



NUCLEAR MEDICINE EUROPE

the industry association

Newsletter

2019-2022

A word from the President

The Improbable Triennium

When the newly-elected executive committee took the reins of NMEU in May 2019, they knew that there would be some challenges. This is, after all, a fast-changing world. They did not, however, expect a global event that would disrupt all the laws of communication, economy, trade and society. Indeed, no one did.

When the Covid-19 pandemic plunged the whole world into the unknown in early 2020, we all had to be creative. We had to develop new tools and new ideas, to defend the nuclear medicine industry. We had to respond to the urgent issues facing our members and try to solve them. It was not easy, but necessity is the mother of invention.

As we end our three-year term, we can be proud we are still doing our job, representing our sector as we engage with Europe's decision-makers, the medical world and the general public. At the same time, we also opened our doors to 10 new members and associate partners.

This newsletter is a summary of what we achieved collectively during our improbable triennium – and it is in large part thanks to your confidence and your support.

As our three-year term draws to a close, it is time for me to step down from the presidency. I want to take this moment to express how much I have appreciated this experience with all of you. It gave me the chance to see the big picture of our discipline, and I am delighted that our prospects are multiplying.

Thank you for your trust and for letting me lead our association. I also thank my colleagues on the Executive Committee, the Working Groups and other close colleagues. I express my warmest wishes to all of you for a successful future.

All the best

Antonis Kalemis

The 2019-2022 Newcomers in the Association:



Comecer SpA, Italy, with branches worldwide, was established in 1970. They design and manufacture high technology systems in the field of aseptic processing and containment for the nuclear medicine and pharmaceutical industries, specialising in isolation technology solutions for regenerative medicine and tissue engineering.

Emiliano Spagnolo, COO Comecer Group represents Comecer at the NMEU General Assembly Board.



Rotem Germany is a world leader in consumables for PET imaging, supplying cyclotrons around the world with complete packages for radiotracer production. Their product line is centred on Oxygen-18 enriched water, plastic cassettes, precursors and full reagent kits for various synthesis modules, all produced under cGMP requirements.

Rotem is represented at the NMEU General Assembly Board by Julia Möbius, General Manager.



OranoMed is a France nuclear biotech company developing novel Targeted Alpha Therapies (TAT) for various types of cancers using the properties of lead-212 as an in-vivo generator of alpha-emitting radioisotopes. OranoMed says the TAT approach has the potential to bring major benefits where conventional therapies have failed to treat patients. OranoMed shares NMEU's aim to raise awareness and promote nuclear medicine and molecular healthcare in Europe. OranoMed is represented at the NMEU General Assembly by Julien Dodet, President and CEO.



Eckert & Ziegler Radiopharma GmbH, based in Berlin, is a well-known member of the global nuclear medicine community: it joined NMEU in February 2020, expressing interest in contributing to the Security of Supply and Regulatory Affairs Working Groups. They provide nuclear medicine institutions with pharmaceutical-grade radioisotopes, among them Yttriga, a precursor for Y-90-based oncology products, GalliaPharm, a GA-68 radionuclide generator for diagnostic applications and other related products.

Eckert & Ziegler is represented at the NMEU General Assembly by Lutz Helmke, Member of the Executive Board of Eckert & Ziegler.



SHINE Medical Technologies, from the United States, recently set up a direct presence in Europe, in the Netherlands, to provide a reliable, flexible supply of a range of vital medical tracers and cancer treatment elements for customers in Europe. The facility's construction is expected to begin in 2023, with commercial production scheduled for late 2025.

Shine Medical Technologies joined NMEU in February 2020 and will be represented by Harrie Buurlage, Vice President of European Operations.



Isovital, based in Lille, France, is a member of RLG (Radiopharma Logistic Group), and is focused on the transport of sensitive materials and radiopharmaceuticals for national and global customers. Isovital has been certified ISO 9001 for transporting radioactive material since 2006. The transport of radiopharmaceuticals is a subject that concerns

all categories of our discipline, making Isovital a natural partner of NMEU.

Isovital is represented at the NMEU General Assembly by Philippe Sueur, President.



