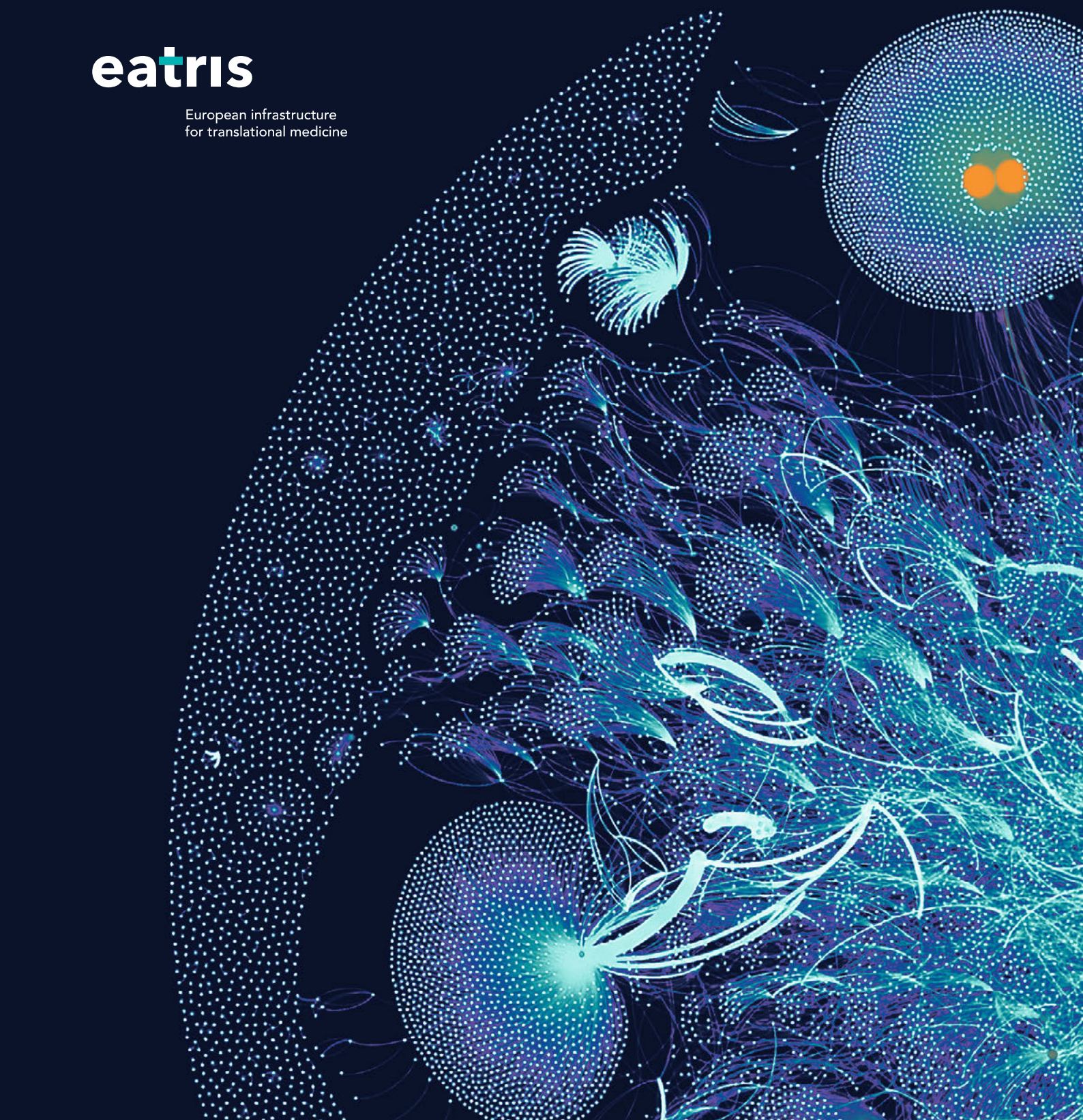
Annual Report 2022

eatris

European infrastructure
for translational medicine



The cover art is a graphical visualisation of data from Twitter on posts containing the hashtag #breastcancer. Twitter users are represented as nodes and the relationships between them (follows or mentions) are lines. The weight of the lines between nodes is determined by the number times that a particular relationship is expressed within the data. We are grateful to Eric Clarke, Richard Arnett and Jane Burns (Royal College of Surgeons in Ireland) for allowing us to use the image and reimagine it with the EATRIS colour palette.

All images used in this report have been created by members of our community, unless specified otherwise.

This image: “Chispasdelsistemainmune” by Garazi Serna.

With thanks to our funders and partners

REPUBLIC OF BULGARIA
Ministry of Education and Science

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REPUBLIC OF CROATIA
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REPUBLIC OF FINLAND
Ministry of Education and Culture (OKM)

FRENCH REPUBLIC
Commissariat à l’Energie Atomique et aux Energies Alternatives (CEA)

ITALIAN REPUBLIC
Istituto Superiore di Sanità (ISS)

GRAND DUCHY OF LUXEMBOURG
Le Gouvernement du Grand-Duché de Luxembourg

KINGDOM OF THE NETHERLANDS
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KINGDOM OF NORWAY
Research Council of Norway

KINGDOM OF NORWAY
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PORTUGUESE REPUBLIC
INFARMED-National Authority of Medicines and Health Products

REPUBLIC OF SLOVENIA
Ministry of Higher Education, Science and Innovation

KINGDOM OF SPAIN
Instituto de Salud ‘Carlos III’ (ISCIII)

KINGDOM OF SWEDEN
Vetenskapsrådet*

KINGDOM OF SWEDEN
Vinnova*

REPUBLIC OF LATVIA**
Ministry of Education and Science

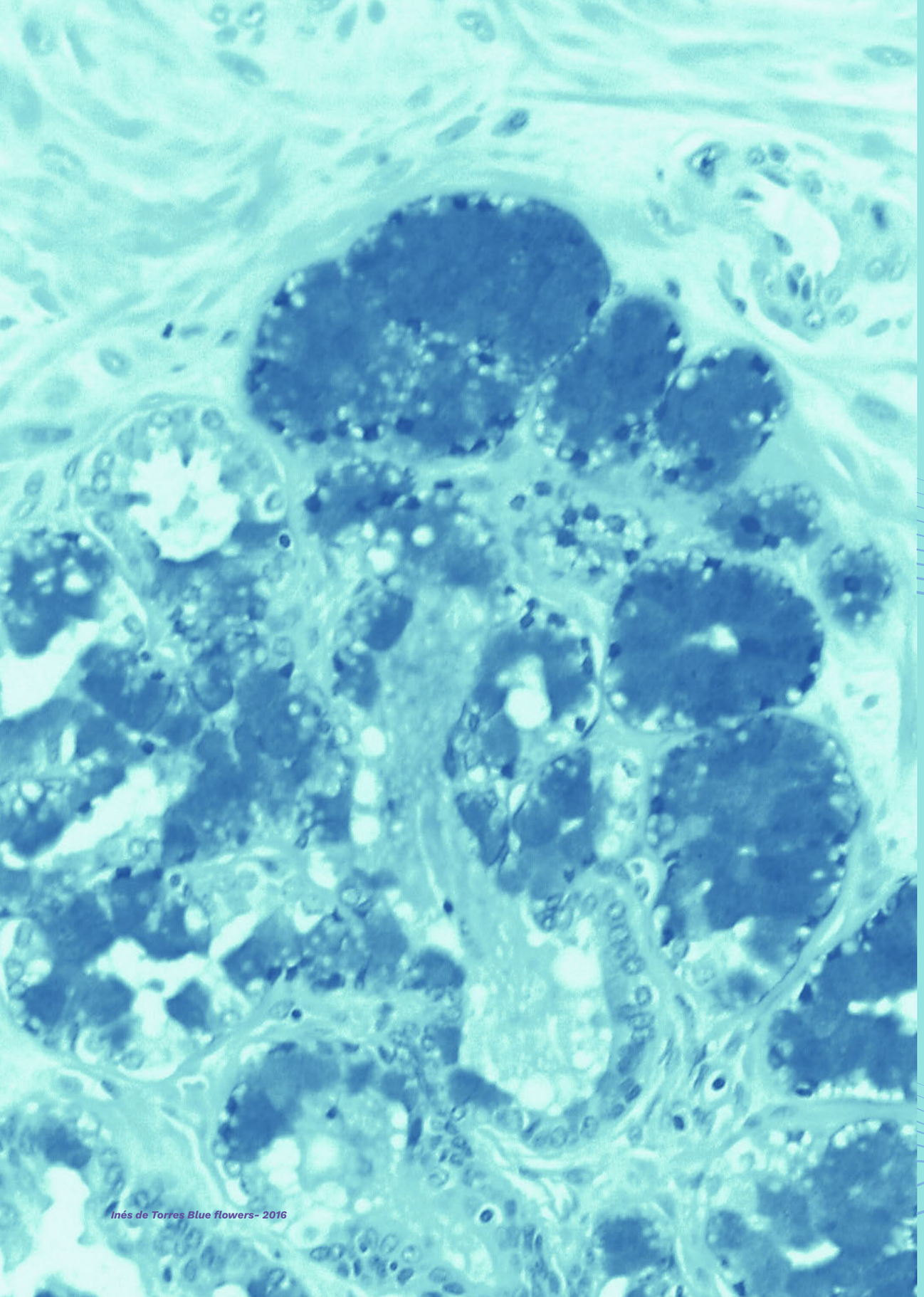
**The Swedish contribution is from Vinnova*

***Observer in EATRIS-ERIC (others are Members)*

contents

Lavinia Herea - Stored Blood Cellular Lesion Before Transfusion 2020

foreword



Inés de Torres Blue flowers- 2016

Joint Foreword from EATRIS Boards




Håkan Billig
Chair of Board of Governors

Claudia Faria
Chair of Board of National Directors

Anton Ussi
Operations & Finance Director

Toni Andreu
Scientific Director

Dear reader,

Looking back at another year that has flown by in the blink of an eye, we can once again be very proud of the tireless efforts and prodigious outputs of the EATRIS community. In our view, the key word to sum up 2022 would have to be 'ecosystems.' From being a professional service provider supporting European biomedical research and innovation for enhancing today's ecosystem, to toiling in the rich fields of our future prosperity through an expanding education portfolio and goal-directed engagement of key policy stakeholders, it is edifying to have the opportunity to contribute to better health by working hand in hand with our peers. Here is a short selection of the highlights of our year.

In 2022, EATRIS further consolidated its position within the translational research ecosystem by continuing to support a wide range of requests from academia and from industry and participating in many European projects. Moreover, 2022 was a year of growth for EATRIS, during which we built upon relationships, partnerships and collaborations with patient organisations, with researchers, with healthcare institutions, with other Research Infrastructures, with industry and with regulators.

A key strategic priority of EATRIS is to support and develop patient engagement and a genuine patient-centred approach in translational research. Pioneering work has taken place to address this priority, and 2022 saw the EATRIS-Plus Patient Engagement task force established and work commenced to build the Patient Engagement Resource Centre (launched in March 2023), a platform designed to help researchers better engage patients in their research, enabling much greater and more productive involvement of patients in translational research.

Five new Horizon Europe projects were funded with EATRIS involvement – REMEDi4ALL, canSERV, EDITSCD, EOSC4Cancer and HEAL. EATRIS took the lead in establishing the REMEDi4ALL consortium, a multidisciplinary initiative addressing all areas of drug repurposing. This ambitious project is enabling a research ecosystem for quicker and cheaper development of and broader access to repurposed medicines, which offers huge benefits to patient well-being.

April saw the formal launch of EU-AMRI, the European Alliance of Medical Research Infrastructures, of which EATRIS is a vital pillar, along with BBMRI and ECRIN. Even before its formal launch, this alliance served a key role in combining forces to facilitate research, strategy and policy recommendations at the European level to address the COVID-19 pandemic. The leveraging of complementarities within this joint initiative will only further in the years ahead especially as we enter a new normal and the grip of COVID-19 fades away.

A key aspect of translational medicine is fostering fruitful engagement with regulators, and EATRIS continued to work with the EMA, joining forces with the agency and the European Joint Programme on Rare Diseases (EJP RD) to develop a tutorial for academic medicines developers, in addition to working together on delivering webinars and training. The ADVANCE project concluded in December that delivered a blended learning programme to support 4000 early-career biomedical scientists in developing currently missing scientific knowledge, transversal skills and competences to meet the key challenge areas in ATMP.

The EATRIS Quality Initiative continued to be developed this year, making concrete steps to address reproducibility of research, best practices, technical benchmarking and quality metrics and standards. In 2022, EATRIS launched a pilot of the EATRIS Certificate of Commitment to Quality (ECCQ), with the aim of developing this certification into a tool to improve and assure scientific and research excellence.

As EATRIS maximises its potential and impact by fostering external relationships, the core of the infrastructure itself is the internal strong cooperation between countries, nodes and institutes, and these parties continue to strengthen and develop the internal cooperation and community. As this year has shown, with innovation, cooperation and continued determination, EATRIS is playing a vital role in transforming the European translational research ecosystem for the benefit of all patients.

Håkan Billig, Chair of Board of Governors
Claudia Faria, Chair of Board of National Directors
Anton Ussi, Operations & Finance Director
Toni Andreu, Scientific Director

highlights

Timeline of key moments in 2022

JAN

- 5 new projects funded with EATRIS involvement: REMEDi4ALL, CanSERV, EDITSCD, EOSC4 Cancer and HEAL
- EATRIS-Plus Staff Exchange Programme launches

FEB

- EATRIS launches task force on patient engagement in translational research as part of EATRIS-Plus

MAR

- EATRIS is presented at the 20th anniversary conference of ESFRI in the context of RIs working with industry
- EU-AMRI is formally launched in Brussels
- EATRIS hosts session at the Patient Engagement Open Forum on “Making Meaningful Patient Engagement In Translational Research The New Normal”
- EATRIS welcomes Dr Maria Themeli as new ATMP Platform Co-Chair

APR

- 3 day EATRIS-Plus Summer School in Personalised Medicine held at Infarmed, Portugal with 40 participants
- EATRIS partners with the Advanced Therapies Congress in London with over 1,500 attendees from the ATMP industry

MAY

- EATRIS joins forces with the European Medicines Agency (EMA) and ADVANCE programme for a webinar with expert ATMP developers
- The ADVANCE ATMP Summer School takes place in Rome

JUN

- EATRIS-Plus workshop takes place in Slovenia on “Building strong partnerships between industry and academia”
- EATRIS is a partner in the canSERV project that launches to provide the latest cancer research services to Europe
- Claudia Maria Coelho de Faria renewed as Chair of EATRIS Board of National Directors
- EATRIS, EMA and EJP RD join forces to develop tutorial for academic medicines developers
- EATRIS 360 degree workshop held for National Coordinators to exchange best practice and train each other in all areas of EATRIS

JUL

- EATRIS publishes reaction to European Commission proposed Regulation on the European Health Data Space

AUG

- “My Career in Translational Research” interview series published with partners of the Translation Together global collaboration
- EATRIS works with the European Patients’ Academy on Therapeutic Innovation (EUPATI) to co-author an article on translational medicines which is now part of their Toolbox

SEP

- REMEDi4ALL launches to drive forward medicines repurposing. EATRIS is leading the project involving 24 world-class organisations

OCT

- EU-AMRI hosts side event at ICRI about finding synergies between Research Infrastructures
- The ERIC Forum publishes a Policy Brief about the socio-economic impact of ERICs, including EATRIS as a case study
- EATRIS publishes its Gender Equality Plan that addresses the 5 action areas of gender equality recommended by the European Commission

NOV

- EATRIS speaks at the EU Health Summit in Brussels to discuss what is needed for strengthening Europe’s health innovation ecosystem

DEC

- EATRIS signs agreement to maximise quality and impact of research and becomes CoARA member
- EATRIS was at the European Health Summit to launch the Rare Disease Moonshot - a new initiative to boost research & development into rare diseases
- The pilot EATRIS Certificate of Commitment to Quality was awarded to SciLifeLab in Sweden

