

STEPUPIORS

Twinning for a European Consortium of Rectal Cancer Research Institutions through Stepping up Scientific, Technological and Innovation Excellence of IORS



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WP3 was directed at establishing short- and long-term knowledge exchange in the rectal cancer consortium based on the organization of workshops and summer schools, staff exchanges and mentoring.

The implementation of **WP3** was based on six pillars, of which pillars 1, 2, and 6 are related to **D3.1**.

1. Research and administrative staff exchanges
2. Expert visits to IORS
3. Remote virtual training on omics data analysis
4. Workshops on proposal writing, omics approaches, skills required for careers in academia/industry
5. Summer school on clinical applications of liquid biopsies
6. Preparation and submission of research proposals with emphasis on MSCA doctoral networks and postdoctoral fellowships.

The implementation of all activities related to deliverables and milestones of WP3 (D3.1, D3.2, D3.3 and M3) was regularly monitored and evaluated during WP3 monthly meetings, IORS monthly meetings and consortium partner meetings.

A total of 5 visits of IORS staff to partner institutions were performed, 2 expert visits of partner institutions' staff to IORS and 5 project proposals (HORIZON-MSCA-2022-DN-01-01, HORIZON-WIDERA-2023-ACCESS-05-01 and 3 COST actions with IORS as secondary proposer) were submitted.

The knowledge exchange between participating institutions within deliverable **D3.1** included research and administrative staff exchanges, expert visits to IORS and preparation and submission of research proposals with emphasis on MSCA doctoral networks and postdoctoral fellowships.

The exchange of scientific and administrative expertise was designed to benefit all the partners. IORS staff gained knowledge in advanced analytical methods focusing on omics approaches and their integration with clinical data, efficient research management and biobanking practices, whereas the staff from advanced partner institutions was able to fully exploit the potential offered by the rectal cancer biobank samples by integrating the omics datasets with clinicopathological information. Visits were also focused on the preparation of proposals for EU funding calls.

Task 1. Research and administrative staff exchanges (IORS and BRFAA - in collaboration with IDIBAPS and NKI)

IORs scientists and administrative personnel visited grant management offices, biobanks and different core facilities of partner institutions and obtained direct experience on research management, biobanking and different approaches to cancer research. In addition, senior scientists and administrative personnel from partner institutions visited IORS to assist in the foundation of the grant management office developed during WP5.

1.1 STEPUPIORS project participants Dr Ana Djuric, Dr Marko Radulovic and Dr Milena Cavic went on a training [visit to the partner institution Biomedical Research Foundation Academy of Athens \(BRFAA\)](#) in Athens, Greece, in order to gain knowledge in the field of project management, in the period from 05-06.12.2022.

- on 05.12.2022. the project participants visited the BRFAA Project Management Office and attended a training on writing and project management led by project manager Dr Vassilis Stamatopoulos
- on 06.12.2022. STEPUPIORS project participants Dr Ana Djuric, Dr Marko Radulovic and Dr Milena Cavic visited a company that deals with project management, Exelixis Research Management & Communication, Athens, Greece. During the visit, they attended a training on writing and project management. During the visit, they attended a [training on writing and project management](#) led by project manager Dimitris Raptis, MSc



Figure 1. Representative photographs of IORS visit to BRFAA

1.2 STEPUPIORS project participants Dr Ana Djuric, Dr Marko Radulovic and Dr Milena Cavic went on a training [visit to the partner institution August Pi i Sunyer Biomedical Research Institute \(IDIBAPS\)](#) in Barcelona, Spain to gain knowledge in the field of project management, in the period from 10-11.01.2023. and biobanking 11- 12.01.2023. The training was hosted and organized by IDIBAPS European and International Projects Research Management Office, led by Juan Abolafia, and the presenters included Dr Isil Tekeli, Dr Haritz Plazaola, Dr Ruth Conesa, Dr Arnau Llobet and Dr Nuria Ferrer.