RLS

RLS: Radioisotope Life Sciences (RLS USA, Inc.) is a US-based company representing radiopharmacies across the country. RLS has an extensive plan for expanding its SPECT radiopharmacy network, PET enabling existing sites, and PET access to new regions while providing cutting-edge radiopharmaceuticals and new molecular imaging opportunities to nuclear medicine facilities across the network. While RLS is US-based at this time, they are looking at international opportunities for partnerships and are focused on growing nuclear medicine globally.

RLS joined NMEU as an Associate Partner in January 2021 and is represented by Shane Cobb, Chief Operating Officer.



ROTOP

ROTOP is a leading pharmaceutical company with more than 20 years of experience in developing, producing and distributing GMP-compliant diagnostic radiopharmaceuticals in nuclear medicine worldwide. It is widely recognised for its production and approval of generic ^{99m}Tc cold kits and is considered a reliable partner in the SPECT field. It recently received approval for ¹²³I-Io-flupane, which represents another important milestone in the production and distribution of radioactive read-to-use pharmaceuticals.

ROTOP joined NMEU in April 2022 and is represented at the NMEU General Assembly by Jens Junker, Managing Director.



SINERGIE
High tech, high care

Active in the field of Nuclear Medicine and Radioprotection since 1985, **Tema Sinergie** has over 30 years of experience in developing a complete range of products and services that are seen as a benchmark for all the professionals dealing with ionizing radiation both in Italy and worldwide. In 2012 Tema Sinergie broadened the focus of the company to customised high-quality stainless steel barrier isolator systems for the pharmaceutical and chemical sectors as an additional business unit.

TEMA joined NMEU in April 2022 and is represented at the General Assembly by Stefano Piancastelli, CEO



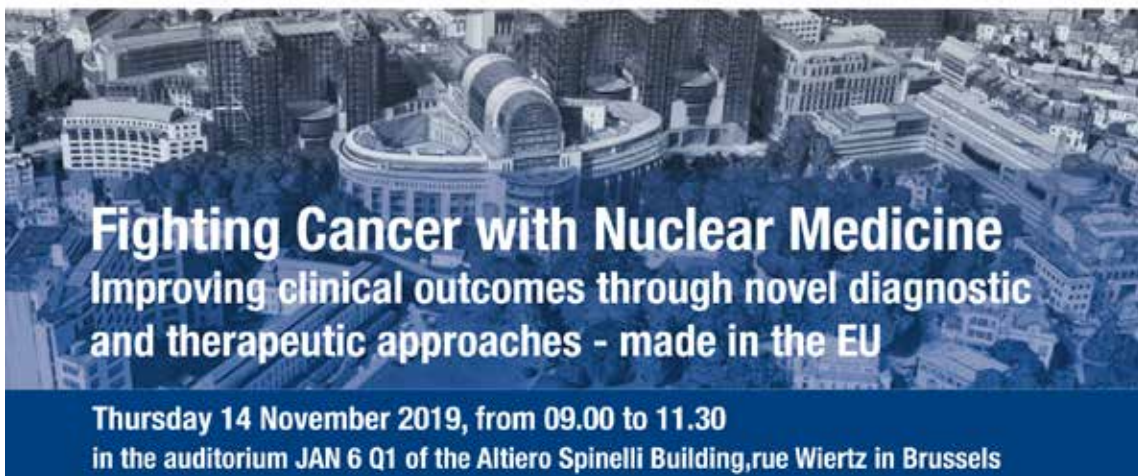
RAD

RADIOPHARM THERANOSTICS

RAD (Radiopharm Theranostics) is an Australian Company founded in Feb 2021 by Executive Chairman Paul Hopper. RAD, which listed on the Australian stock exchange in November 2021, is aiming to become a recognised leader in the development of radiopharmaceutical products for both diagnostic and therapeutic uses in areas of high unmet medical needs. Although a start-up, they have already made acquisitions and partnerships, including several in Europe.

RAD joined NMEU in April 2022 as Associate-Partner and will be represented by Hester Larkin, Board Member, and Riccardo Canevari, CEO and Managing Director.

NMEU Symposium: Nuclear medicine makes its case at the European Parliament



Italian **MEP Aldo Patriciello** agreed to host the NMEU 2019 Symposium in the European Parliament, in which he called on the European Union to do more to support research in nuclear medicine.

The '**Fighting Cancer with Nuclear Medicine**' Symposium generated notable interest thanks to a promotional TV programme broadcast two weeks beforehand, also filmed in the Parliament.