2022 in numbers

EATRIS in Numbers

96
CITATIONS IN SCIENTIFIC PAPERS

31
EXPERT ADVICES PERFORMED

13
PROPOSALS SUBMITTED WITH EATRIS AS PARTNER

10
NEW PROJECTS GRANTED WITH EATRIS INVOLVED

117
SERVICE REQUESTS

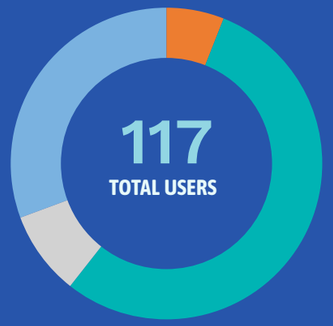
10
RESEARCH SERVICE REQUESTS HANDLED WITH BIOTECH COMPANIES

995
TRANSLATIONAL SCIENTISTS

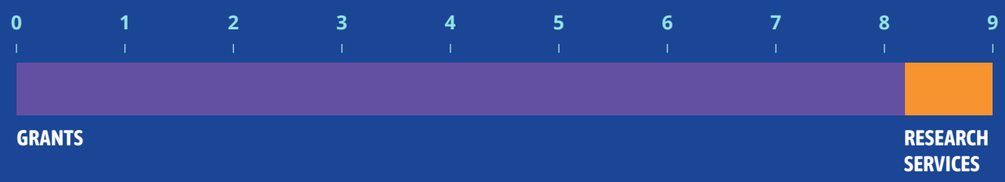
1
PUBLIC-PRIVATE PARTNERSHIP HUB WITH A PHARMA COMPANY

145
INSTITUTIONS OF WHICH OVER HALF ARE UNIVERSITY MEDICAL CENTRES

EATRIS Users



Overview funding granted in 2022 € million



EATRIS Online

985 hrs+
WATCHTIME ON YOUTUBE

5,222,155
WEBSITE IMPRESSIONS ON GOOGLE

Social Media

2,254
FOLLOWERS
556 TWEETS

3,153
CONNECTIONS
548 POSTS

197
FOLLOWERS
539 POSTS

399
SUBSCRIBERS
63 VIDEOS

Participation in EATRIS Events

EDUCATION & TRAINING EVENTS **2,621**

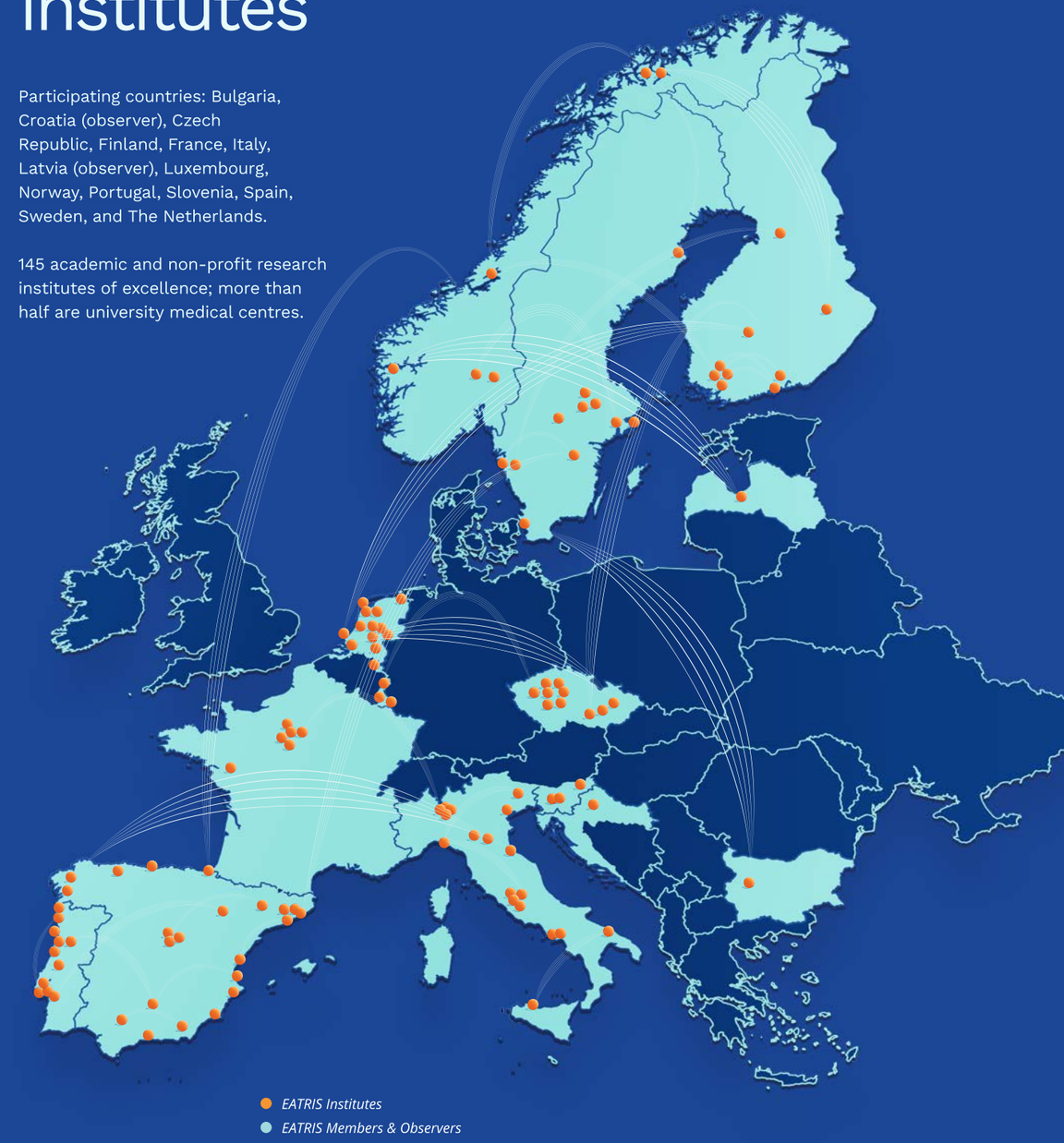
EATRIS-PLUS SUMMER SCHOOL **39**

infra-structure

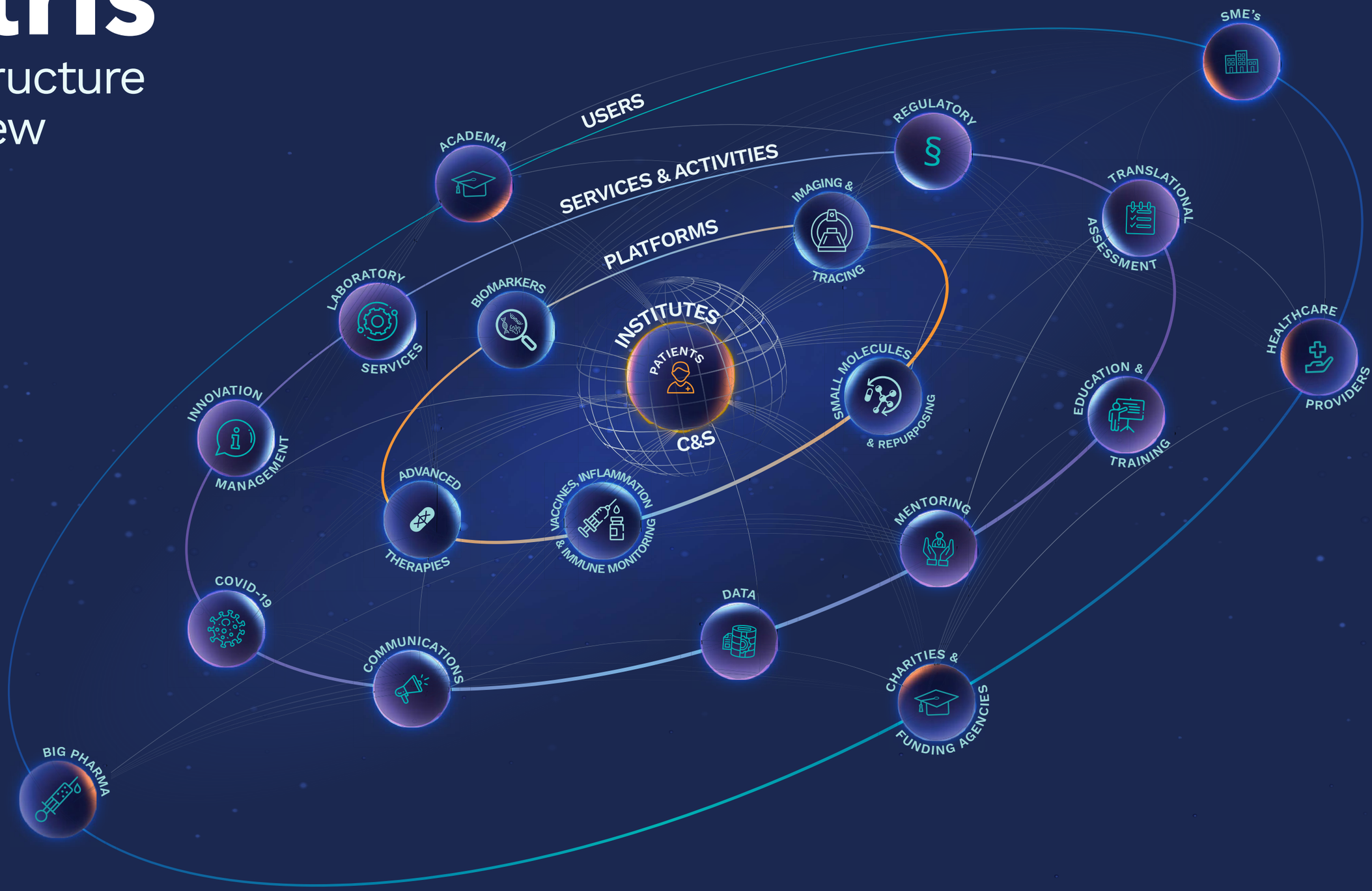
Map of Participating Countries and Institutes

Participating countries: Bulgaria, Croatia (observer), Czech Republic, Finland, France, Italy, Latvia (observer), Luxembourg, Norway, Portugal, Slovenia, Spain, Sweden, and The Netherlands.

145 academic and non-profit research institutes of excellence; more than half are university medical centres.



eatris
Infrastructure Overview



eatris Infrastructure

updates from members and observers

Bulgaria

National node priorities were focused on building stable links between the infrastructure complexes of NRRI and the broad scientific community. Implementation of the Roadmap and the sustainable development of the RI is subject to constant national and international monitoring and evaluation. Significant efforts were directed to negotiate collaborations and create professional synergies in areas such as pluripotent stem cells, oncology, basic and clinical immunology, molecular bioinformatics, data analysis and sharing. The focus was set on harmonisation of research goals in response to translational medicine demands and joint activities in areas of interest in accordance with national and European policies. Through EATRIS-ERIC it was possible to map data needs of researchers in the digital transformation of translational medicine and to increase the participation of the Bulgarian scientific community and business in the new Horizon Europe framework programme. EATRIS Bulgaria organised a National Node Capacity Building Workshop. The new ISIDORe and canSERV projects to support scientists in the development of vaccines and new anti-tumour therapies were presented by the Senior Scientific Programme Manager of the Platform for ATMPs and Vaccines, David Morrow. Education and training of new young staff in specialised areas through hands-on training, mobility, online resources and others were realised through EATRIS-ERIC scaled services.

Board of Governors representative

Yanita Zherkova
Bulgarian Ministry of Education and Science

National Director

Rossitza Konakchieva
Sofia University

National Coordinator

Georgi Georgiev
Sofia University

EATRIS in Bulgaria consists of 2 institutes:

- **National Center of Infectious and Parasitic Diseases (NCIPD)**
- **Sofia University**

EATRIS Bulgaria took part in 5 education and training activities in 2022 involving 6 participants.

EATRIS Bulgaria is involved in the following ongoing projects:

- **EATRIS-Plus**
- **Haplo-IPS - COST Action CA21151**

Croatia

UZSM, as a coordinating institution, and EATRIS, as a partner, submitted in February the Horizon Europe proposal (1st stage) Smart-PASS regarding computational models for new patient stratification strategies. UZSM organised an EATRIS event on 9 and 10 June 2022 with the aim of bringing together representatives of EATRIS and national research institutions in order to discuss the conditions and benefits of full membership, as well as concrete steps in the forming of a national consortium. National Event was attended by full Executive Board (Operations and Finance Director and Scientific Director) together with other representatives of EATRIS (Scientific and SME Outreach Manager and Senior Legal Counsel). As a follow-up action after National event, UZSM held a meeting with the Strategic Committee for Research Infrastructures at the Ministry of Science and Education in Croatia to justify the financing of the full membership fee in EATRIS ERIC. UZSM and EATRIS on 6 and 7 October 2022 organised in Zagreb a workshop, Application of AI in improving patient treatment strategies in which representatives from other nodes participated.

Board of Governors representative

Jelena Ilić-Dreven
Croatian Ministry of Science and Education

National Director

Fran Borovečki
University of Zagreb

EATRIS Croatia was involved in the EATRIS-Plus project.

EATRIS Croatia is an observer country coordinated by the University of Zagreb School of Medicine (UZSM/ZSM).

EATRIS Croatia took part in 5 education and training activities in 2022 involving 20 participants.

Czech Republic

EATRIS-CZ has had another successful year, providing open access to all five scientific platforms for both national and international users. We are proud to have continued our collaboration with Innsbruck Medical University on the phase I clinical trial for 68Ga-desferoxamine as a tracer for imaging bacterial infections. We continued existing clinical trials, recruiting more individuals, mapping Czech multiome, where we have provided biological materials, data and data management support for EATRIS institutions as part of the EATRIS- Plus project.

EATRIS-CZ has also been involved in clinical trials, including the mapping of the Czech multiome and completing whole genome sequencing for 1200 individuals. We have made strides in proteomic and metabolomic profiling of human samples and developed proprietary software to monitor RI use and manage data.

In response to the COVID-19 pandemic, EATRIS-CZ has supported the Czech government in various ways, including large-scale clinical trials for seroprevalence and cellular immunity evaluation. These efforts have contributed to the release of preventive anti-epidemic measures in the Czech Republic.

We have also secured international grants and received new projects, which will help us build further capabilities and deliver innovative scientific tools to support the RI's long-term sustainability. Our infrastructure continues to train undergraduate and postgraduate students and young researchers, and we have submitted a doctoral study programme in Molecular and Translational Medicine.

To increase the visibility of EATRIS-CZ, we launched the 'Mendel-Zirm lecture series', which has featured internationally recognised researchers. In terms of quality assurance, IMTM are proud to have passed re-accreditation in ISO17025 and ISO15189 and received the certificate of GLP for animal toxicology and the ICRC received GMP certificate for manufacturing of cell therapies.

Overall, we are excited about the progress EATRIS-CZ has made in 2022, and are looking forward to continuing to provide cutting-edge services to our users in the coming years.

Board of Governors representative

Marta Vandrovcová
Czech Academy of Sciences

National Director

Marián Hajdúch
Palacky University, Institute of Molecular and Translational Medicine (IMTM)

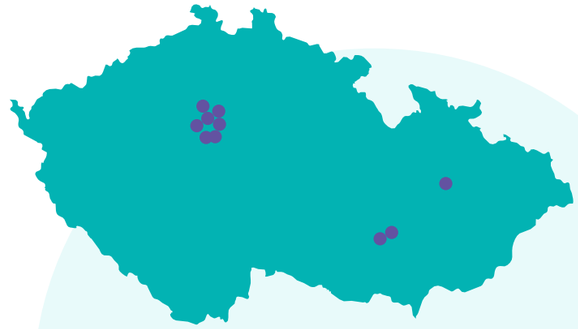
EATRIS Czech Republic took part in 7 education and training activities in 2022 involving 187 participants.

EATRIS Czech Republic consists of 11 institutes:

- Central European Institute of Technologies (CEITEC)
- Charles University
- Institute of Chemical Technologies Prague
- Institute of Experimental Medicine CAS
- Institute of Macromolecular Chemistry Prague (IMC CAS)
- Institute of microbiology of the CAS, v.v.i
- Institute of Organic Chemistry and Biochemistry, Czech Academy of Sciences
- Masaryk University
- Nuclear Physics Institute of the CAS/UJF, v. v. i.
- Palacky University - Institute of Molecular and Translational Medicine (IMTM)
- St. Anne's University Hospital Brno

EATRIS Czech Republic is involved in the following ongoing projects:

- EATRIS-Plus
- EOSC-Life
- TRANSVAC2
- canSERV
- EOSC4Cancer



Finland

Key activities have been focused on virus vector manufacturing and production of cell therapy products, PET imaging and new ligand synthesis, genomic and single-cell sequencing, biomarker search and preclinical safety and toxicology experiments of the ATMP products. Several contacts with industry were made during 2022 resulting in a number of industry projects.

Additional efforts took place under the EU-funded REMEDi4ALL project with Finland responsible for providing a sustainable catalogue of open-source AI tools and open-access datasets for supporting user-driven in silico discovery and repurposing applications.

Currently, EATRIS Finland is exploring closer relations to Nordic translational research and clinical trial organisations in order to form a collaborative network in the area of ATMP and drug development in the Nordic countries. These activities are explored together with EATRIS-Sweden and EATRIS-Norway with the aim of creating a Nordic EATRIS Alliance.

Internationally, EATRIS Finland is the leader of the EATRIS Quality Initiative that currently combines six projects across three continents with the goal of developing technological and biological standards, which are made available to researchers via publications and training.

Board of Governors representative

Sirpa Nuotio
Finnish Ministry of Education and Culture

National Director

Seppo Ylä-Herttuala
A.I.Virtanen Institute, University of Eastern Finland

EATRIS Finland was involved in the following funding proposals in 2022:

- **iRISE**
- **REMEDi4ALL**

EATRIS Finland took part in 8 education and training activities in 2022 involving 25 participants.