In the same period, from 10-12.01.2023, STEPUPIORS project participants Aleksandra Stanojević, MSc, Dr Snežana Bjelogrić and Mladen Marinković, MD, went on a training-visit to the partner institution August Pi i Sunyer Biomedical Research Institute (IDIBAPS) in Barcelona, Spain, to gain knowledge in the field of biobanking. During the training, biobanking procedures were theoretically and experimentally presented. The training was hosted by Dr Aina Rodríguez, the event coordinator was Dr Teresa Botta, and the speakers Dr Teresa Botta, Èlia Alcañiz, MSc, Dr Ada Soler and Dr Gemma Aragonès. All staff from HCB-IDIBAPS Biobank contributed to the visit.

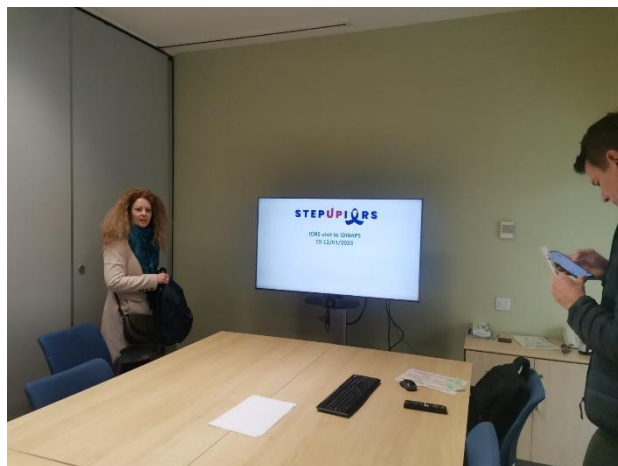


Figure 2. Representative photographs of IORS visit to IDIBAPS

1.3 STEPUPIORS project participants Dr Milena Cavic, Dr Suzana Stojanovic- Rundic, Dr Ana Djuric and Dr Marko Radulovic went to an expert [visit to the partner institution the Netherlands Cancer Institute Antoni van Leeuwenhoek Hospital \(NKI AVL\)](#) in Amsterdam, the Netherlands, to get familiar with the overall organization of the NKI AVL as a research and healthcare center. Dr Milena Cavic, Dr Ana Djuric and Dr Marko Radulovic participated in the presentation of project management activities of the NKI AVL in order to gain knowledge and practical skills in the field of project management. The visit took place in the period February 13-14, 2023 and was hosted and organized by Dr Remond Fijneman from NKI AVL.



Figure 3. Representative photographs of IORS visit to NKI-AVL

1.4 On December 4, 2023, Dr Ana Djuric [visited the Core Facility for Proteomics and Metabolomics at the Faculty of Biology, the National and Kapodistrian University of Athens \(NKUA\)](#). The visit was organized by Professor Makis Zoidakis from BRFAA, who received a professorship at this University in 2023. During the visit, new opportunities for cooperation between IORS, BRFAA and NKUA were discussed. Professor Zoidakis organized a meeting with Professor Evangelos Gikas and Dr. Anthi Panara from the Metabolomics Laboratory. During the meeting with the research group of Professor Gikas future collaboration was agreed, as well as the metabolomic study on samples of rectal cancer patients within the STEPUPIORS project. A meeting with Dr. Julie Courraud, co-director of the Proteomics facility at NKUA took place in order to discuss the use of advanced mass spectrometers (Bruker TIMS-TOF Flex, Bruker TIMS-TOF Pro) in collaborative projects.



Figure 4. Representative photographs of IORS visit to BRFAA/NKUA

1.5 Dr Milena Cavic performed a [strategic training visit](#) at the Netherlands Cancer Institute – Antoni van Leeuwenhoekziekenhuis (NKI AVL), Amsterdam, the Netherlands, in the period of December 06-09, 2023. The visit was focused on scientific activities concerning methods for ctDNA analysis of cancer patients’ samples and project management, exploring various aspects necessary for the implementation of the STEPUPIORS project, within work packages WP2, WP3 and WP5. The training was hosted by Dr Remond Fijneman from the Department for Pathology, Translational Gastrointestinal Oncology group, with contributions from various NKI AVL sectors.

During the visit, two external meetings were scheduled for December 07 and 08, 2023, respectively. The first meeting was held with the Dutch Cancer Society representatives (KWF Dutch Cancer Society) from Amsterdam, which provides support for Dutch researchers in applications for clinical, translational and basic science projects in the field of oncology. The second was focused on exploring the new health information system of the Netherlands – Health-Research Infrastructure (Health-RI Data Driven Health & Life Sciences) based in Utrecht, which is the new center of the Dutch healthcare system digitization.