At the Symposium, Mr Patriciello opened the session by saying nuclear medicine research was vital. *"We need to encourage every useful research initiative in nuclear medicine so that new diagnostic and prevention tools can be introduced,"* he said.

NMEU President Antonis Kalemis told the symposium that nuclear medicine is a booming sector and a leading European technology innovator, worth €4.5 billion a year and with healthy continuous annual growth. *"Nuclear medicine is one of the most momentous healthcare innovations in our time. We believe the rise of nuclear medicine will continue to offer safer and more efficient tumour treatments. And they will be more readily available"* he said.

Wim Oyen, the Professor of Diagnostic Imaging and Radiotherapy at Humanitas University in Milan, explained how nuclear medicine is helping diagnose and treat patients with prostate cancer, a disease that claims around 75,000 lives in the EU every year, or 2.9% of all male deaths.

Nuclear medicine consultant **Richard G. Zimmermann**, who is also the co-founder of MEDraysintell, said the global market for nuclear medicine is expected to reach €30 billion by 2030, on the back of annual growth of 16%. “*Radiotherapeutics is revolutionising healthcare,*” he said. Prof Zimmermann said some 85 radiopharmaceuticals have an EU marketing authorisation in at least one country, covering oncology, cardiology, neurology and rheumatology. He said the radiotherapeutics launching over the next seven years would include new treatments for brain, breast, pancreas, kidney, blood and prostate cancers, as well as non-Hodgkin lymphoma (NHL), neuroendocrine tumours (NET) and polyarthritis.

NMEU Symposium

Serge Goldman, who heads the Nuclear Medicine Department at the ULB-Erasme Hospital in Brussels, gave an overview of the science, saying it was the simple use of nuclear isotopes for medical purposes. While other imaging systems he said that only the two nuclear medicine modalities - PET and SPECT - can show the body's metabolism with high sensitivity and precision. “*With nuclear medicine, we can see the biological situation. We can see how the body is and how it functions,*” he said.

And **Catherine Bouvier**, the CEO of the Neuroendocrine Cancer (NET) Patient Foundation, spoke about the role of nuclear medicine in the patient pathway. She explained how finding a treatment can be like navigating a maze, not least because patients are often unable to verbalise and describe symptoms. Nuclear medicine, she said, can see the problem immediately and diagnose it. “*Nuclear medicine means patients really can look forward to a good quality of life after cancer,*” she said.

The audience of MEPs and assistants heard about how our innovations are saving lives, and this paved the way for further engagement at EU level.



Relations with the European Parliament

The European Commission launched its 2019-2028 'Europe's Beating Cancer Plan', which aims to tackle cancer through a broad range of measures. The plan says the EU approach to cancer prevention, treatment and care should be built on new technologies, research and innovation. It aims to tackle the entire disease pathway, from prevention to quality of life of cancer patients and survivors, focusing on actions where the EU can add the most value.



We were invited by the European Parliament Committees for Environment, Public Health and Food Safety (ENVI) and for Industry, Research and Energy (ITRE) to the official opening of the Europe's Beating Cancer Plan in February 2019.

The Parliament set up a special Committee on Beating Cancer (BECA Committee) to look at EU actions and policies to fight cancer. The BECA Committee regularly sought the advice of experts, including NMEU President Antonis Kalemis, who was asked to explain the nuclear medicine industry during a hearing in July 2020.

The BECA Committee's recognition of NMEU as an advisor marked an important step in our approach towards the EU's institutions as the Europe's Beating Cancer Plan was developed.

In November 2021, the BECA Committee published a text highlighting priorities in the prevention, diagnosis and treatment of cancer in Europe. NMEU succeeded in adding important amendments to this text, highlighting the value of our industry. We are delighted that our amendments were approved and included in the final text submitted to the European Commission. It means that the actions taken by the Commission in the Europe's Beating Cancer Plan in the coming years will be based on the text – and will promote more dialogue between our industry and EU authorities.

We are now building on this opportunity to further develop our presence at the EU level, as we engage with policymakers, take part in events and cooperate with different programmes.

The new Therapy Working Group

The NMEU Therapy Working Group was created at the end of 2021 to recognise the evolving, cutting-edge therapeutic applications of nuclear medicine. It brings insights from the therapeutic side of nuclear medicine into the activities of NMEU, alongside the role of diagnostics.