EATRIS in Finland consists of 10 institutes:

- **University of Turku Central Animal Laboratory (UTUCAL)**
- **Finnish Red Cross Blood Service**
- **Institute for Molecular Medicine Finland (FIMM)**
- **University of Tampere Regea Cell and Tissue Center**
- **Turku Centre for Disease Modelling (TCDM, University of Turku)**
- **A.I. Virtanen Institute, University of Eastern Finland**
- **University of Helsinki**
- **University of Turku - Turku University Hospital**
- **VTT Technical Research Centre of Finland (VTT)**
- **Turku PET Centre (TPC, Turku University)**

EATRIS Finland was involved in the following ongoing projects:

- **EOSC-Life**
- **ISIDORe**
- **EATRIS-Plus**

France

NeurATRIS, the French node of EATRIS, is a national research infrastructure dedicated to translational research in neuroscience and in particular in neurodegenerative and neurodevelopmental diseases. NeurATRIS' activities are mainly focused on (i) strengthening the training and teaching support in the field of translational neurosciences, (ii) making available, in particular to academics, its platforms and competences, and (iii) supporting academic research through calls for projects that promote new collaborations between NeurATRIS members and the scientific community involved in neurodegenerative and neurodevelopmental diseases. In 2022, NeurATRIS activities resulted in:

- The reinforcement of NeurATRIS service offer, through the new radiochemistry platform (CEA-MIRCen) which provides molecular imaging services (PET radiotracers, data analysis and processing).
- An increased use of its high-tech platforms and expertise by new teams.
- The development of new methodological approaches and new applications to neurodegenerative and developmental diseases.
- The maintenance of the scientific vitality of the INBS, with 235 publications in journals of excellence.
- A dynamic partnership activity with the signature of several academic, clinical and private contracts (national, European, transatlantic).
- The resuming of the NeurATRIS days, gathering again the translational neuroscience community, after 2 years of delay.

Board of Governors representative

Eric Guittet
French Ministry of Higher Education, Research and Innovation

National Director

Philippe Hantraye
Neuratris - French Alternative Energies and Atomic Energy Commission (CEA)

National Coordinator

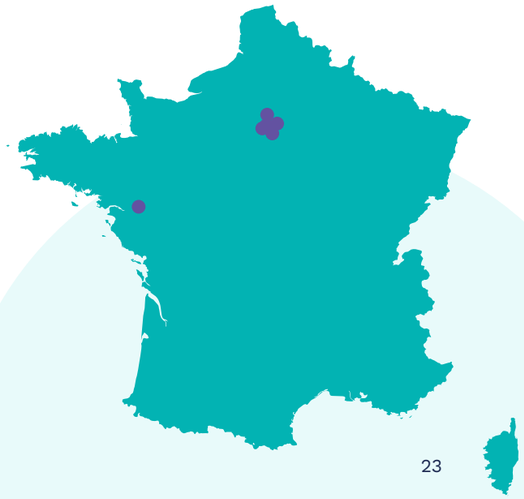
Emilie Hangen
Neuratris - French Alternative Energies and Atomic Energy Commission (CEA)

EATRIS France was involved in the EATRIS-Plus project in 2022.

EATRIS France took part in 14 education and training activities in 2022 involving 52 participants.

EATRIS in France consists of 7 institutes:

- **Bicêtre Hospital - N-BIPS**
- **CEA Paris-Saclay - MIRCen**
- **Evry University - I-Stem**
- **GHU Pitié Salpétrière - Paris Brain Institute**
- **Henri Mondor Hospital**
- **Oniris Nantes**
- **Robert Debré Hospital - Neurodiderot**



Italy

Participation in EATRIS has yielded excellent results for Italy in 2022. Italian institutes have participated in numerous projects promoted by the European infrastructure, resulting in funding of around €4 million in the past year. This positive trend is reflected in the increased activities and participation in projects over recent years.

We have been proactive in the field of education and training; carrying out training activities to develop translational skills at institutions involved in preclinical and clinical research both at the European and national levels. The ISS has organised several events over the year, including a dedicated day in November to showcase the visibility of the RI, their work and their benefits to both society and researchers.

A priority going forward is to increase collaboration and synergies between European Research Infrastructures within Italy. In May 2022, we organised a meeting entitled “The European Research Infrastructures BBMRI, EATRIS, ECRIN: Opportunities And Services Offered To Researchers”, which was attended by the ISS and the national nodes of the three European Research Infrastructures BBMRI.it, A_IATRIS and ItaCRIN. During the event, successful cases of collaboration between BBMRI, EATRIS, and ECRIN were illustrated, highlighting the relevance of their complementary collaboration, which contributed to winning important European projects. Given the success of this synergy, we are organising the course “Tools offered by BBMRI, EATRIS, ECRIN to support the construction and development of European projects” in 2023.

We are proud to be one of the few countries that are members of the three Research Infrastructures that form EU-AMRI. We have started working on national collaboration to develop the full potential of EU-AMRI within Italy, and we aim to extrapolate the results to other countries. The Italian node has begun to pave the way for deeper collaboration with other nodes by inviting representatives from the Portuguese, Spanish, and Norwegian nodes to meetings and promoting a joint workshop.

Finally, we are pleased to report that A_IATRIS has published several scientific articles in national and international journals. We look forward to building on these successes and achieving even greater accomplishments in the coming years.

Board of Governors representative

Maria Ferrantini
Istituto Superiore di Sanità (ISS)

National Director

Franca Moretti
Istituto Superiore di Sanità (ISS)

EATRIS Italy was involved in the following funding proposals in 2022:

- REMEDi4ALL

EATRIS Italy is also involved in the following ongoing projects:

- ADVANCE
- EOSC-Life
- EATRIS-Plus
- TRANSVAC2
- ISIDORe
- canSERV

EATRIS Italy took part in 13 education and training activities in 2022 involving 117 participants.

EATRIS in Italy consists of 25 institutes:

- Centro di Riferimento Oncologico di Aviano (CRO Aviano)
- Centro Medicina Rigenerativa (CMR)
- CNCCS - IRBM Science Park
- Fondazione IRCCS CRIBT
- Fondazione IRCCS Fondazione Pascale
- Fondazione IRCCS Giovanni Paolo II
- Fondazione IRCCS Istituto Nazionale dei Tumori (INT-Milan)
- Fondazione IRCCS Ospedale Pediatrico Bambino Gesù
- Fondazione IRCCS SDN per la Ricerca e l’Alta Formazione in Diagnostica Nucleare
- IDI-Fondazione IRCCS Luigi Maria Monti
- IRCCS Foundation Santa Lucia
- IRCCS Istituto Giannina Gaslini (IGG)
- IRCCS Istituto Ortopedico Galeazzi
- ISMETT
- Istituti Fisioterapici Ospitalieri - Istituto Dermatologico “San Gallicano”
- Istituti Fisioterapici Ospitalieri - Regina Elena Tumor research
- Istituto Romagnolo per lo Studio dei Tumori “Dino Amadori” (IRST) - IRCCS
- Istituto Superiore di Sanità (ISS)
- Mario Negri Institute for Pharmacological Research
- National Institute for Infectious Diseases Lazzaro Spallanzani
- Rizzoli Orthopedic Institute (IOR)
- Scientific Institute San Raffaele (HSR)
- Fondazione Policlinico Universitario A. Gemelli IRCCS
- IRCCS Istituto Giannina Gaslini (IGG)
- University Milano-Bicocca (UNIMIB)

Latvia

In 2022, EATRIS Latvia organised a number of informative and also thematic events by bringing together as many interested parties as possible who work or are close to the field of personalised medicine. To build the capacity and strengthen sustainability, we participated in events such as INTEGROMED seminar “Development of biobanks for next generation scientific needs and discoveries” and others. Webinar ‘Applying FAIR data principles in medical and health sciences’ was organised and the lecturer was Gary Saunders, EATRIS Data Director. Scientists’ breakfasts, seminars and workshops have been organised involving the Head of Programmes at the EPF as well as Coordinator of Network of Patient organisations; Chair of the Board, Latvian Alliance for Rare Diseases; Chair of the Board, Latvian Haemophilia Society and professors who are experts in the field in order to inform scientists about the opportunities to actively involve representatives of patient organisations in their research and project applications by learning about their urgent needs and expertise, as well as informing patient organisations about our research field. This is a very important exchange of information with a view to future project consortia and research impact. EATRIS-Plus project was presented in Precision Medicine Networking Forum.

Board of Governors representative

Uldis Berkis
Riga Stradins University

National Director

Liene Nikitina-Zake
Riga Stradins University

EATRIS Latvia is an observer country coordinated by Riga Stradins University.

EATRIS Latvia was involved in the EATRIS-Plus project.

EATRIS Latvia took part in 3 education and training activities in 2022 involving 7 participants.

Luxembourg

In 2022, the Luxembourg node focused on the completion and full exploitation of running projects. The node research activities put the patient at the centre and aim to fully embrace the current paradigm shift in biomedical research, driven by the widespread adoption of disruptive technologies such as big data, artificial intelligence and machine learning. The Clinnova initiative, approved in 2022, is notably seeking to develop a strategy for the establishment and the development of a new 'Centre of Excellence in Digital Health and Personalised Healthcare'. The Luxembourg research expertise spans a wide range of disease areas (e.g. cancer, immunological disorders, Parkinson's disease, COVID-19 infectious diseases) to provide concrete preventative, diagnostic, and therapeutic solutions applicable in a bed-to-bench-to-bed approach. In this context, the Translational Medicine Operations Hub (TMOH) ensures full research support from the operational planning of the study to their execution and closure via the collection, processing, storage and analysis of high-quality biological samples and structured clinical data, as fully described in the 2022 EATRIS Luxembourg stakeholder meeting. Luxembourg's collaborative spirit and research landscape enabled the node to build on 2021 achievements and ongoing projects to fully flourish, while simultaneously providing an established environment for training and new projects.

Board of Governors representative

Jean-Claude Milmeister
Luxembourg Ministry of Higher Education and Research

National Director

Frank Glod
Luxembourg Institute of Health

National Coordinator

Catherine Nannan
Luxembourg Institute of Health

EATRIS Luxembourg is involved in the following ongoing projects:

- **EATRIS-Plus**
- **TRANSVAC2**
- **canSERV**

EATRIS in Luxembourg consists of 3 institutes:

- **Integrated Biobank of Luxembourg (IBBL, LIH)**
- **Luxembourg Institute of Health**
- **Luxembourg Center of System Biomedicine**

EATRIS Luxembourg took part in 4 education and training activities in 2022 involving 10 participants.

Norway

EATRIS Norway has focused on membership renewal by distributing information about EATRIS opportunities to academy, industry, and other stakeholders, as well as by engaging Norwegian researchers in joint EATRIS funding applications and consortia. The national coordinator has performed outreach by presenting to health clusters, local scientists, at research leaders forum, and to external funding offices at universities. Norway has benefited from the EATRIS staff exchange programme and EATRIS community building services both for EU and national funding applications. As a result, Oslo University Hospital and the Universities of Oslo and Bergen have joined several consortia, such as Platform dementia (EPND), COST action, ISIDORe and canSERV. EATRIS Norway is active in the rare disease arena, involved in European Joint Program on Rare Diseases (H2020) and the preparation of the MOOC on Translational Medicine for Rare diseases. EATRIS Norway organised a Nordic EATRIS strategy meeting in Oslo resulting in identification of ATMPs, particularly advanced cell therapies, and data-driven health research as joint focus areas. Following, a Nordic EATRIS ATMP meeting will be organised in Uppsala in May 2023. EATRIS Norway has also initiated strengthening of interactions with the Nordic BBMRI, NorECRIN (EU-AMRI alliance) and ELIXIR networks, resulting in scheduling of several ESFRI information events in Spring 2023.

Board of Governors representative

Marianne Grønsleth
Norwegian Research Council

National Director

Janna Saarela
University of Oslo

National Coordinator

Anita Kavlie
University of Oslo

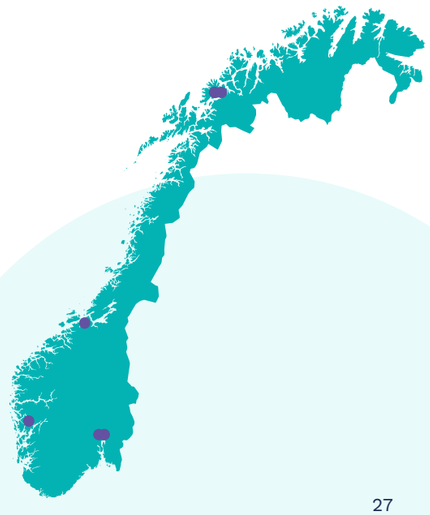
EATRIS Norway is involved in the following ongoing projects:

- **EJP RD**
- **PERMIT**
- **EATRIS-Plus**
- **ISIDORe**
- **canSERV**

EATRIS Norway took part in 14 education and training activities in 2022 involving 36 participants.

EATRIS in Norway consists of 7 institutes:

- **Haukeland University Hospital**
- **University of Bergen (UiB)**
- **Hospital North Norway (UNN)**
- **University of TROMSØ (UiT)**
- **Norwegian University of Science and Technology (NTNU)**
- **University of Oslo (UiO)**
- **Oslo University Hospital (OUH)**



Portugal

In 2022, EATRIS Portugal continued its activities in alignment with the main strategic objectives of EATRIS. The National Hub now includes 16 specialised centres that have joined the 5 EATRIS Platforms, with Infarmed as the coordinating institution. A further two new entities are in the process of joining EATRIS-PT. In May 2022, the second edition of the Summer School in Personalised Medicine was organised as part of the EATRIS-Plus project. The Summer School was held in Lisbon in May, and was organised by the project partner Infarmed in collaboration with the University of Ljubljana and EATRIS C&S. The Summer School curriculum addressed key topics linked to the full spectrum of biomarkers in Personalised Medicine including omics-based strategies, economic and regulatory aspects, clinical implementation, biomarkers in diseases, digital biomarkers and digital health data, artificial intelligence, and patient engagement. The event was well attended with 38 participants and 22 speakers and moderators from 10 different European countries. Feedback from the Summer School was overwhelmingly positive with 34 answers to the survey (89% of total participants) giving an average score of 4.26 to the course, while the organisation of the course was rated at 4.38 out of 5. EATRIS-PT organised two national meetings in 2022, the first in April and the second in December. All institutions that are members of EATRIS-PT were present at the meetings, as well as research and academic entities. The goal was to share the achievements of each institution through EATRIS and also to create synergies. The EATRIS-PT activities and initiatives were disseminated through newsletters and social media channels. Finally, the EATRIS Portuguese Node was rewarded for its activities contributing to strengthen the European infrastructure in the previous year.

Board of Governors representative

Rui Santos Ivo
Portuguese National Authority of Medicines and Health Products (INFARMED)

National Director

Claudia Maria Coelho de Faria
University of Lisbon

National Coordinator

Helena Baião
Portuguese National Authority of Medicines and Health Products (INFARMED)

EATRIS Portugal is involved in the following ongoing projects:

- ISIDORe
- canSERV
- EATRIS-Plus

EATRIS Portugal took part in 15 education and training activities in 2022 involving 64 participants.

EATRIS in Portugal consists of 16 institutes:

- 3B's Research group, University of Minho
- Association for Innovation and Biomedical Research on Light and Image (AIBILI)
- Centro Hospitalar Universitário de Coimbr
- Center for Neuroscience and Cell Biology; Coimbra University Hospital
- Champalimaud Foundation
- Coimbra Institute for Biomedical Imaging and Translational Research (CIBIT)
- Institute for Bioengineering and Biosciences - Stem Cell Engineering Research Group (iBB - SCERG)
- Institute of Biomedicine (IBIMED)
- Instituto de Biologia Experimental e Tecnológica (IBET)
- Instituto de Investigação e Inovação em Saúde (i3S
- Instituto de Medicina Molecular João Lobo Antunes (IMM)
- Instituto Português de Oncologia do Porto Francisco Gentil (IPO-Porto)
- Life and Health Sciences Research Institute / Clinical Academic Centre - Braga
- NOVA Medical School, UNIVERSIDADE NOVA de Lisboa (NMS, NOVA)
- University of Beira Interior, Health Sciences Research Center (CICS-UBI)
- VectorB2B

Slovenia

In 2022, EATRIS Slovenia was most actively involved in ADVANCE and the EATRIS-Plus project, especially by offering training courses. It co-organised ADVANCE Summer School 2022 and was the main organiser of the EATRIS-Plus workshop on public-private collaboration. Both training activities were highly rated and led to further collaborations, e.g. with Riga. We also participated in the preparation of project proposals (REMEDi4ALL and SYPMATIC), both of which were approved by the EU. With the aim of maintaining the ATMP development summer school, we coordinated and submitted a national project proposal (NOO-ULTRA). Members of UL FFA participated in national and international conferences enhancing outreach of EATRIS. However, EATRIS communication and outreach was strongest through the organisation of the two events mentioned above, where several EATRIS promotional materials and presentations were prepared and sent out. The public-private collaboration workshop opened important (new) connections with industry (Novartis, Educell, Galecto). EATRIS was also presented at one of the largest educational events for the pharmaceutical industry organised by Novartis Slovenia (Biocamp). UM MF who is a member of EATRIS Slovenia offered its services through one of the EATRIS platforms. At the end of 2022, another institution was added to the Slovenian node: the Department of Nuclear Medicine of UMC Ljubljana, which joined the Imaging and Tracing Platform. Three publications have been published mentioning EATRIS Slovenia (RI-SI EATRIS): Avsec et al, 2022, Cell death & disease; Markovič et al, 2022, International journal of molecular sciences; Slavec et al, 2022, Scientific Reports. The research infrastructure, which was built in 2019-2021 within the project RI-SI EATRIS, enabled research work on several master's and PhD theses.

