=en-us>
- RheumaCura Foundation (CH) <https://www.rheumacura.ch/de/>
- Rheumatikerförbundet (S) <https://reumatiker.se/>
- Stichting ReumaNederland (NL) <https://reumanederland.nl/>
- Suomen Nivelyhdistys ry (FIN) <https://nivel.fi/>
- Versus Arthritis (UK) <https://versusarthritis.org/>
- Additional members are single patients from Switzerland, Germany and Spain

The EPC is therefore THE unique platform for patient involvement and advocacy with a broad international outreach not available before.

- Draft By-laws/settlement for the EUSOA available and shared

WG4: Goals/plans for 2025

A subgroup of WG4 drafted a the “by-laws/settlement” for EUSOA as the constitutional document and legal basis for the creation of EUSOA. This legal basis after legal review and approval by the MC is needed to achieve the next steps in 2025 and beyond for the formation of the association



NetwOArk Social Media
Channels are Open and
Active!

Our Website: netwoark.eu

CA21110 - (NetwOArk): cost.eu/actions/CA21110

Twitter: twitter.com/EU_netwoArk

Facebook :
facebook.com/people/Netwoark/100090517234454

Instagram: instagram.com/cost_action_netwoark

LinkedIn: <https://www.linkedin.com/company/cost-action-ca21110-netwoark/>

If you would like to know more about the main news from 2024, please visit the Action webpage:
<https://www.cost.eu/actions/CA21110/>

FUTURE ISSUES OF THE NETWOARK NEWSLETTER

This issue of the newsletter was produced by Jaqueline L. Rios in collaboration with the WG leaders and the NetwOArk Communications Members. We are planning to issue a newsletter every quarter with news, important announcements, and updates. We would also like to encourage the young investigators in NetwOArk to get involved in the development, editing and production of the newsletters.

Please contact the NetwOArk Communications Coordinator Ali Mobasheri (ali.mobasheri@oulu.fi) or any member of the communications committee if you are interested.

NetwOArk

The European Network on **OsteoArthritis**



Building the European Society for Osteoarthritis (EUSOA)

<https://www.cost.eu/actions/CA21110/>