The Therapy Working Group aims to make therapeutic applications of nuclear medicine an innovative treatment paradigm, not only in the field of oncology but also in other disease areas. It aims to reduce the gap between industry and academic research, and encourage greater collaboration through seminars and joint papers. It also seeks to promote therapeutic applications of nuclear medicine through legislation: it aims to promote a better regulatory and policy environment for the uptake of therapeutic nuclear medicine at European and national levels.

The Therapy Working Group now meets with the other working groups to discuss issues of shared relevance, including radiation protection, dosimetry, medicinal products, procurement, regulation, radiation protection and reimbursement policies. It drafts opinions and positions on potential therapeutic applications and works to ensure that these positions are recognised at both EU and national level. The group interacts with relevant stakeholders, carries out lobbying and takes part in official publications, public responses and other engagement activities.

NOAR COST - when academics and industrials join their forces

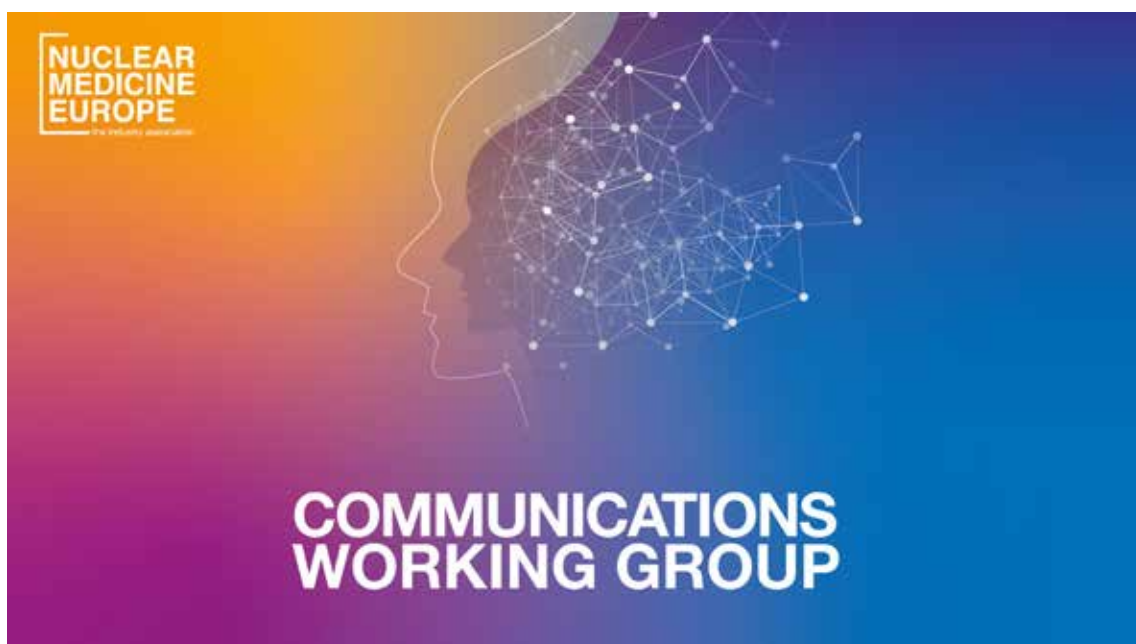
The Therapy Working Group, managed by Annette Stolz and Jean-François Gestin, took part in the NOAR COST project, which aims to create a mixed academic and industrial network to develop “Targeted Alpha Therapy” (TAT) with astatine-211.



NOAR is the Network for Optimised Astatine labelled Radiopharmaceuticals, and COST is the European Cooperation in Science and Technology fund. NOAR COST brings together European stakeholders interested in promoting astatine-211 for medical applications, and associates with partners outside Europe (US, South Africa, Japan).

The Therapy Working Group was delighted to take part in the NOAR COST first open meeting in Gothenburg, Sweden, on May 9-11, 2022, bringing together Industry and academic figures.

Creating the Communication Working Group



Our association's original communication strategy had two target groups: the public (patients) and the scientific community (physicians). Both targets were covered by a working group: 'Awareness' for the public and 'Innovation' for the scientific community. Both groups worked well for 10 years, developing high-quality materials.