Board of Governors representative

Albin Kralj
Ministry of Higher Education, Science and Innovation (MVZI)

National Director

IrenaMlinarič-Raščan
University of Ljubljana

National Coordinator

Dunja Urbančič
University of Ljubljana

EATRIS Slovenia was involved in the following funding proposals in 2022:

- REMEDi4ALL
- SIMPHATIC

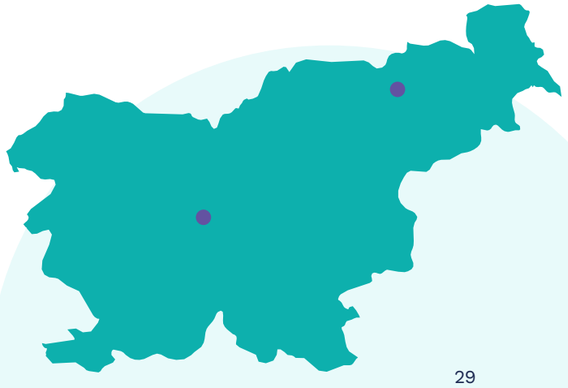
EATRIS Slovenia is also involved in the following ongoing projects:

- ADVANCE
- EATRIS-Plus

EATRIS Slovenia took part in 14 education and training activities in 2022 involving 40 participants.

EATRIS in Slovenia consists of 3 institutes:

- Maribor University
- University of Ljubljana, Faculty of Pharmacy
- University Medical Center Ljubljana, Department of Nuclear Medicine



Spain

In 2022, the Spanish node focused on developing its national governance structure to promote more efficient participation. To achieve this, the Spanish node established an organisational structure similar to that of EATRIS. This structure included a Scientific Committee who advised the Governor and National Director and helped establish priorities for the node. The node also developed mirrors of EATRIS Platforms to coordinate the capacities of the 34 EATRIS-ES institutes and their participation in the five EATRIS Platforms. To better support this volume, the governance structure was expanded to include ten researchers in the Scientific Committee and a co-chair for the mirrors of the Platforms. The Scientific Committee met regularly to work on strategic planning, while the mirrors of the Platforms had more operational meetings. The Spanish node also prioritised increasing patient engagement in research and participated in the Patient Engagement Open Forum (PEOF) to build capacity and relationships with key stakeholders. The Spanish node also worked to increase collaboration and synergies between European research infrastructures in Spain by organising meetings and events to report activity and establish connections. The Spanish node has also begun deepening its collaboration with other nodes, including those of ECRIN and OpenScreen to set a communication channel and to explore future collaborations. Furthermore, Spain is one of the few countries that is a member of the three Research Infrastructures that form EU-AMRI and has started to work on a national collaboration to develop all the potential of EU-AMRI within Spain, and being able to extrapolate the results to the rest of the countries. Finally, Spain hosted a successful and productive Spring meeting of EATRIS in May in Málaga.

Board of Governors representative

Pilar Gayoso
Instituto de Salud Carlos III (ISCIII)

National Director

Laura Garcia Bermejo
Instituto Ramón y Cajal (IRYCIS)

EATRIS Spain was involved in the following funding proposals in 2022:

- TRUSTroke
- REMEDi4ALL

EATRIS Spain is involved in the following ongoing projects:

- EJP RD
- EATRIS-Plus
- EOSC-Life
- EU-PEARL
- ISIDORe
- canSERV

EATRIS Spain took part in 17 education and training activities in 2022 involving 122 participants.

EATRIS in Spain consists of 29 institutes:

- August Pi i Sunyer Biomedical Research institute (IDIBAPS)
- Bellvitge Biomedical Research Institute (IDIBELL)
- BioDonostia Health Research Institute
- FIBICO, Foundation for Biomedical Research of Cordoba (IMIBIC)
- Fundacion Jimenez Diaz Institute for Medical Research (IIS-FJD)
- Germans Trias i Pujol Foundation (IGTP)
- Health Research Institute of Santiago de Compostela (IDIS)
- Hospital Clinico San Carlos (IdISSC)
- Hospital de la Santa Creu i San Pau (IR-HSCSP)
- Hospital La Fe (IIS-La Fe)
- Hospital La Paz Institute for Health Research (IdiPAZ)
- Malaga Health Research Institute (IBIMA)
- INCLIVA
- Institute of Biomedicine of Seville (IBIS)
- Instituto Ramón y Cajal (IRYCIS)
- University Hospital La Princesa (IIS-IP)
- Vall d'Hebron Research Institute (VHIR)
- Biomedical Research Institute of Murcia (IMIB)
- Instituto de Investigación Biosanitaria (IBS GRANADA)
- INSTITUT HOSPITAL DEL MAR D'INVESTIGACIONS MÈDIQUES (IMIM)
- Instituto de Investigación Marqués de Valdecilla (IDIVAL)
- Institut de Recerca Biomèdica de Lleida Fundació Dr. Pifarré (IRBLLEIDA)
- Instituto de Investigación Sanitaria Aragón (IISAragon)
- IdISBa
- IDIPHISA
- ISPA
- NIBIC
- i+12 institute
- ISABIAL

Sweden

Sweden has, for the past seven years, been a member of EATRIS. This year, the node has secured financing (2022-2024) for the Swedish membership as well as the Swedish node from Vinnova (Swedish Governmental Agency for Innovation Systems). An important role for the node is to function as a bridge between academia and industry in Swedish life science and to be a facilitator of Swedish research infrastructure on a national and international arena. A communicator has been recruited to support the Swedish node to broadly reach out and inform about the research infrastructure and expertise available within the consortium. A long-term communication plan has been set up and specific outreach materials for the node have been produced. The effort has been very successful and several new collaborations have been initiated with the Swedish community. Throughout the year, the coordinator visited science parks, business parks, Nordic Life Science Days, incubators, the Nordic Precision Medicine Forum and established contacts with new research infrastructures (RISE, MaxIV and ATMP-Sweden). The node organised a training activity on the topic of "*How to translate research into a product for the market*". Attendees were guided through the regulatory landscape and offered one-to-one meetings with experts to discuss their regulatory strategy. We strengthened the Nordic collaboration with Norway and Finland to give an increased opportunity to promote Nordic research of excellence and infrastructure to initiate new cross-border projects as well as improve participation of the Nordics in EATRIS activities. The GSK Imaging Hub, coordinated through EATRIS, is in its 5th year of operation and is developing novel PET ligands, MRI techniques, and optical imaging as inflammation markers with the involvement of six EATRIS institutes, including Uppsala University and Uppsala University Hospital. Finally, the SciLifeLab National Genomics Infrastructure (in the SNP&SEQ Technology Platform) was the inagural recipient of the EATRIS Commitment to Quality Certificate in recognition of demonstrated commitment to scientific quality and rigor.

Board of Governors representative

Maria Nilsson
Swedish Research Council

National Director

Pontus Aspenström
Uppsala University

National Coordinator

Ulrika Bäckman
Uppsala University

EATRIS Sweden is involved in the following projects:

- canSERV
- EATRIS-Plus
- EOSC4Cancer

EATRIS in Sweden consists of 13 institutes:

- Chalmers University of Technology
- Swedish National Infrastructure for Biological Mass Spectrometry
- Karolinska Institute
- KTH Royal Institute of Technology
- Linköping University
- Lund University
- Stockholm University
- Testa Center
- Umeå University
- University of Gothenburg
- Uppsala University
- Uppsala Clinical Research Center
- Uppsala University Hospital

EATRIS Sweden took part in 5 education and training activities in 2022 involving 31 participants.

EATRIS Sweden was involved in the following funding proposals in 2022:

- REMEDi4ALL

The Netherlands

In 2022, Health-RI made progress towards creating an integrated national infrastructure for health research and innovation. As the Dutch EATRIS node, Health-RI achieved the following key results:

1. Secured €69M government funding (2022-2028) to establish the Health-RI organisation.
2. Converged Dutch nodes of EATRIS, BBMRI, and ELIXIR into one team for more efficient collaboration.
3. Created a new position for an official National Coordinator for EATRIS-NL in conjunction with BBMRI-NL and ELIXIR-NL, to be filled in Q1 2023.
4. Conducted a nationwide analysis of obstacles to sharing health data and identified measures to remove them.

FAST, commissioned by the Dutch government, works with Health-RI and EATRIS to support therapy development. Highlights from FAST's achievements include:

1. Conducting a feasibility study with the Regulatory Science Network Netherlands to build regulatory support services.
2. Developing a roadmap for therapies for rare diseases and conducting projects on drug repurposing with Medicines for Society.
3. Facilitating the creation of a national consortium for post-academic education on drug development.

Additionally, three new projects (BioTechBooster, OncodePACT and PharmaNL) received funding from the National Growth Fund in 2022 and will begin in 2023 to boost public-private translational research and development in the Life Science and Health field. The GSK Imaging Hub, coordinated through EATRIS, is in its fifth year of operation and is developing novel PET ligands, MRI techniques, and optical imaging as inflammation markers with the involvement of six EATRIS institutes.

Board of Governors representative

Saco de Visser
ZonMw

National Director

Gerrit Meijer
Netherlands Cancer Institute (NKI)

EATRIS Netherlands was involved in the REMEDi4ALL funding proposal in 2022.

EATRIS Netherlands took part in 16 education and training activities in 2022 involving 123 participants.

EATRIS in the Netherlands consists of 15 institutes:

- **Amsterdam UMC - Academic Medical Centre (AMC)**
- **Amsterdam UMC - VU Medical Center (Vumc)**
- **Biomedical Primate Research Centre (BPRC)**
- **Erasmus University Medical Centre**
- **Intravacc**
- **Leiden University Medical Centre (LUMC)**
- **Maastricht University Medical Center (MUMC)**
- **Netherlands Cancer Institute**
- **TNO**
- **University Medical Center St Radboud (UMCN)**
- **University Medical Center Utrecht (UMCU)**
- **University Medical Centre Groningen (UMCG)**
- **University of Technology Eindhoven (TU/e)**
- **Wageningen Bioveterinary Research**
- **Radboudumc**

EATRIS Netherlands is involved in the following ongoing projects:

- **EATRIS-Plus**
- **EOSC-Life**
- **ADVANCE**
- **BY-COVID**
- **EOSC4Cancer**

Node Capacity Building

Isidre Munné Bertran - Owl you need is love

EATRIS-Plus is an infrastructure development project that aims to strengthen EATRIS' long-term capacities as translational accelerator for Personalised Medicine. Being a distributed Research Infrastructure, one of the most important mechanisms in ensuring our sustainability is reinforcing the Hub and Spoke model through capacity building of the national nodes. EATRIS-Plus, a 4-year H2020 project that kicked off in 2020, provides the relevant financial and knowledge support to all nodes for planning their long-term strategic development in accordance with the EATRIS Strategic Plan and in alignment with national priorities.

How do we ensure consistent growth?

An ambitious capacity-building programme for all 14 national nodes was launched from the beginning of the project. To date, six workshops have been held including topics such as cyber security, patient engagement and building communities through communication. Two face-to-face workshops took place in 2022. The first one in May with 34 participants was aimed to support the node development on a strategic level and involved National Coordinators and Directors as well as the Governors. The second workshop ran over 3 days in November and aimed to provide a full 360 degree overview of EATRIS operations and discussed strengthening the Hub and Spoke model. It was attended by coordinators and node staff members from 10 countries including a prospective member country Ireland.

In parallel with the workshops, the Staff Exchange Programme launched in 2022 with 9 visits and 14 visitors in the first year.

All EATRIS member Institutes are eligible to take part as visitors or hosts and countries participating in 2022 were Spain, Portugal, Luxembourg, Norway, Slovenia, Czech Republic and the Netherlands. In 2023, the participation of more nodes is especially encouraged.

To further mirror hub practices at the node level, a special IT platform was developed for National Coordinators (NCs) to foster seamless information exchange and for NCs to be able to utilise the same information as the hub in terms of accessing contact and project information. This will aid the NCs with matchmaking and communication with their communities.

While 2021 saw the Node Handbook being published to serve as a central guiding resource, in 2022 the Terms of Reference on Good Scientific Governance Principles for EATRIS National Consortium(s) (ToR) was developed and published as a result of the work conducted by a working group involving representatives from the Board of National Directors, and Governors, as well as National Coordinators. The aim of the ToR is to foster expansion and growth of EATRIS activities through the EATRIS Hub and Spoke model and to assure a more precise and more engaged role of National Directors and increase their capacity. ToR also aims to support and further describe the pivotal role of National Director and National Coordinator laying a foundation for successful future development.

Looking ahead

As part of EATRIS' expansion objectives, observer countries Latvia and Croatia maintained their efforts to become full members in 2023, and engagement with prospective member countries (Ireland and Germany) continued to be promising.

As we build on the translational medicine ecosystem in Europe, strengthening our national communities to sustain long term and steady growth has a key role. With a strong start in 2022 we will continue to support all nodes in developing and implementing their strategic plans over the course of 2023.

Institutions Overview

- Platform participation
- Platform participation new institutions in 2022

Name	ATMP	Biomarkers	Imaging & Tracing	Small Molecules	Vaccines
BULGARIA					
National Center of Infectious and Parasitic Diseases (NCIPD)					●
Sofia University		●		●	
CZECH REPUBLIC					
Central European Institute of Technologies (CEITEC)		●			
Charles University		●	●		
Institute of Chemical Technologies Prague				●	
Institute of Experimental Medicine AS CR	●				
Institute of Macromolecular Chemistry Prague (IMC ASCR)			●	●	
Institute of microbiology of the AS CR, v.v.i					●
Institute of Organic Chemistry and Biochemistry, Czech Academy of Sciences				●	
Masaryk University					
Nuclear Physics Institute of the ASCR/UJF, v. v. i.			●		
Palacký University - Institute of Molecular and Translational Medicine (IMTM)		●	●	●	
St. Anne's University Hospital Brno	●				
FINLAND					
Finnish Red Cross Blood Service	●	●			
University of Eastern Finland - National Virus Vector Laboratory (NVVL)	●				
University of Helsinki - Institute for Molecular Medicine Finland (FIMM)		●		●	
University of Tampere - Regea Cell and Tissue Center	●				
University of Turku and Turku University Hospital		●	●		
VTT Technical Research Centre of Finland (VTT)		●			
FRANCE					
Bicêtre Hospital - N-BIPS	●		●		
CEA Paris-Saclay - MIRCen	●	●	●	●	
Evry University - I-Stem	●	●			
GHU Pitié Salpétrière - Paris Brain Institute		●	●	●	
Henri Mondor Hospital	●		●	●	
Oniris Nantes	●	●			
Robert Debré Hospital - Neurodiderot			●		
ITALY					
Centro di Riferimento Oncologico di Aviano (CRO Aviano)	●	●			
Centro Medicina Rigenerativa (CMR)	●				