New project applications were strategically planned during the visit and are expected in 2024 and 2025 (HORIZON-MSCA-2023-SE-01, HORIZON-WIDERA-2023-ACCESS-07, HORIZON-JU-IHI-2024-07-02-singe-stage).

Task 2. Expert visits to IORS (BRFAA, IDIBAPS and NKI, one visit each)

2.1 During the [expert visit of BRFAA staff to IORS](#) on November 28, 2022, Dr Zoidakis and Dr Ilioudis got familiar with the organization of work within the following laboratories: Laboratory for Molecular Genetics, Laboratory for Experimental Pharmacology, Laboratory for Immunology, Laboratory for Radiobiology and Experimental Oncology and Department of Genetic Counselling for Hereditary Cancers, which represent smaller organizational units of the Department of Experimental Oncology. Also, infrastructure and equipment important for the successful activities within WP2 were presented to BRFAA staff: MiSeq and NextSeq NGS Systems, Agilent SureScan Microarray Scanner, LightCycler® 480 System, Cobas z 480 analyzer, cell culture room, flow cytometer and accompanying equipment.

Project participants from IORS also presented the facilities of the Department of Radiation Oncology, which include two computed tomography (CT) simulators and one magnetic resonance imaging (MRI) for radiotherapy planning, eight linear accelerators and one Microelectron which conducts conventional radiotherapy, 3D conformal radiotherapy, volumetric modulated arc therapy (VMAT), intensity modulated radiation therapy (IMRT), stereotactic body radiotherapy (SBRT) and brachytherapy. The principles of radiotherapy concerning planning and preparing patients for the treatment were outlined to Dr Zoidakis and Dr Ilioudis. Also, the latest approaches in radiotherapy were presented by which patients receive the most effective therapy with minimal toxic and side effects.

Dr Zoidakis, as a senior scientist, and Dr Ilioudis, as a project manager, were informed about the development of the research management office (RMO) at IORS, which represents the deliverable D5.1 within WP5. Continuous exchange of information between the IORS personnel involved in the formation of the RMO and administrators and scientists from BRFAA during the evolution of the project was agreed upon.



Figure 5. Representative photographs of BRFAA visit to IORS

2.2 [Research and project management staff from IDIBAPS, performed an expert visit to IORS](#) on November 30, 2022. During the visit, Dr Sergi Castellví-Bel, Dr Işıl Tekeli and Dr Ruth Conesa got acquainted with the facilities and human resources of the Department of Experimental Oncology and the Department of Radiation Oncology. During the visit to IORS, Dr Castellví-Bel, Dr Tekeli and Dr Conesa got familiar with the organization of work within the following laboratories: Laboratory for Molecular Genetics, Laboratory for Experimental Pharmacology,

Laboratory for Immunology, Laboratory for Radiobiology and Experimental Oncology and Department of Genetic Counselling for Hereditary Cancers, which represent smaller organizational units of the Department of Experimental Oncology. Project participants from IORS also presented the facilities of the Department of Radiation Oncology. The visit continued with a hands-on session on project management transferring knowledge from the European & International Projects Pre- and Post-award Projects Management Office of IDIBAPS to IORS staff. Dr Castellví-Bel, as a senior scientist, and Dr Tekeli and Dr Conesa as project managers were informed about the development of the research management office (RMO) at IORS, which was submitted as deliverable D5.2 on time in month 6 of the project.



Figure 6. Representative photographs of IDIBAPS visit to IORS

2.3 Expert visit of NKI AVL staff to IORS is planned for early 2025 to evaluate the project evolution in final stages, preparing the field for long-term investments in joint project proposals.