However, we recently felt that these targets were no longer the most critical ones for our industry. The goals of the two working groups were no longer aligned with NMEU's goals and the expectations of most members.

The Executive Committee addressed this by merging the two groups into a Communication Working Group, with its own mission statement. The group, set up in July 2021, is managed by David Crunelle and Mart-Jan Blauwhoff. It meets regularly and produces key documents, including the bi-monthly NM Industry News.



Engagement with EMA

Despite the pandemic, the Regulatory Affairs (RA) Working Group achieved its ambitious objective of establishing and consolidating communication with the European Medicine Agency (EMA).



The first leadership meeting took place in September 2021, with the Working Group explaining the specificities of manufacturing models, half-lives and logistics of

radiopharmaceuticals. Radiopharmacy was recognised for its use in oncology, and for the many novel products entering clinical development. The Working Group also requested that the current regulatory guidance should take account of the specific properties of radiopharmaceuticals, so that the sector can secure equitable access to new drugs for diagnosis and target treatment.

The group recently reconnected with EMA to provide them with a more consolidated view of the products NMEU member companies are producing over the next two years. Each company member will confidentially send the EMA information on ongoing and upcoming clinical programmes, upcoming changes to approved products and planned scientific advice. The NMEU RA team will coordinate this action with strict confidentiality.

A second bilateral EMA-NMEU meeting is scheduled for November 2022.

European Observatory on the Supply of Medical Radioisotopes

The European Observatory on the Supply of Medical Radioisotopes, set up in 2012, assesses, monitors and supports the EU supply chain of widely used medical radioisotopes. It focuses on Molybdenum-99/Technetium-99m (Mo-99/Tc-99m) and examines a variety of topics related to the EU supply of widely used medical radioisotopes. Chaired jointly by NMEU and the Euratom Supply Agency (ESA), the Observatory includes representatives from the European Commission officials and other international organisations, as well as various industry stakeholders.



EUROPEAN OBSERVATORY
on the supply of medical radioisotopes



The Observatory cooperated closely with NMEU's Security of Supply Working Group in 2021. NMEU's Emergency Response Team's support was instrumental in managing supply disruption issues and sending information to Observatory members and external stakeholders, including the OECD/NEA and IAEA. The ESA shared the information with EU member states through the EU's Working Party on Atomic Questions and the Health Security Committee (HSC).

Two issues that the Security of Supply Working Group looked at were the unplanned outage of the Australian OPAL research reactor in March-April and the unplanned production stoppage at the Belgian IRE Mo-99 production line in December.

The ESA, as co-chair of the Observatory, was told in October 2021 that there could be a shortage of Iodine-131 (I-131) for nuclear medicine therapy by the second half of 2022. The ESA promptly informed both the HSC, which is mandated to reinforce information sharing on national preparedness, and the European Medicines Agency (EMA). Together with the Co-ordination Group for Mutual Recognition and Decentralised Procedures – Human (CMDh), they changed the terms of the marketing authorisation of I-131 from HALEU targets. A work-sharing procedure was agreed to avoid multiple evaluations by individual competent authorities and to facilitate a coordinated approach.

The Observatory also updated its Mission Statement and established its Terms of Reference. These documents were adopted jointly by NMEU and ESA after being presented at the June plenary meeting (held virtually). The other topics covered at the June plenary meeting were Mo-99 supply monitoring and Brexit/Covid-19 transport experiences and lessons learnt. Research reactor operators and alternative methods suppliers outlined their capacity outlooks, thus presenting framework for the future of the European production chain.

The plenary also discussed including other novel medical radioisotopes like Lu-177 into the scope of the Observatory, in addition to Mo-99. The European Commission services – Directorates General for Energy (DG ENER) and Joint Research Centre (D JRC) – presented their work on the supply of medical radioisotopes, focusing on SAMIRA.

In September, the ESA reported to the Council Working Party on Atomic Questions on the Observatory's activities, including the response to the Covid-19 pandemic and the 2020 supply disruptions for the medical radioisotope supply chain.

In related Observatory work, the ESA is helping with the implementation of the SAMIRA action plan (Strategic Agenda for Medical Ionising Radiation Applications), which in turn supports Europe's Beating Cancer Plan. The ESA continued to examine the security of supply of high-enriched uranium (HEU) and high-assay low-enriched uranium (HALEU), which is needed to feed the production of medical radioisotopes and to fuel research reactors. The EU does not currently produce these strategic materials, which must be imported from the US or Russia.