- Platform participation
- Platform participation new institutions in 2022

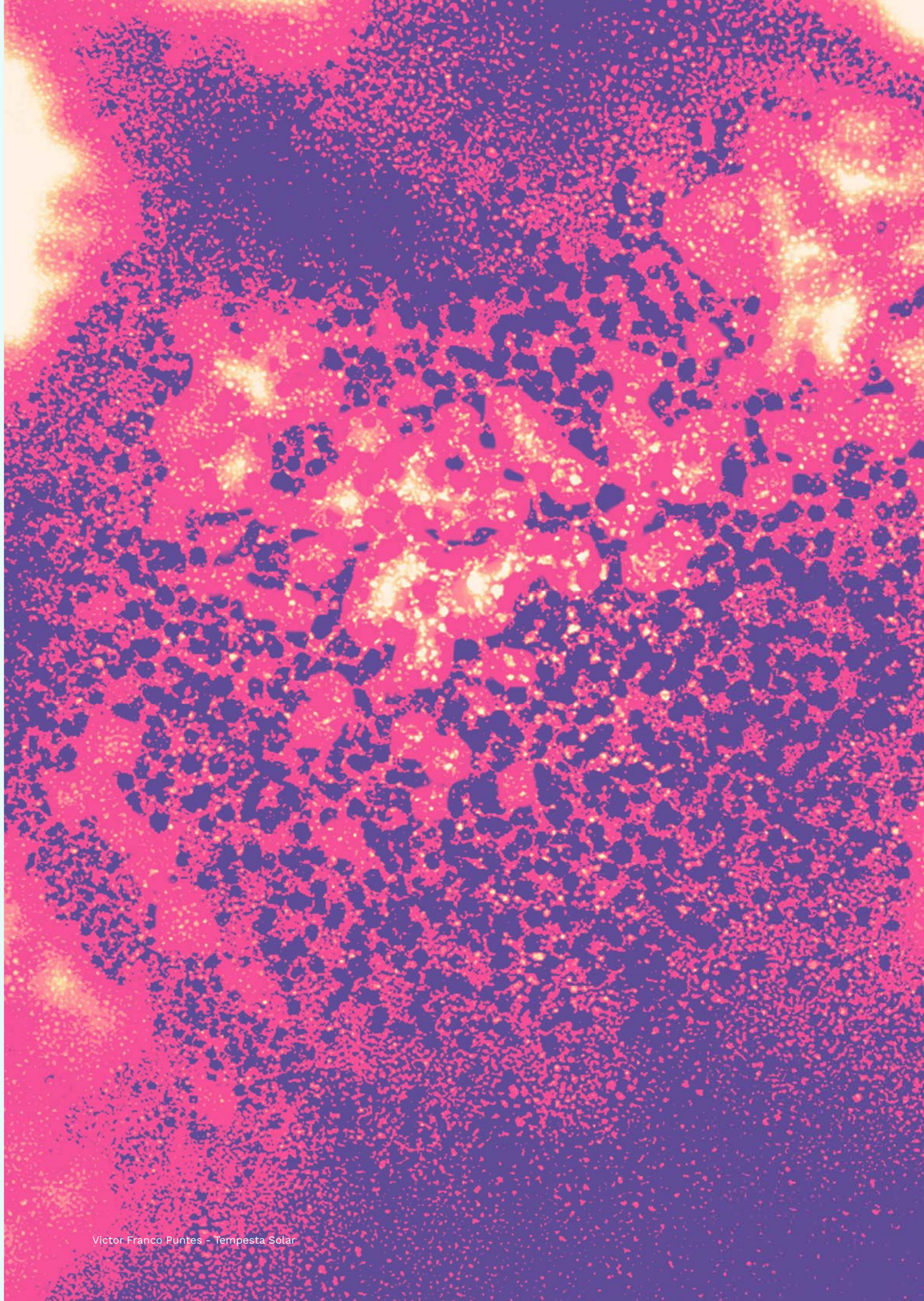
Name	ATMP	Biomarkers	Imaging & Tracing	Small Molecules	Vaccines
CNCCS - IRBM Science Park				●	
Fondazione IRCCS CRIBT		●			
Fondazione IRCCS Fondazione Pascale	●	●	●	●	
Fondazione IRCCS Giovanni Paolo II		●			
Fondazione IRCCS Istituto Nazionale dei Tumori (INT-Milan)		●	●		
Fondazione IRCCS Ospedale Pediatrico Bambino Gesù	●				
Fondazione IRCCS SDN per la Ricerca e l'Alta Formazione in Diagnostica Nucleare			●		
IDI-Fondazione IRCCS Luigi Maria Monti	●				
IRCCS Foundation Santa Lucia		●		●	
IRCCS Istituto Giannina Gaslini (IGG)	●	●	●	●	
IRCCS Istituto Ortopedico Galeazzi	●	●			
ISMETT	●	●			●
Istituti Fisioterapici Ospitalieri - Istituto Dermatologico "San Gallicano"					●
Istituti Fisioterapici Ospitalieri - Regina Elena Tumor research	●			●	
Istituto Romagnolo per lo Studio dei Tumori "Dino Amadori" (IRST) - IRCCS	●	●		●	
Istituto Superiore di Sanità (ISS)	●	●	●	●	●
Mario Negri Institute for Pharmacological Research				●	
National Institute for Infectious Diseases Lazzaro Spallanzani		●			●
Rizzoli Orthopedic Institute (IOR)	●	●	●		
Scientific Institute San Raffaele (HSR)	●		●		
Fondazione Policlinico Universitario A. Gemelli IRCCS		●	●	●	●
IRCCS Istituto Giannina Gaslini (IGG)	●	●	●	●	
University Milano-Bicocca (UNIMIB)		●	●	●	
LUXEMBOURG					
Integrated Biobank of Luxembourg (IBBL, LIH)	●	●			●
Luxembourg Institute of Health	●	●			●
Luxembourg Center of System Biomedicine		●		●	
NETHERLANDS					
Amsterdam UMC - Academic Medical Centre (AMC)					
Amsterdam UMC - VU Medical Center (VUmc)	●	●	●		●
Biomedical Primate Research Centre (BPRC)					●
Erasmus University Medical Centre		●	●		
Intravacc					●
Leiden University Medical Centre (LUMC)	●		●	●	●
Maastricht University Medical Center (MUMC)			●		

- Platform participation
- Platform participation new institutions in 2022

Name	ATMP	Biomarkers	Imaging & Tracing	Small Molecules	Vaccines
Netherlands Cancer Institute		●			
TNO		●	●		
University Medical Center St Radboud (UMCN)	●	●	●		●
University Medical Center Utrecht (UMCU)		●	●		
University Medical Centre Groningen (UMCG)		●	●		
University of Technology Eindhoven (TU/e)	●				
Wageningen Bioveterinary Research					●
NORWAY					
Norwegian University of Science and Technology (NTNU)		●	●	●	
University of Bergen (UiB) and Haukeland University Hospital		●	●	●	●
University of Oslo (UiO) and Oslo University Hospital (OUH)	●	●	●	●	●
University of Tromsø (UiT) and University Hospital North Norway		●	●	●	
PORTUGAL					
3B's Research Institute, University of Minho	●				
Association for Innovation and Biomedical Research on Light and Image (AIBILI)		●	●		
Center for Neuroscience and Cell Biology; Coimbra University Hospital	●	●			
Champalimaud Foundation		●	●		
Coimbra Institute for Biomedical Imaging and Translational Research (CIBIT)			●		
Institute for Bioengineering and Biosciences - Stem Cell Engineering Research Group (iBB - SCERG)	●				
Institute of Biomedicine (IBIMED)		●			
Instituto de Biologia Experimental e Tecnológica (IBET)	●				●
Instituto de Investigação e Inovação em Saúde (i3S)		●	●	●	●
Instituto de Medicina Molecular João Lobo Antunes (IMM)	●	●		●	●
Instituto Português de Oncologia do Porto Francisco Gentil (IPO-Porto)		●			
Life and Health Sciences Research Institute / Clinical Academic Centre - Braga	●	●	●		
NOVA Medical School, Unicersidade NOVA de Lisboa (NMS, NOVA)				●	
University of Beira Interior, Health Sciences Research Center (CICS-UBI)	●	●		●	
VectorB2B	●			●	●
SLOVENIA					
Maribor University		●			
University of Ljubljana				●	
University Medical Center Ljubljana, Department of Nuclear Medicine			●		
SPAIN					
August Pi i Sunyer Biomedical Research institute (IDIBAPS)		●	●		
Bellvitge Biomedical Research Institute (IDIBELL)	●	●			

- Platform participation
- Platform participation new institutions in 2022

Name	ATMP	Biomarkers	Imaging & Tracing	Small Molecules	Vaccines
BioDonostia Health Research Institute	●	●			●
FIBICO, Foundation for Biomedical Research of Cordoba (IMIBIC)	●	●			
Fundacion Jimenez Diaz Institute for Medical Research (IIS-FJD)		●			
Germans Trias i Pujol Foundation (IGTP)		●	●		
Health Research Institute of the Balearic Islands (IdISBa)		●			
Health Research Institute of the Puerta de Hierro Majadahonda-Segovia de Arana (IDIPHISA)	●	●			
Health Research Institute of Santiago de Compostela (IDIS)		●	●		
Health Research Institute of Asturias (ISPA)	●	●		●	●
Hospital Clinico San Carlos (IdISSC)		●		●	●
Hospital de la Santa Creu i San Pau (IR-HSCSP)	●	●	●		
Hospital La Fe (IIS-La Fe)	●	●	●		
Hospital La Paz Institute for Health Research (IdiPAZ)	●	●			
INCLIVA	●	●	●	●	
Institute of Biomedical Research of A Coruña (INIBIC)		●			
Insitute of Biomedicine of Seville (IBIS)	●	●	●		●
Institut de Recerca Biomèdica de Lleida Fundació Dr. Pifarré (IRBLLEIDA)		●			
Institut Hospital del Mar d'Investigacions Mèdiques (IMIM)		●			
Instituto de Investigación Biosanitaria (IBS GRANADA)	●	●			
Instituto de Investigación Marqués de Valdecilla (IDIVAL)		●	●		
Instituto de Investigación Sanitaria Aragón (IISAragon)		●			●
Instituto Ramón y Cajal (IRYCIS)		●			●
Malaga Health Research Institute	●	●			
Research Institute Hospital Universitario 12 de Octubre (i+12 institute)	●	●			
University Hospital La Princesa (IIS-IP)	●	●	●		
Biomedical Research Institute of Murcia (IMIB)	●	●	●		
Vall d'Hebron Research Institute (VHIR)	●	●	●	●	
ISABIAL		●			
SWEDEN					
Chalmers University of Technology		●		●	
Swedish National Infrastructure for Biological Mass Spectrometry		●			
Karolinska Institute	●				
KTH Royal Institute of Technology		●			
Linköping University					
Lund University		●	●	●	
Stockholm University			●		
Testa Center	●				●
Umeå University					
University of Gothenburg				●	
Uppsala University and Uppsala University Hospital		●	●	●	



Victor Franco Puntes - Tempesta Solar

A message from the EATRIS Scientific Advisory Board (SAB)

The EATRIS SAB is formed of external scientific experts that provide independent feedback and advice on the scientific strategy of the organisation.

Catherine Larue
On behalf of the EATRIS Scientific Advisory Board

Thanks to their excellent performance in 2022, EATRIS expanded its support to academia, industry, patients and played a central role in getting five new Horizon Europe projects granted, in addition to the ongoing ones.

This year, besides the formal launch of the EU-AMRI alliance, EATRIS also established a genuine patient-centred approach to strengthen patient engagement force. The new EATRIS Quality Initiative addresses unmet needs for researchers and industry players, i.e. reproducibility of research, best practices, quality metrics and standards.

EATRIS, being today much more than a translational research platform, is standing up as a lighthouse for European researchers, physicians and patients by offering the access of high-level standards and services of a European translational and medical research hub.

The upcoming 2023-2027 EATRIS strategic plan will continue to foster excellence and will stimulate the discovery of novel solutions in front of unmet medical needs. We are on the eve of a radical and digital transformation of healthcare.

platforms

platform updates

ATMP (Advanced Therapy Medicinal Products)

Chairs:
Giuliana Ferrari (IRCCS Ospedale San Raffaele, Italy)
Maria Themeli (Amsterdam UMC)

Platform Coordinator:
David Morrow (Senior Scientific Programme Manager, EATRIS)

The ATMP Platform had a successful year in 2022, with growth in both numbers and capabilities. The Platform welcomed 5 new institutions, including the University of Beira Interior (Portugal), Health Sciences Research Centre (CICS-UBI; Portugal), VectorB2B (Portugal), Health Research Institute of the Puerta de Herro Majadahonda-Segovia de Arana (IDIPHISA; Spain), and the Research Institute Hospital Universitario 12 de Octubre (i+12 Institute; Spain), bringing the total number of institutions to 53. The Platform's focus on maintaining the right technologies and expertise to facilitate innovative research in ATMP development remained a central goal, while supporting projects and initiatives that aligned with the Platform's Scientific strategy.

In 2022, the Platform initiated three new ATMP projects that were closely aligned with its overall scientific aims. The EDITSCD project, coordinated by the IMAGINE institute in France, began in September and aimed to improve and benchmark the efficacy and safety of different genome editing approaches for Sickle cell disease. The HEAL project also began in September, after receiving funding to develop iPSCs as a semi-universal cell source for heart repair. Finally, the EATRIS Vice-Chaired COST Action, coordinated by IDIBELL in Spain, kicked off in November and aimed to create a collaborative network to provide a framework for hiPSC generation of hiPSCs homozygous for frequent HLA haplotypes compatible with a significant percentage of the population to be used for cell therapy.

The success of the first joint EMA and EATRIS regulatory webinar in 2021 led to the continuation of this partnership in 2022, with two more webinars held to support academics and small companies in navigating the ATMP regulatory requirements more successfully through the EATRIS ADVANCE project. By the end of 2022, ADVANCE had over 1,000 participants from 51 countries. EATRIS also continued its presence at international ATMP conferences, such as the Advanced Therapies Congress, where it chaired the innovation section and welcomed presentations from EATRIS institutions, including Oslo University Hospital.

Finally, the EATRIS ATMP Platform was proud to announce a new Co-Chair, Maria Themeli from AUMC, who brought her expertise in next-generation CAR-Ts to advise the Platform on a topic of high importance not only to the ATMP Platform but also to the field of oncology. Overall, 2022 was a successful year for the ATMP Platform, with continued growth and progress in advancing research and development in ATMPs.

Biomarkers

Chairs:
Alain van Gool (Radboudumc, The Netherlands)
Andreas Scherer (FIMM, Finland)
Laura García Bermejo (IRYCIS, Spain)

Platform Coordinator:
Emanuela Oldoni (Scientific Programme Manager, EATRIS)

In 2022, the Biomarkers Platform worked closely with the EATRIS Data Director to develop the EATRIS Data strategy. In particular, a mapping exercise was carried out to identify artificial intelligence (AI) experts and ongoing initiatives within the institutions belonging to the platform. Through flagship projects activities, field challenges and bottlenecks were identified.

In Spring 2022, two new proposals, Eu-Met: Methods and tools for translational metabolomics and Clinical Artificial Intelligence-based Diagnostics (CAIDX), were developed and submitted. There was a successful outcome for the CAIDX proposal (Interreg Baltic Sea Region) for developing guidance for the development of AI based new diagnostic tools and their implementation in the healthcare sector.

In June 2022, the PERMIT project consortium, personalised medicine experts and other invested stakeholders met in Milan (and online) at the Mario Negri Institute to discuss the recommendations that were developed over the 2.5 years of the project. While the project ended, the recommendations generated, communities of practice established, the open access publications, lay summaries and the trainings will live on to continue to inform decision making and practice in the personalised medicine pipeline, as well as to improve communication and implementation at all levels.

During the summer of 2022, a platform meeting was set up to initiate work gathering success stories on validated translational biomarkers with the aim of developing an overview of validated biomarkers and to develop impact narratives. Additionally, better understanding of the challenges and difficulties experienced along the way will help EATRIS develop supportive actions.

The canSERV project kicked-off in September 2022 with EATRIS leading WP3 on “Biomarkers research, development and validation”. Multiple services identified in 13 institutions belonging to the Biomarkers platform were selected.

In the context of transversal activities across the EATRIS platforms, the development of two workshops started. In particular, the Biomarkers and Vaccines platform virtual meeting and the workshop on predictive models in oncology scheduled for Q2 and Q3 in 2023.

In 2022, 7 institutions joined the Biomarkers platform: i+12 (Spain), Instituto de Investigación Sanitaria y Biomédica de Alicante (ISABIAL) (Spain), Instituto de Investigación Biomédica de A Coruña (INIBIC) (Spain), University of Beira Interior, Health Sciences Research Center (CICS-UBI)(Portugal), University Milano-Bicocca – UNIMIB (Italy), Fundación Instituto de Investigación Sanitaria Islas Baleares (IdISBa) (Spain), Instituto de Investigación Sanitaria del Principado de Asturias (ISPA) (Spain). This brings the number of the Biomarkers institutions to 83.

Imaging and Tracing

Chairs:
Albert Windhorst (AmsterdamUMC/VUmc, Amsterdam, The Netherlands)

Platform Coordinator:
Sara Zullino (Scientific & SME Outreach Manager, EATRIS)

With the addition of two new institutions in 2022, University Milano-Bicocca – UNIMIB (Italy) and University Medical Center Ljubljana, Department of Nuclear Medicine (Slovenia), the total number of Imaging & Tracing Platform institutions has now reached 50, expanding the EATRIS portfolio of capacities to include a wider range of advanced equipment and expertise in the fields of molecular imaging, and tracer development and production.

In line with the EATRIS Strategic Plan 2023-2026, the three Working Groups – Radiomics, (Virtual) EU Tracer Factory, and Cell Tracking – are focusing their efforts on building expert networks within EATRIS that leverage the diverse translational imaging expertise and work together on pressing issues in the respective fields.

The Radiomics Working Group aims to identify specific scientific questions and address the technical challenges in radiomics and machine learning approaches that hamper their successful translation into clinical routine. The (Virtual) EU Tracer Factory Working Group works towards creating a community of practice to exchange knowledge, information, and experience related to radiotracer development and production and support scientists in this field. By bringing together experts from EATRIS and the German translational medicine community, the Cell Tracking Working Group focuses on non-invasive molecular imaging technology and standards for quantifying and monitoring transplanted cells over time.

EATRIS is partner of EUCAIM, the EUropean Federation for CAncer IMages, the cornerstone of the European Cancer Imaging Initiative supported by the Digital Europe Programme with €18 million. EUCAIM is coordinated by Hospital La Fe (Spain) and will provide a central hub that will link EU-level and national initiatives, and hospital networks as well as research repositories with cancer images data. Clinicians, researchers and innovators will have cross-border access to an interoperable, privacy-preserving and secure infrastructure for federated, distributed analysis of cancer imaging data. EATRIS co-leads WP7 on Use cases for platform expansion and validation and will work together with hospitals, academic medical centres, image data providers and other AI innovators – such as industry partners, research institutes, etc. – on the identification of the use cases that will drive the design, implementation, and validation of the infrastructure.