Task 3. Preparation and submission of research proposals with emphasis on MSCA doctoral networks and postdoctoral fellowships (BRFAA, IDIBAPS and NKI - expertise applied to IORS staff)

During the first 17 months, IORS submitted five project applications, three of which were jointly prepared with project partners:

- HORIZON-MSCA-2022-DN-01-01 (Proposal number: 101120494, Proposal acronym: TREC) – Not funded
- HORIZON-WIDERA-2023-ACCESS-05-01 (Proposal number: 101159093, Proposal acronym: WIDEP) - Not funded
- COST Action, Open Call Collection OC-2023-1 (Proposal Reference OC-2023-1-26499, Proposal Acronym SNOOPY) – Under review

Three additional joint project applications are currently under preparation:

- HORIZON-MSCA-2023-SE-01 (MSCA Staff Exchanges) application deadline February 28, 2024 (BRFAA and IORS)
- HORIZON-WIDERA-2023-ACCESS-07 (Excellence Hubs) – application deadline March 07, 2024 (BRFAA, NKI-AVL and IORS)
- HORIZON-JU-IHI-2024-07-02-singe-stage (Innovative Health Initiative Call 7, Topic 3) - application deadline May 22, 2024 (NKI-AVL and IORS)

Expected impact of D3.1

During the visits to partner institutions, IORS staff were trained in research management, biobanking, different modern experimental techniques and various omics approaches which contributed to the increase in the excellence of researchers and clinicians at IORS. The professional development of STEPUPIORS participants will have a long-lasting impact on future generations of researchers and clinicians and have already attracted four new PhD students who started their PhD projects at IORS in 2023. Also, during the first 17 months of the project, the number of interested collaborators (clinicians and researchers) is constantly increasing.

During the visit of the IORS staff to Project Management Offices at IDIBAPS, BRFAA and NKI-AVL, IORS research management team gained knowledge and skills related to writing project proposals and managing grants. These visits were crucial for planning and organizing RMO at IORS which was established in month 6 of the project as [D5.2](#). Additionally, IORS staff attended 5 trainings on research management and became fully skilled in implementing good research management practices. The IORS RMO is committed to improving the visibility and excellence of research and researchers and providing new funding opportunities at IORS. The IORS RMO is also dedicated to ensuring a higher number of successful future grant applications with IORS staff as PIs, thus increasing research skills and mobility, especially in the category B and C researchers, and more self-satisfaction leading to better work outcomes and researcher health. Good project management practice was implemented to acquire and manage EU-funded projects as well. STEPUPIORS is the first Horizon Europe project coordinated by IORS. Previously IORS was a participant in one MSCA-RISE project and one MSCA-IF- Reintegration panel. The establishment of RMO through this project and enhancement of research and project management skills of IORS staff led to 5 new grant applications, 3 of them were joint applications with partner institutions from STEPUPIORS (HORIZON-MSCA-2022-DN-01-01, HORIZON-WIDERA-2023-ACCESS-05-01, and COST Action, Open Call Collection OC-2023-1). Three new project applications are currently in preparation (HORIZON-MSCA-2023-SE-01, HORIZON-WIDERA-2023-ACCESS-07 and HORIZON-JU-IHI-2024-07-02-singe-stage).

The strategic training visit of project leader Milena Cavic performed to NKI AVL in December 2023, and the visit of Ana Djuric to BRFAA/NKUA in December 2023, are expected to result in the improvement of scientific activities concerning metabolomics, methods for ctDNA analysis of cancer patients' samples, the optimisation of project management, and applications for new projects in 2024 and 2025.

During the visit of the IORS staff to Biobanks at IDIBAPS and NKI-AVL, the IORS biobanking team gained knowledge and skills related to good biobanking practice. The visits to biobanks at partner institutions helped in establishing the first Rectal Cancer Biobank at IORS (D1.1). The biobank was established in month 6 within the framework of the STEPUPIORS and serves as a model for future biobanks at IORS and in Serbia, as the first official biobank with distinct differentiation from usual cancer sample biorepositories. IORS staff attended 3 trainings in biobanking and 1 training in configuration and implementation of laboratory information management system (LIMS) for biobank, which makes them fully trained to run a biobank. The rectal cancer biobank will provide high-quality biological specimens and information that are the key elements of sustainable scientific infrastructure. This will enhance the outcomes of collaboration, strengthen the trust between partner organizations, and advance research and development. This biobank will accelerate innovation in medical research and healthcare at IORS by implementing governance mechanisms: following relevant ethical guidelines and legal

instruments and harmonizing practices with the EU. Ultimately, IORS is striving to apply for accreditation from BBMRI-ERIC and is in communication with national stakeholders who have shown interest that Serbia joins the network in an observer status. This will enable a smooth transition of Serbia towards a pan-European infrastructure to support medical research in the future.