The ESA continued to facilitate the supply of HEU for users who still need it until their conversion to HALEU (in line with international nuclear security and non-proliferation commitments). The ESA agreed a five-year renewal of its Memorandum of Understanding with the US Department of Energy-National Nuclear Security Administration (DoE-NNSA) for the exchange of HEU to supply European research reactors and medical radioisotope production facilities.

A dedicated Working Group on HALEU was formally set up in 2021 to examine supply. It is looking at potentially building European capacity to produce the LEU metal to supply research reactor fuel and medical radioisotopes production.

Transport of radiopharmaceuticals during the pandemic

During the most intense period of the pandemic, the European Parliament committees dealing with health (ENVI) and industry (IRTE) listened to our concerns about the transport of our radiopharmaceuticals and forwarded them to the European Commission's health (SANTE) and internal market (GROW) Directorates General, as well as to IAEA.

In June 2020, IAEA confirmed to NMEU that they "recognise the ongoing collaboration between governments of the producers, the operators, the users and the Member States involved en-route, to continue to take steps to strengthen arrangements for existing deliveries. The increased communication between the parties involved and the work to develop delivery corridors should provide the necessary awareness and flexibility to maintain, to the extent possible, deliveries during the Covid 19 pandemic. This action will allow mitigation of potential supply risks while the pandemic continues at different rates in Member States."

The nuclear medicine sector, like everyone else, has faced and is still facing huge challenges during the coronavirus pandemic. NMEU's Transport Expert Group surveyed its members to find out how it has affected the transport of radioactive material, from shipment and safety to controls and audits.

How the COVID crisis has affected the transport of radiopharmaceuticals

Their responses shine a light on the crucial role of transporters as a link between the industry and the patient, including their experience dealing with customs and administrative procedures that are outside the scope of traditional medical practices. It shows that while operators were able to adjust to the extraordinary circumstances and find alternative routes where necessary with minimal impact or delays on shipments, there is a risk from future disruptions.

Gilles Degauque, Chairman of NMEU's Transport Expert Working Group, asked our members five general questions about how the coronavirus affected them:

- How did the pandemic impact your day-to-day work?
- What was the response from local authorities regarding the transport of radiopharmaceuticals or radiochemicals? What sort of response were you hoping for?
- How do you see the next six months in the transport sector?
- Has this crisis made you reassess your relationship with transport companies?
- What lessons can you draw from this time and what opportunities do you see in the future?

It appears that the main challenge was to deal with the sudden drop of flights availabilities due to the reduction of passenger flights.

The crisis also led to a dip in demand from hospital customers and other PET-CT sites, sometimes by up to half. It took months to revert to near normal. Transport by air was also affected, with deliveries also taking time to restore. "A big drop in volumes to manufacture and distribute but with same fixed costs," one member said. Another pointed out that it will not only affect this year's budgets but next year's as well.

However, since scanning for at-risk cancer patients is seen as a priority, even during the pandemic, deliveries were able to continue. "Local road transportation could carry on as normal as an emergency service," another member said.

As the second wave of the pandemic sweeps across Europe, members have been bracing themselves for more interruptions, including a new set of containment measures. This would once again affect activities, but at least operators would be more prepared. "Should a second-wave result in national lockdowns, the provision of local radiopharmaceuticals - including its transportive constituent - would still carry on but at a reduced capacity, just as at the start of the contagion," one member said. Another member predicted that a second wave would mean some radiotracers, like tracers used for clinical studies, would not become a priority, because patients will not go to hospitals.

As to whether this has made them re-evaluate their transport arrangements, members said it has underlined the value of connections. "We have good relationships with our courier companies already. But their ability to provide a service would be affected should they suffer a shortfall in staffing, who for instance would have to self-isolate," said one member. It is also worth considering alternatives, just in case. "It is important to have a back-up plan and do not have only one supplier," said another member.

The lesson from this episode - which is still ongoing, of course - is that the sector needs to work together with authorities to support the supply chain, whatever the circumstances.