Small Molecules

Chairs:
Mario Salmona (Mario Negri Institution, Italy)
Alfredo Budillon (Istituto Nazionale Tumori- IRCCS G. Pascale, Italy)

Platform Coordinator:
Martin de Kort (Senior Scientific Programme Manager, EATRIS)

In 2022, the Small Molecules platform took a major leap with the kick-off of EATRIS' flagship initiative REMEDi4ALL. This project is the materialisation of the platform's scientific agenda focusing on drug repurposing, in silico tools and predictive models. Due to its broad scope and multidisciplinary nature (screening, translation and clinical evaluation) it offers many opportunities for cross-platform and cross-RI integrating activities, aligned with the EATRIS 2023-2026 Strategic Plan. The official start of REMEDi4ALL on 1 September 2022 was quickly followed by several events within the drug repurposing community: a successful REMEDi4ALL kick-off event (20-21 September 2022, Amsterdam, Netherlands) that was attended by several members of the global repurposing alliance Newfound, and active participation at the Beacon Rare Disease conference (10 October 2022, London, UK) and at the 10th conference on drug repurposing (14-15 November 2022, Washington DC, US).

Finally, EATRIS contributed to the IRDiRC Task Force to develop a Drug Repurposing Guidebook to support the community in its academic-led repurposing efforts.

The platform welcomed several people to strengthen C&S operations, namely Don Lo as Director of Medicines Development, Alicia Soler Canton as Scientific Programme Manager and Nadina Grosios as a Regulatory Expert. They bring in vast experience to set the high standards required to develop REMEDi4ALL into a mature platform.

In 2022 the platform welcomed the University Milano-Bicocca (UNIMIB, Milan, Italy) as a new member. With 'GLP-ready' laboratories in a brand-new animal facility, an advanced LC-MS/MS platform for the separation, characterisation and studying of the interaction of molecules in advanced models, and a cell-based high content screening platform, UNIMIB is expanding the platform's translational research capabilities involving small molecules and innovative therapeutics. The total number of institutions participating in the platform is now 39.

Finally, EATRIS met with EU-OPENSCREEN to explore common interests and opportunities to develop a joint scientific and translational research-oriented agenda. In this context, the EATRIS Data Director and data core team have been involved in developing an agenda for data sharing and integration. This, and other ongoing initiatives such as the EATRIS Quality Initiative and the EATRIS Translational Assessment service, offer a bright future to fully unlock the potential of the Small Molecules platform.

Vaccine, Inflammation and Immune Monitoring

Chairs:
Jan Langermans (BPRC, The Netherlands)
Lucia Gabriele (ISS, Italy)

Platform Coordinator:
David Morrow (Senior Scientific Programme Manager, EATRIS)

In 2022, the EATRIS VIIM platform expanded its strength and capabilities by welcoming VectorB2B from Portugal as a new institution, bringing the total number of institutions in the platform to 27. Throughout the year, the VIIM platform focused on various projects, with a particular emphasis on those facilitated by the ISIDORe and TRANSVAC projects. The ISIDORe project, which comprises over 48 services on immune monitoring, supported five new projects aimed at developing new vaccine candidates for SARS-CoV-2. Three new joint research activity projects were also granted funding of 50,000 euros each to three research groups from ISS and LIH. Furthermore, EATRIS regulatory experts provided support for several new vaccine projects at different stages of development through funding provided by ISIDORe.

In May, a second TRANSVAC2 workshop on the regulatory aspects of vaccine development was held in Amsterdam, allowing for in-person meetings to take place again. Nearly 40 students, including 15 participants from CEPI, benefitted from this workshop. In June, EATRIS published an article titled "EATRIS: Providing the Right Tools, at the Right Time, for Vaccine Development in a Pandemic." This article highlighted the benefits of our research infrastructure to vaccine researchers in the face of a pandemic. Overall, the VIIM platform remained committed to advancing vaccine research and development and fostering collaborations between institutions in the pursuit of this important goal.

Reflecting on the EATRIS COVID-19 response: Looking back to move forward with optimism

As we emerge from the pandemic, EATRIS has taken a close look at our contributions to the critical research that led to the development of vaccines, therapeutics, and diagnostics. One of our noteworthy accomplishments during this time was the publication of an article in Nature Reviews Drug Discovery, in collaboration with the Translation Together initiative. This article discussed the successes and challenges of regional COVID-19 responses and proposed five priorities for improving preparedness for future pandemics.

To address some of these priorities, EATRIS first established the COVID-19 research forum at the start of the pandemic. This forum provided fast access to technologies and expertise for researchers within and outside our network, resulting in more than 50 requests being facilitated by the end of 2022. The forum continues to match clients with EATRIS experts and technology platforms for a wide range of projects, including the validation of innovative point-of-care testing and diagnostic kits, access to regulatory expertise for novel vaccine candidates, and the testing of legacy compounds for repurposing for COVID-19.

EATRIS also supported the development of the ISIDORe project, which provides an integrated portfolio of cutting-edge research services and resources to study epidemic-prone pathogens, including SARS-CoV-2. EATRIS leads a dedicated work package on immune monitoring and profiling services with 10 EATRIS sites providing cutting-edge services, and co-leads with our partners ECRIN on a work package providing essential regulatory services for vaccine and therapy developers. By the end of 2022, EATRIS was supporting several projects around new vaccine development, biomarker detection for vaccine response in healthcare workers, and innovative cell-based antiviral approaches.

EATRIS also contributed to several initiatives to establish more efficient open and real-time sharing of precompetitive data, such as the BY-COVID project and the EOSC Future project. These initiatives aim to connect well-established data resources and deliver access to heterogeneous yet interlinked and organized data across domains and jurisdictions, creating a flexible and interlinked core of FAIR data capable of addressing the constantly evolving questions during a pandemic.

All of these initiatives continue to be a major part of our contribution to addressing the priorities we faced during the pandemic and will continue to face in future pandemics. As an infrastructure, it is important to build on these successful initiatives, improve them, and ensure that we are ready to support the must-have innovative research required in the face of any pandemic. This will continue to be a priority for EATRIS and the hard-working expert research centres and hospitals that were the real actors and heroes over these challenging three years.

Lidia Alonso Landeira – Camino de rosas

featured publications from EATRIS member institutes

CHAIMELEON Project: Creation of a Pan-European Repository of Health Imaging Data for the Development of AI-Powered Cancer Management Tools

Key Messages:

The CHAIMELEON project is a 4-year EU-funded initiative aimed at creating a pan-European repository of health imaging data, tools, and methodologies to set a standard and provide resources for future AI experimentation for cancer management. The repository will store multimodality imaging and related clinical data of lung, breast, prostate, and colorectal cancer, and AI developers will enable a multimodal analytical data engine to interpret, extract, and exploit the information. The project brings together a consortium of 18 European partners, including hospitals, universities, R&D centers, and private research companies, to create an ecosystem of infrastructures, biobanks, AI/in-silico experimentation, and cloud computing technologies in oncology.

Summary:

The use of artificial intelligence (AI) in health data is proving to be a promising tool to assist clinicians in cancer management. Imaging-based AI approaches have shown vast potential in predicting recurrence and survival, tumour molecular features and association with tumour spread, patient stratification based on risk, and prediction of treatment response, among other areas. However, the development of imaging-based AI tools is reliant on the availability of large, quality-controlled datasets, which is currently a major challenge. To address this limitation and the interoperability issue of existing initiatives, the CHAIMELEON project aims to create a fully FAIR, GDPR compliant, European cancer imaging repository that will be interoperable with other existing repositories and biobanks. The CHAIMELEON project is a 4-year long, EU-funded initiative that started in September 2020. It is being executed by an interdisciplinary consortium comprising 18 partners from 9 European countries, including hospitals, universities, R&D centres, and private companies. The consortium's expertise includes IT systems, automated health data management, data privacy and legal compliance, and imaging repositories and radiomic features. The repository will be a single-access point resource for the community of developers working on AI-powered cancer management solutions, using a controlled access policy. The project is expected to contribute to ground-breaking research on the AI space, leading to a new paradigm in the investigation of imaging biomarkers at multi-centre studies and clinical trials, overcoming the problem of reproducibility of quantitative imaging biomarkers.

Citation:

Bonmatí, L. M., Miguel, A., Suárez, A., et al. (2022). CHAIMELEON Project: Creation of a Pan-European Repository of Health Imaging Data for the Development of AI-Powered Cancer Management Tools. Frontiers in Oncology, 12. https://doi.org/10.3389/fonc.2022.742701

Immune dynamics in SARS-CoV-2 experienced immunosuppressed rheumatoid arthritis or multiple sclerosis patients vaccinated with mRNA-1273

Key messages:

Recent findings indicate that SARS-CoV-2 experienced multiple sclerosis (MS) ocrelizumab (OCR) patients may still benefit from vaccination by inducing a broad CD8+ T cell response which has been associated with milder disease outcome.

Summary:

In this pivotal research project supported by ZonMw (The Netherlands Organization for Health Research and Development), the effect of SARS-CoV-2 vaccination in multiple sclerosis (MS) ocrelizumab (OCR) patients was explored. Patients affected by different types of autoimmune diseases, including common conditions such as multiple sclerosis (MS) and rheumatoid arthritis (RA), are often treated with immunosuppressants to suppress disease activity. It is not fully understood how the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)-specific humoral and cellular immunity induced by infection and/or upon vaccination is affected by these immunosuppressants. The dynamics of cellular immune reactivation upon vaccination of SARS-CoV-2 experienced MS patients treated with the humanized anti-CD20 monoclonal antibody ocrelizumab (OCR) and RA patients treated with methotrexate (MTX) monotherapy were analysed in this study at great depth via high-dimensional flow cytometry of whole blood samples upon vaccination with the SARS-CoV-2 mRNA-1273 (Moderna) vaccine. Longitudinal B and T cell immune responses were compared to SARS-CoV-2 experienced healthy controls (HCs) before and 7 days after the first and second vaccination. OCR-treated MS patients exhibited a preserved recall response of CD8+ T central memory cells following first vaccination compared to HCs and a similar CD4+ circulating T follicular helper 1 and T helper 1 dynamics, whereas humoral and B cell responses were strongly impaired resulting in absence of SARS-CoV-2-specific humoral immunity. MTX treatment significantly delayed antibody levels and B reactivation following the first vaccination, including sustained inhibition of overall reactivation marker dynamics of the responding CD4+ and CD8+ T cells. Together, these findings indicate that SARS-CoV-2 experienced MS-OCR patients may still benefit from vaccination by inducing a broad CD8+ T cell response which has been associated with milder disease outcome. The delayed vaccine-induced IgG kinetics in RA-MTX patients indicate an increased risk after the first vaccination, which might require additional shielding or alternative strategies such as treatment interruptions in vulnerable patients.

Citation:

Verstegen, N. J. M., Hagen, R. R., van den Dijssel, et al., (2022). Immunity against SARS-CoV-2 study group (2022). Immune dynamics in SARS-CoV-2 experienced immunosuppressed rheumatoid arthritis or multiple sclerosis patients vaccinated with mRNA-1273. eLife, 11, e77969. https://doi.org/10.7554/eLife.77969

Bioactivity and miRNome Profiling of Native Extracellular Vesicles in Human Induced Pluripotent Stem Cell-Cardiomyocyte Differentiation

Key messages:

Extracellular vesicles (EVs) are being applied in regenerative medicine due to their advantages over cell transplantation. In this paper, published in Advanced Science journal, EATRIS institutions from Portugal created characterised and validated EV-producing biofactories from stem cells to repair damaged heart tissue.

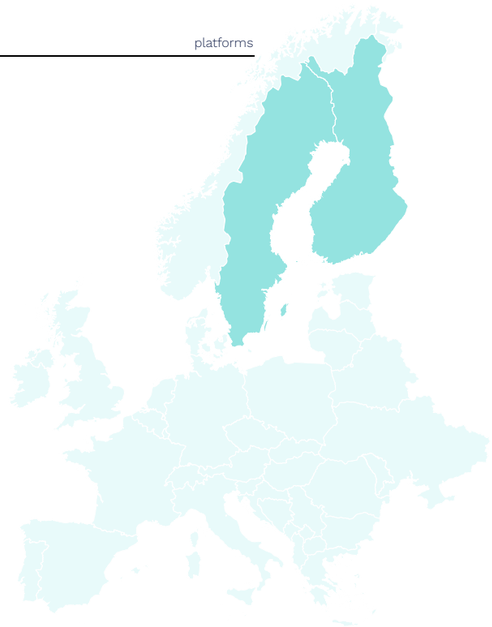
Summary:

Extracellular vesicles (EVs) are constituted by a group of heterogeneous membrane vesicles secreted by most cell types that play a crucial role in cell–cell communication. In recent years, EVs have been postulated as a relevant novel therapeutic option for cardiovascular diseases. However, it is challenging to identify native EV and corresponding cell platform(s) suitable for therapeutic application. In this study, researchers at iBET and Universidade Nova de Lisboa in Portugal characterised and validated human induced pluripotent stem cells (hiPSC) as cell biofactories for EVs production for cardiac regenerative application. In particular, the potential of EV secreted along hiPSC-cardiomyocytes (hiPSC-CM) differentiation to induce angiogenesis and cardiomyocyte proliferation were investigated, with the aim of identifying a promising cell biofactory for EV production. These two key mechanisms were chosen as they are required for recovery of cardiac function post-acute myocardial infarction. In addition, the researchers analysed the EV miRNome along these stages to pinpoint the genetic signatures of bioactive EV, and identified key miRNAs that may underlie EV bioactivity. These evidences support the hypothesis to use hiPSC as relevant candidates for the production of EV-based therapies for cardiac regeneration, although further work is required to completely elucidate the mechanisms of hiPSC-EV functions.

Citation:

Louro, A. F., Paiva, M. A., Oliveira, M. R., et al. (2022). Bioactivity and miRNome Profiling of Native Extracellular Vesicles in Human Induced Pluripotent Stem Cell-Cardiomyocyte Differentiation. Advanced science (Weinheim, Baden-Wurttemberg, Germany), 9(15), e2104296. https://doi.org/10.1002/advs.202104296

Anti-COX-2 autoantibody is a novel biomarker of immune aplastic anemia



Key messages:

In this paper, EATRIS institutions from Finland and Sweden have contributed to a new multinational publication in the journal “Leukemia”. Researchers at Helsinki University and at Karolinska Institute have identified an autoantibody, anti-COX-2, as a novel biomarker of immune aplastic anemia. The anti-COX-2 autoantibody has the potential for a clinical disease biomarker, due to its good sensitivity and specificity, and it is cheap and easy to analyse using pre-existing technical and logistic platforms in clinical laboratories.

Summary:

Aplastic anemia (AA) is a rare bone marrow failure disease characterized by the loss of all hematopoietic cell lineages. Autoantibody measurements are commonly used diagnostic tests in many autoimmune diseases, but despite the existence of various autoantibodies, no practical clinical tests are available to detect them in IAA. To overcome this limitation, the authors of this paper utilized a microarray comprising more than 9,000 proteins to screen for autoantibodies in peripheral plasma and validated the findings in a large international cohort of IAA patients (n=405) and controls (n=815). In this study, they identified a new autoantibody that attaches to the C-terminal end of cyclooxygenase 2 (COX-2), referred to as aCOX-2 Ab, that was present in 37% of adult patients with IAA. In particular, results indicated very high aCOX-2 Ab sensitivity in older patients (>40 years of age) with the HLA-DRV1*15:01 genotype. Furthermore, they observed sporadic non-IAA cases with aCOX-2 Ab positivity in patients with related bone marrow failure diseases, multiple sclerosis, and type I diabetes, but not in healthy individuals or patients with non-autoinflammatory diseases or rheumatoid arthritis. Taken together, these findings suggest that aCOX-2 Ab can define a unique subgroup of IAA and may be a valuable biomarker for IAA with a great potential to reach the clinic, due to its good sensitivity and specificity as well as for its relatively low cost.

Citation:

Kelkka, T., Tyster, M., Lundgren, S., et al. (2022). Anti-COX-2 autoantibody is a novel biomarker of immune aplastic anemia. Leukemia, 36(9), 2317–2327. https://doi.org/10.1038/s41375-022-01654-6.

Glioblastoma PET/MRI: kinetic investigation of [18F] rhPSMA-7.3, [18F]FET and [18F] fluciclovine in an orthotopic mouse model of cancer

Key messages:

In this paper, researchers from Norway have demonstrated that imaging tumour angiogenesis using the radiotracer [18F] rhPSMA-7.3 could be a promising approach for future diagnostic PET in brain cancer, as it revealed visible tumour uptake associated with neo-vascularisation. The radiotracer [18F]fluciclovine was also investigated and found to have more suitable imaging properties than [18F]FET for in vivo PET imaging of GBM, based on higher TBR and confirmed by PKM. Further research is needed to explain the mechanism behind the uptake of [18F]rhPSMA-7.3 and its role in brain cancer diagnosis.

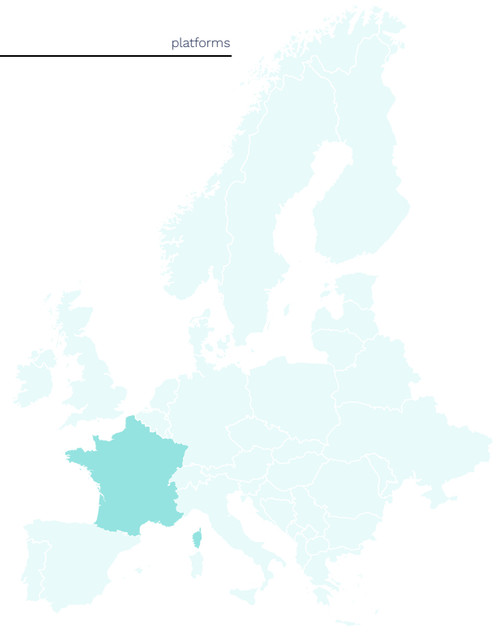
Summary:

Glioblastoma multiforme (GBM) is a highly aggressive and deadly brain tumour, with a high incidence rate in the USA of 3 per 100,000. The standard therapy for GBM includes resection, chemotherapy, and irradiation, but a complete resection is usually impossible due to its infiltrative growth. As a result, a relapse of the disease is inevitable, and the average patient survival is only increased to 15 months. While some current MR sequences can detect metabolic changes within the tumour, high sensitivity in vivo metabolic characterization can only be achieved by positron emission tomography (PET). The paper discusses the use of two different PET radiotracers, [18F]rhPSMA-7.3 and [18F] fluciclovine, for the imaging of glioblastoma multiforme (GBM) in preclinical studies. The authors report that [18F]rhPSMA-7.3, which had not been previously used for GBM PET, showed visible tumour uptake that was associated with neo-vascularization, while mature vessels decreased leading to necrosis. The authors suggest that imaging tumour angiogenesis using [18F]rhPSMA-7.3 with respect to tumour grading might be an interesting approach for future diagnostic PET in brain cancer, although further research is needed to explain the mechanism behind its uptake. The authors also investigated the diagnostic efficacy of [18F] fluciclovine and compared it to [18F]FET. The results showed that [18F]fluciclovine had more suitable imaging properties than [18F]FET based on higher tumour-to-background ratios (TBR). This was confirmed by pharmacokinetic modeling, which showed higher rate constants and macro parameters when applying [18F] fluciclovine, making it more suitable for in vivo PET imaging of GBM. Overall, the paper suggests that both [18F]rhPSMA-7.3 and [18F]fluciclovine have potential for the imaging of GBM in clinical settings, but further research is needed to fully understand their mechanisms of uptake and to optimize their use in PET imaging.

Citation:

Lindemann, M., Oteiza, A., Martin-Armas, M., et al. (2023). Glioblastoma PET/MRI: kinetic investigation of [18F]rhPSMA-7.3, [18F]FET and [18F]fluciclovine in an orthotopic mouse model of cancer. European journal of nuclear medicine and molecular imaging, 50(4), 1183–1194. https://doi.org/10.1007/s00259-022-06040-z.

Translating Cell Therapies for Neurodegenerative Diseases: Huntington's Disease as a Model Disorder



Key message:

This paper highlights the importance of incorporating and adapting a better understanding derived from preclinical studies to ensure we recognize the complex, wide-ranging and multi-component challenges in evaluating delivery of substances and cells to the brain. These findings propose the development of agreed upon research frameworks that are sufficiently flexible to accommodate the multiple complexities inherent in the development and evaluation process, leading to better patient benefit.

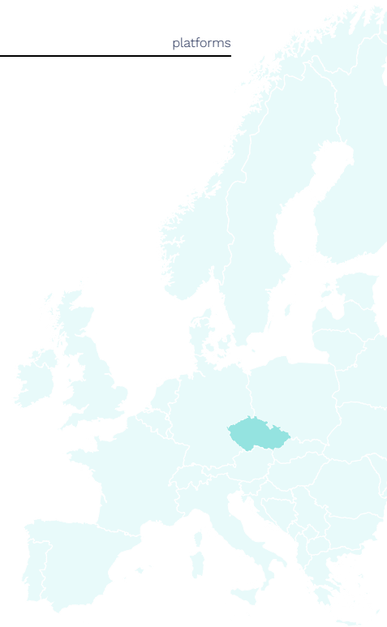
Summary:

There has been substantial progress in the development of regenerative medicine strategies for CNS disorders over the last decade, with progression to early clinical studies for some conditions. However, there are multiple challenges along the translational pipeline, many of which are common across diseases and pertinent to multiple donor cell types. These include defining the point at which the preclinical data are sufficiently compelling to permit progression to the first clinical studies; scaling-up, characterization, quality control and validation of the cell product; design, validation, and approval of the surgical device; and operative procedures for safe and effective delivery of cell product to the brain. Furthermore, clinical trials that incorporate principles of efficient design and disease-specific outcomes are urgently needed (particularly for those undertaken in rare diseases, where relatively small cohorts are an additional limiting factor), and all processes must be adaptable in a dynamic regulatory environment. This white paper sets out the challenges associated with the clinical translation of cell therapy, using Huntington's disease as a specific example, and suggests potential strategies to address these challenges. Huntington's disease presents a clear unmet need, but, importantly, it is an autosomal dominant condition with a readily available gene test, full genetic penetrance and a wide range of associated animal models, which together mean that it is a powerful condition in which to develop principles and test experimental therapeutics. The authors propose that solving these challenges in Huntington's disease would provide a road map for many other neurological conditions.

Citation:

Rosser, A. E., Busse, M. E., Gray, W. P., et al. (2022). Translating cell therapies for neurodegenerative diseases: Huntington's disease as a model disorder. Brain : a journal of neurology, 145(5), 1584–1597. https://doi.org/10.1093/brain/awac086

New-Generation Heterocyclic Bis-Pentamethinium Salts as Potential Cytostatic Drugs with Dual IL-6R and Mitochondria-Targeting Activity



Key messages:

Multi-targeting approaches are often required for effective cancer treatment. In this paper, published in Pharmaceutics, collaborators from Charles University and Masaryk University describe a new class of synthetic molecules based on heterocyclic salts and they describe their anti-IL6 receptor and mitochondrial targeting properties by assessment in different assays to detail their anti-inflammatory action and cytostatic action in a range of physicochemical and cellular assays, as well as in silico models. After these initial interesting findings, further hit and lead optimisation would be required to enhance cancer cell selectivity and exploit this potential new class of anti-cancer drugs.

Summary:

IL-6 signalling is involved in the pathogenesis chronic inflammation and cancer. Targeting of the IL-6 receptor (IL-6R) by small molecules is therefore an intensively studied strategy in cancer treatment. This paper describes the design, synthesis, and characteristics of two new indole based bis-pentamethinium salts (meta and para isomers). Molecular docking studies showed that both compounds have the potential to bind IL-6R (free energy of binding −9.5 and −8.1 kcal/mol). The interaction with IL-6R was confirmed using microscale thermophoresis analyses, which revealed that both compounds had strong affinity for the IL-6R (experimentally determined dissociation constants 26.5 ± 2.5 nM and 304 ± 27.6 nM, respectively). In addition, both compounds were cytotoxic for a broad spectrum of cancer cell lines in micromolar concentrations, most likely due to their accumulation in mitochondria and inhibition of mitochondrial respiration with compensatory enhancement of glycolysis and altered mitochondrial morphology. These effects are most likely responsible for the cytotoxicity of the compounds towards a wide spectrum of cancer cells. The structure motif of bis-pentamethinium salts represents a promising starting point for the design of novel multitargeting compounds with the potential to inhibit IL-6 signalling and simultaneously target mitochondrial metabolism in cancer cells, an emerging target for anticancer therapy. Future studies modifying their structure to increase the selectivity for cancer cells are warranted.

Citation:

Talianová, V., Kejík, Z., Kaplánek, R., et al. (2022). New-Generation Heterocyclic Bis-Pentamethinium Salts as Potential Cytostatic Drugs with Dual IL-6R and Mitochondria-Targeting Activity. Pharmaceutics, 14(8), 1712. https://doi.org/10.3390/pharmaceutics14081712.

Detection of early seeding of Richter transformation in chronic lymphocytic leukemia

Key messages:

A global network of researchers, including from Spanish EATRIS institutions, performed a study based on single-cell omic analyses of longitudinal samples of patients affected by Richter transformation (RT), and revealed that clones are driving chronic lymphocytic leukaemia years before clinical manifestation. These findings demonstrate the early seeding of subclones driving advanced stages of cancer evolution, that lay the foundation for novel single-cell-based predictive strategies and uncover potential therapeutic targets for RT.

Summary:

This study, conducted by some EATRIS Spanish researchers and published in Nature Medicine, describes the analysis of a cohort of patients with RT and shows the presence and dynamics of clones driving transformation from chronic lymphocytic leukemia years before clinical manifestation. The study aimed to identify the mechanisms that determine the evolution of leukaemia, relapses following treatment and, in some patients, the transformation into a very aggressive lymphoma in the final phase. Researchers demonstrated that cells causing post-treatment relapses and which give rise to the transformation of leukaemia into a very aggressive tumour can be detected at the start of the disease, many years before these complications reveal themselves clinically. This is a revolution in oncology, as to date, it was believed that leukaemia progressed because its cells evolved over the course of time and transformed into more aggressive tumours due to the acquisition by the cancer genome of alterations that made them more resistant to treatments. Instead, these findings reveal that some of the leukaemia cells have already acquired these alterations right at the start of the disease, but only in a very small quantity.

The study shows the power and the potential of single-cell and omics technologies as valuable tools for cancer biology analysis and for the development of new diagnostics and treatments in the oncology field.

Citation:

Nadeu, F., Royo, R., Massoni-Badosa, R., et al. (2022). Detection of early seeding of Richter transformation in chronic lymphocytic leukemia. Nature medicine, 28(8), 1662–1671. https://doi.org/10.1038/s41591-022-01927-8.

EATRIS Quality Initiative

The EATRIS Quality Initiative (EQI) is an umbrella term for EATRIS activities addressing reproducibility, standards and reference materials. Significant contributions in this field can only be achieved by collaborating on an international and global scale. By involving EATRIS member facilities in international consortia which address data quality and reproducibility in translational medicine, the EQI aims to improve overall scientific conduct while simultaneously helping increase credibility and visibility of the EATRIS community as go-to-provider of high-quality data. EATRIS, with its 145 member-facilities, is well-suited to help tackle some of the challenges in translational medical research, for example by organising or participating in multi-site benchmarking studies.

Still recovering from the paralysing effect of the COVID-19 pandemics on the progress of several scientific projects, the High Throughput Screening (HTS) ring test project of the Translation Together (TT) initiative has made progress towards further rounds of analysis and sample processing. The HTS ring test is coordinated at NCATS (US), and includes twelve international partners, among those five institutions within the EATRIS Small Molecules platform, who participate with the aim of identifying drivers of variability in HTS, as well as to provide feedback to HTS sites on potential sources of variability in their systems. Following the completion of a pilot phase in 2018 with four sites, the study now comprises twelve research sites in total, and the data generation process is near-finalised. Several sites agreed to re-analyse samples and subject all data to re-analysis, in order to strengthen the outcome.

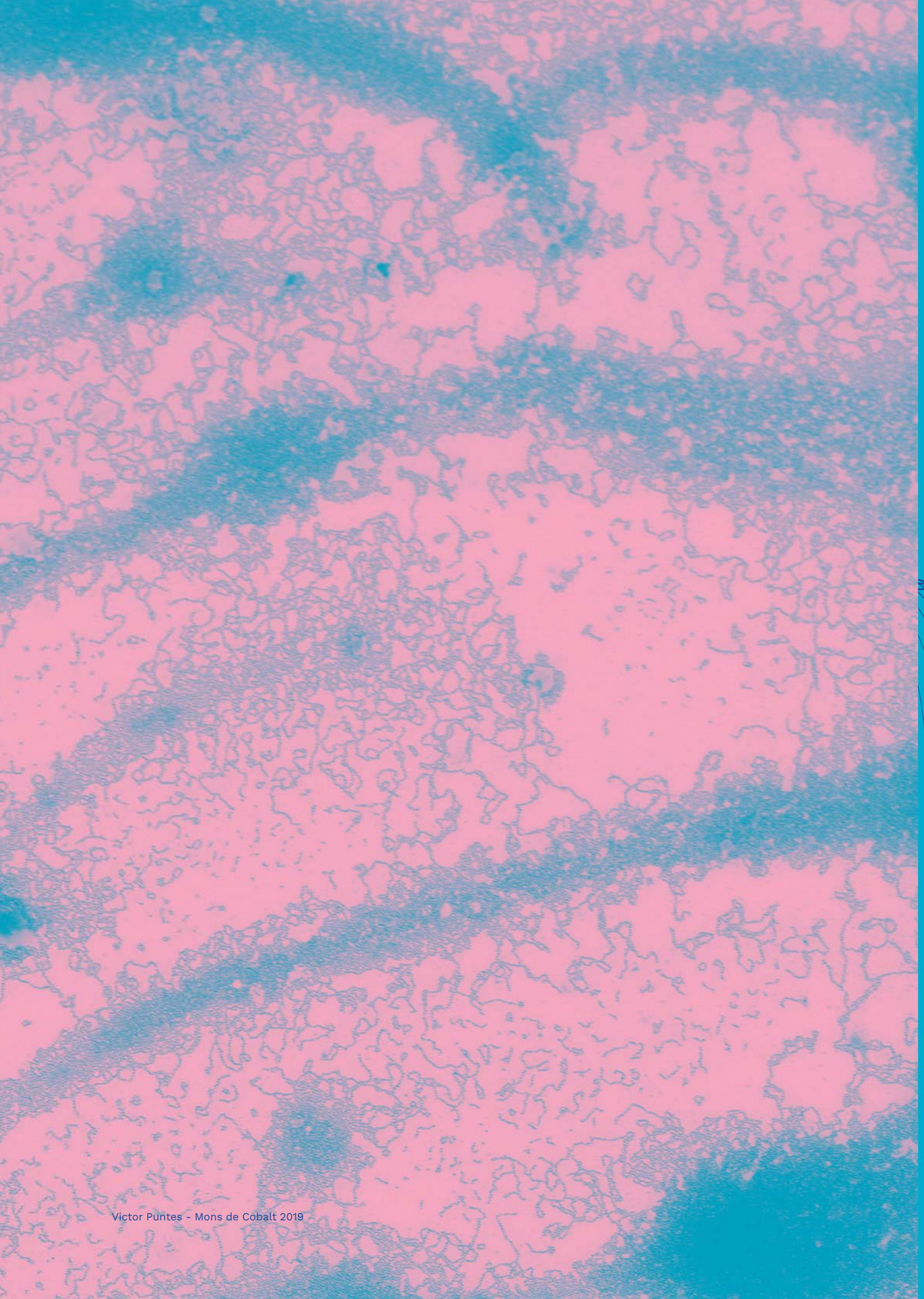
The majority of publications from the FDA-driven community effort SEQC2 (Sequencing Quality Control Phase II), which assessed analytical issues and developed a best practice process for the generation and bioinformatics analysis of massively parallel human sequencing data, were released in 2021. However, several EATRIS members continued to collaborate within two working groups, which are at very different stages of their projects. One, which will deal with the generation of reference material for DNA sequencing is waiting for the genomic cell line material to be generated at ATCC, the other, which addresses the reliability of targeted RNA sequencing is approaching the manuscript drafting stage. The scientific society behind all these efforts, the MAQC Society (www.theMAQC.org) is planning further projects, and it will be task of the EQI to disseminate the planned projects within EATRIS to recruit participants which can contribute with technology platforms and/or bioinformatics.

The EATRIS Certificate of Commitment to Quality (ECCQ) was piloted in October 2022 under the EATRIS-Plus project and spearheaded by the EATRIS Quality Initiative. The rationale of the certificate is to have a simple, transparent, easy-to-use and easy-to-apply-for system for acknowledging commitment to quality in research. The first ECCQ Certificate was awarded to the SciLifeLab National Genomics Infrastructure (in the SNP&SEQ Technology Platform) at Uppsala University, Sweden. The Certificate was signed at the meeting of the EATRIS Board of National Directors in Amsterdam, and handed over to Ulrika Bäckman, National Coordinator of EATRIS Sweden who personally delivered it to Uppsala University.