Further disruptions could have serious consequences, and even destroy some of the players in the nuclear medicine sector. Clear and rapid communications are needed to ensure that logistic management provides flexible yet regular shipping. "It is encouraging to see some authorities can still prioritize radiopharmaceuticals as necessary and life-saving. We hope that this view prevails," said one member. "We have an opportunity to ensure that all authorities share this consensus."



The SAMIRA Action Plan

The European Commission finally launched the four-year Action Plan for the Strategic Agenda for Medical Ionising Radiation Applications (SAMIRA) in 2021. SAMIRA should improve EU coordination, ensure that radiological and nuclear technologies continue to benefit the health of EU citizens and patients, and contribute to the fight against cancer and other diseases.



SAMIRA is the first follow-up to Europe's Beating Cancer Plan, adopted by the Commission on February 3, 2021. It builds on the work in recent years by the European Observatory on the Supply of Medical Radioisotopes, which is jointly chaired by the European Commission and NMEU.

The SAMIRA Action Plan ensures that EU citizens have access to high-quality radiological and nuclear technologies in medicine with the highest safety standards. The Plan defines actions and measures in three key areas, all within the NMEU objectives:

- securing the supply of medical radioisotopes,
- improving radiation quality and safety in medicine,
- facilitating innovation and the technological development of medical ionising radiation applications.

The Commission will create synergies between the Euratom Research and Training Programme and the 'Health' cluster of the EU research programme Horizon Europe through the development and implementation of a Research Roadmap for medical applications of nuclear and radiation technology.

NMEU is proud to be a stakeholder in the SAMIRA programme, expressing the specific needs of its industry in the various actions taken.

Acting inside the BECA Committee

The EU Parliament established a committee of experts to accompany and instruct the EU Commission in its “Fight against Cancer Programme”. The aim is to gather information and advice to support researchers, doctors, nurses, and social workers and provide real assistance to patients fighting cancer and those who recovered from it.

NMEU has been asked to participate in one of its hearings in July 2020 at the European Parliament. Antonis Kalemis gave a talk and a general presentation showing the importance of nuclear medicine, highlighting its industry’s tools. NMEU was the only industrial association included in the panel of experts and this paves the way for fruitful communication between all the European stakeholders working on the Beat Cancer Plan Programme 2020-2028.

The Foratom-Nucleareurope experience

FORATOM, the Brussels-based trade association for the nuclear energy industry in Europe which became in 2022 Nucleareurope represents the voice of the European nuclear industry in energy policy discussions with EU Institutions and other key stakeholders.



On May 12, 2021, Foratom-Nucleareurope published an interview of Antonis Kalemis, President NMEU, which describes how nuclear medicine is leading the fight against cancer.

Antonis’ interview highlights that it is the right moment to further develop links between nuclear medicine and the nuclear industry. It makes sense for NMEU and Foratom-Nucleareurope to work together on common challenges. NMEU-Foratom joint position paper recommends that nuclear technology and its non-power applications should be better recognized and supported at the EU level. It calls for nuclear to be included in the Next Generation EU recovery plan, for an EU roadmap dedicated to nuclear medicine research, and for the EU to convert to using low enriched uranium (LEU).

These measures can help secure our future. And as nuclear medicine continues to innovate to meet patient needs, various players in the sector can work together to promote the many benefits of nuclear technology.

Partnership with EFOMP

It is impossible for our discipline to ignore the importance of medical physics, the application of physics to healthcare; using physics for patient imaging, measurement, and treatment.



In this context, we considered it useful to get closer to EFOMP, the European Federation of Organizations For Medical Physics with which we had the opportunity to meet, and discuss common grounds that lead to a partnership agreement between our two associations signed in January 2022. This partnership is an open window toward better collaboration between our industry and the world of medical physics.

Towards greater support within our central secretariat

We are growing in number of members, we are multiplying partnerships with associations, we are creating lasting links with European entities, we will develop a European presence at various congresses, therefore we are happy to welcome within our central secretariat, two new colleagues:



Rudi Verbruggen
Director General



Bram van Malderen
Administrator

Acknowledgements

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- Helen Barker
- Gilles Degauque
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- Bernard Ponsard
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- David Crunelle
- Mart-Jan Blauwhoff
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- Michelle Verdeyen (Accountant)
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Nuclear Medicine Europe

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- David Crunelle

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