You can find out more about the EQI on our dedicated webpage

eatris.eu/eatris-quality-initiative

projects



Victor Puntes - Mons de Cobalt 2019

Project Overview

EATRIS was a partner in the following projects in 2022:

- Training
- Industry Collaborations
- Personalised Medicine
- Quality and Reproducibility
- Research Infrastructure Development

●	Training the next generation of advanced therapies specialists	ADVANCE Next Generation of Advanced Therapies' Specialists	NOV 01 2019 — DEC 31 2022
●	Creating a network of genetic and clinical data across Europe	B1MG	JUNE 01 2020 — AUG 31 2023
●	Connecting well-established data resources of the COVID-19 data platform	BY-COVID beyond covid	MAR 24 2021 — DEC 31 2023
NEW ●	Providing cutting edge cancer research services across Europe	canSERV	SEPT 01 2022 — AUG 31 2025
●	Addressing the main challenges faced by SMEs developing companion diagnostics (cdx)	Interreg North-West Europe Codex4SMEs	NOV 01 2019 — DEC 31 2022
● ●	Delivering innovative scientific tools to support the long-term sustainability strategy of EATRIS in PM	eatris+	JAN 01 2020 — DEC 31 2023
NEW ●	EDITSCD - Assessing efficacy and safety of genome editing approaches for sickle cell disease	EDITSCD	SEPT 01 2022 — AUG 31 2027
●	Creating an effective rare diseases research ecosystem for progress, innovation and for the benefit of everyone with a rare disease	EUROPEAN JOINT PROGRAMME RARE DISEASES	JAN 01 2019 — DEC 31 2023
●	Building a permanent pan-European network of Industrial Liaison and Contact Officers (ILOs/ICOs) for RI-industry partnerships	ENRIITC	JAN 01 2020 — DEC 31 2022
●	Demonstrating an operational EOSC Platform for researchers	EOSC Future	APR 01 2021 — SEPT 30 2023
● ●	Creating an open collaborative digital space for life science	EOSC-Life	MAR 01 2019 — AUG 31 2023
NEW ●	A European foundation to accelerate data-driven cancer research	eosc | cancer	SEPT 01 2022 — FEB 28 2025

●	Accelerating biomarker discovery and validation to support therapeutics development for neurodegenerative diseases	epnd European Platform for Neurodegenerative Diseases	NOV 01 2021 — OCT 31 2026
●	Strengthening the coordination and networking of the established European Research Infrastructure Consortia (ERICs)	ERIC FORUM	JAN 01 2019 — DEC 31 2022
●	Strengthening the research and innovation capacity of the European Reference Networks (ERNs)	ERICA	MAR 01 2021 — FEB 28 2025
● ●	Creating a Platform Clinical Trial Framework	EU-PEARL EU PATIENT-CENTRIC CLINICAL TRIAL PLATFORMS	NOV 01 2019 — APR 30 2023
●	Hub to support clinical drug development and treatment monitoring of immune-inflammation and infectious diseases	GSK	FEB 01 2016 — DEC 31 2025
●	Contributing to the creation of a European Health Data Space	HEALTHYCLOUD Health Research & Innovation Cloud	MAR 01 2021 — AUG 31 2023
NEW ●	HEAL - HLA-homozygous iPSC-cardiomyocyte aggregate manufacturing technologies for allogenic cell therapy to the heart	MHH Medizinische Hochschule Hannover	SEPT 01 2022 — FEB 28 2026
NEW ●	Integrated services for infectious diseases outbreak research	ISIDORe	FEB 01 2022 — JAN 31 2025
●	Stimulating the wider uptake of structural biology across Europe	iNEXT DISCOVERY	FEB 01 2020 — JAN 31 2024
●	Developing recommendations for robust and reproducible personalised medicine research	PERMIT PERsonalised Medicine Trials	JAN 01 2020 — JUN 30 2022
●	Applying innovative approaches to identify the molecular mechanisms in T2D patients	Recognised	JAN 01 2020 — DEC 31 2023
NEW ●	Building a sustainable European innovation platform to enhance the repurposing of medicines for all	REPURPOSING OF MEDICINES 4ALL	SEPT 01 2022 — AUG 31 2027
●	Increasing the visibility of European RIs to new communities in Europe and beyond	RI-VIS Increasing visibility of research infrastructures	FEB 01 2019 — JAN 31 2022
●	Accelerating the development of effective vaccines	TRANSVAC	MAY 01 2017 — APR 30 2023
●	Establishing a truly sustainable European vaccine infrastructure	TRANSVAC DS	JUNE 01 2020 — MAY 31 2022

Spotlight story on flagship initiative REMEDi4ALL

An ambitious EU-funded research initiative coordinated by EATRIS that was launched to drive forward the repurposing of medicines in Europe.

The project is expected to make a major leap forward in drug repurposing, or finding new therapeutic option for existing drugs, in areas of high unmet medical needs.

It will receive €23M from Horizon Europe over the next 4.5 years to:

- **develop an innovation platform supporting promising, high impact drug repurposing projects championed by patients in any phase of development and disease area;**
- **establish a global community that contributes to informing and shaping policy and advancing debate and knowledge exchange worldwide.**

EATRIS is leading this multidisciplinary consortium involving 24 European organisations with the common goal of making cost-effective repurposed medicines more widely available.

REMEDi4ALL launched in September 2022 with the aim of making a major leap forward in drug repurposing. This promising approach to drug development consisting in the identification, testing, and validation of new therapeutic indications for existing medications, is a developing field but faces numerous barriers and systemic inefficiencies. Still, its potential to significantly bring down times and costs of drug development - it focuses on already approved, discontinued, shelved or investigational therapeutics - makes this novel strategy attractive for rare and neglected conditions, cancer, emerging public health threats such as COVID-19 or new drug combinations. It also translates into more sustainable health systems.

To advance knowledge in this field and address substantial obstacles - fragmented and siloed research; non-standardised datasets; heterogenous quality of computational tools; poor patient engagement or lack of incentives and policies to support and enhance drug repurposing - the European Union will invest 23 million euros in REMEDi4ALL over the next 4.5 years through the Horizon Europe programme. It is expected that, due to REMEDi4ALL, more (and better) repurposed therapeutics will be widely

available thanks to more agile, cutting-edge development processes, ultimately contributing to increased sustainability of health systems.

In the words of Anton Ussi, Operations and Finance Director at EATRIS ERIC, and REMEDi4ALL Principal Investigator, REMEDi4ALL is "*an enormous privilege to work with this team of leading international experts, institutions and patient representatives in such an important and high potential area for European health. REMEDi4ALL will truly transform drug repurposing by making the process more transparent, efficient and – most importantly – completely patient-centred*".

A favourable eco-system for drug repurposing

The project kicked off with the ambition of establishing a European research and innovation eco-system that facilitates fast and cost-effective patient-centric development and access to repurposed medicines. To this end, REMEDi4ALL is working on:

- building a state-of-the-art platform to provide expertise and services across the complete value chain (scientific, methodological, financial, legal, regulatory, intellectual property) for patient-centric medicine repurposing at every development stage and in any disease area.
- assembling advanced in silico tools for Machine Learning (ML) and Artificial Intelligence (AI), open datasets and tools and expertise required to understand the mechanism of action of specific medicines.
- creating a global community of practice connected in a think-tank-like environment through impactful multidisciplinary activities and events.
- training and educating the next generation of researchers, clinicians, patients, policymakers, regulators and funders in cutting-edge drug repurposing tools and processes.
- favouring dialogue and debate to advance policy and fair access to repurposed medicines across the EU.

REMEDi4ALL has selected four medicine repurposing projects in different stages of development to demonstrate the viability of the newly created platform. Each project covers a different therapeutic area with high unmet medical needs– metastatic pancreatic cancer, COVID-19, osteogenesis imperfecta (OI), and Multiple Sulfatase Disease (MSD). Repurposing Development Teams (RDTs) composed of patient representatives and experts in all key areas of drug development have been assembled for each demonstrator project to address and execute all steps necessary to repurpose four chosen drugs for these diseases with a patient-centric approach.

Interview with Don Lo at the REMEDi4ALL kick-off meeting in September 2022

Donald C. Lo, PhD, is the Director of Medicines Development at EATRIS and leads scientific operations for REMEDi4ALL. Previously, he served as the Director of Therapeutic Development at the National Center for Advancing Translational Sciences (NCATS) at the US National Institutes of Health (NIH).

During his 27-year tenure at Duke University Medical Center, he established the Center for Drug Discovery, led two biotech companies as Chief Scientific Officer, and fostered collaborations with numerous academic institutions and industry partners.

Don co-founded HD Reach, a non-profit organisation dedicated to improving healthcare for Huntington's disease patients, and served as the lead scientific advisor for the Accelerate Brain Cancer Cure foundation. He has received multiple prestigious awards, authored numerous publications, and contributed to various review boards.


ZonMw – congres Goed Gebruik Geneesmiddelen 2023

“I'm very excited to join EATRIS and REMEDi4ALL. My role is to lead the scientific operations across the REMEDi4ALL project as a whole, ranging from our existing demonstrator projects to the new user projects coming on board over the next two or three years, as well as all the technical work packages that will support our drug repurposing platform.

The long-term vision of REMEDi4ALL is to make transformative change in how existing drugs and drug candidates are repurposed to address unmet medical needs across all disease areas. The goal is to make drug repurposing more into a science rather than an anecdotal activity where patients and scientists get together and try their best to repurpose a drug for a disease indication different than that for which it was first approved. This process turns out to be fraught with difficulties and very complex. Typically patients and research scientists don't have the knowledge and experience—and the necessary scientific teammates—to be able to conduct all the studies required for regulatory approval for using the drug to treat patients in the new disease area.

In fact, we already know that most all drugs, from aspirin to hydrocortisone to metformin, have the potential to treat a wide range of different diseases. But because drugs are approved for only one indication at a time, and because of the numerous scientific, regulatory, and commercial barriers for adding new disease indications to the original drug approval, the potential for every drug to treat many more diseases and patients goes largely unrealized. At REMEDi4ALL we have the opportunity to transform the drug repurposing landscape by building a distributed infrastructure that provides all of the needed resources, expertise, services, guidance and feedback for all drug repurposing projects that engage the REMEDi4ALL framework.

But even beyond getting 10 more drug repurposing approvals—or even 100 more drug repurposing approvals—it's really about change, not just the scientific landscape, but the entire drug repurposing ecosystem. As such REMEDi4ALL's scope also encompasses regulatory aspects, business models, the economics of drugs repurposing and healthcare reimbursement. The entire ecosystem has to change together with the science in order to get more treatments to many more people by taking full advantage of the vast opportunity to repurpose drugs that are already known to be safe.”

ISIDORe

The power of Research Infrastructures providing scientific services for infectious diseases outbreak research

What is ISIDORe?

ISIDORe (Integrated Services for Infectious Disease Outbreak Research) is a 3 year, €21M EU-funded project, formed by a multidisciplinary consortium of 17 RIs involving 154 partners from 32 countries, coordinated by ERINHA (the European Research Infrastructure on Highly Pathogenic Agents). The project supports scientists and their research on epidemic- and pandemic-prone pathogens, the development of medical countermeasures, with the aim of increasing resilience in the face of epidemics in Europe and globally.

What does ISIDORe offer to researchers?

ISIDORe provides free transnational access (TNA) to a comprehensive portfolio of over 300 high-quality services that support user projects.

What is transnational (TNA) access?

The ISIDORe TNA programme provides scientists with free access (physical, remote, or virtual) to facilities, equipment, expertise, services and resources that they do not usually have in the country they work in.

How can someone apply for ISIDORe services?

You can read the open calls for proposals on the ISIDORe website and follow the application process:

- Browse the catalogue and identify the service(s) that you need.
- Fill out the pre-application form at the bottom of the page and click the ‘Submit’ button.
- After receiving an email with your ISIDORe ID number, follow the instructions to complete your application.

What happens next with selected projects?

- The user is contacted with the most appropriate ‘Access Provider’ (institution or laboratory that provides the requested service) to discuss and agree on the workplan, budget and timelines of the project.
- The Service Provider executes the project workplan and delivers the expected outputs.
- User reports on the impact of TNA service results on their projects.
- User and Access Provider complete the post-service provision survey to monitor continuous TNA services improvement.

How is EATRIS involved in the project?

EATRIS is involved in 7 Work Packages of the project and leads WP12 on Immuno-monitoring and Profiling Services. EATRIS also co-leads, together with ECRIN, WP15 on Regulatory advice, trial preparation & access to clinical trials Services.

There are 10 EATRIS Access Providers from 6 countries (ES, IT, NO, PT, FI, NL) participating in ISIDORe.

In the first year, WP12 (Immuno-monitoring) received 12 pre-applications, and 3 full applications were TNA awarded for EATRIS services. WP15 (Regulatory) received 7 pre-applications and 3 full applications were TNA awarded for EATRIS services. In total there were 6 TNA awarded projects for EATRIS services in 2022.

Spotlight story on fostering collaboration: TRUSTroke

EATRIS put CERN's Large Hadron Collider into the hands of clinicians to improve outcomes for patients

In August 2020, an email sent to info@eatris.eu would mark the beginning of a collaboration that has the potential to improve healthcare outcomes.

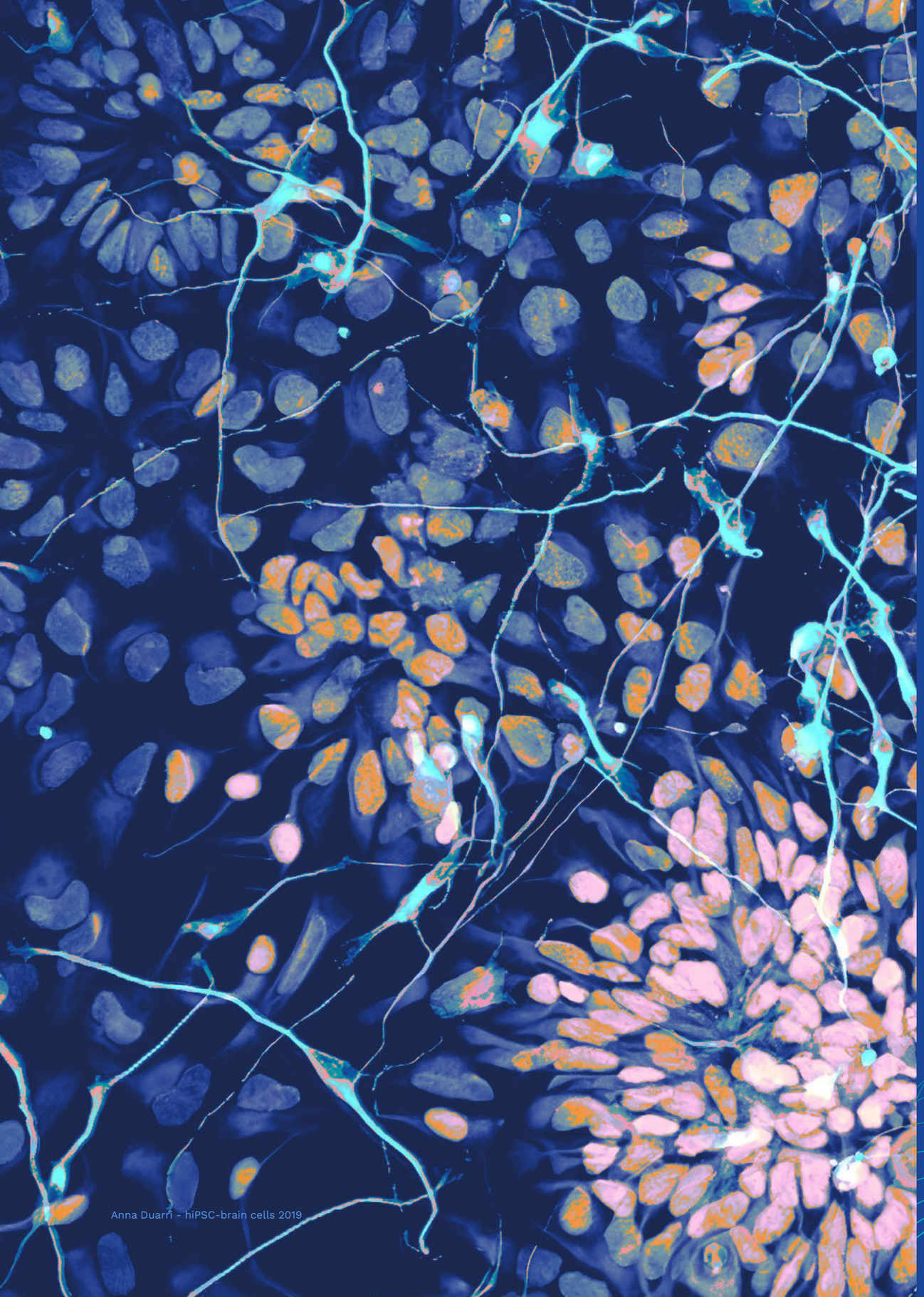
The email was a consortium building request that brought together CERN, the European Organization for Nuclear Research, and EATRIS. From this initial request, a dialogue for long-term collaboration was established between the two entities. In June 2021, this culminated in an interactive workshop involving numerous EATRIS institutions, that led to the submission of a joint proposal in February 2022.

The collaboration matched complementary expertise and needs. CERN is focused on fundamental physics research with an ambition to disseminate knowledge to other sectors, such as the artificial intelligence field (AI). EATRIS has a scientific agenda that includes implementing AI and data-driven solutions to improve healthcare outcomes.

The dialogue between CERN and EATRIS brought together academics, clinicians and AI experts to improve outcomes in stroke patients. The discussions resulted in the creation of TRUSTroke, a project that aims to build a trustworthy AI-based platform to assist clinicians, patients and caregivers in the management of strokes. The EATRIS nodes were instrumental in providing the necessary expertise for the project.

TRUSTroke represents a significant step forward in healthcare research, and is just the beginning of what is possible when different disciplines come together to address health challenges. EATRIS is proud to be at the forefront of this cutting-edge project and is committed to continuing to drive innovation in healthcare.

P.Bogdanov, H.Ramos, J.Huerta - Retinal outer space

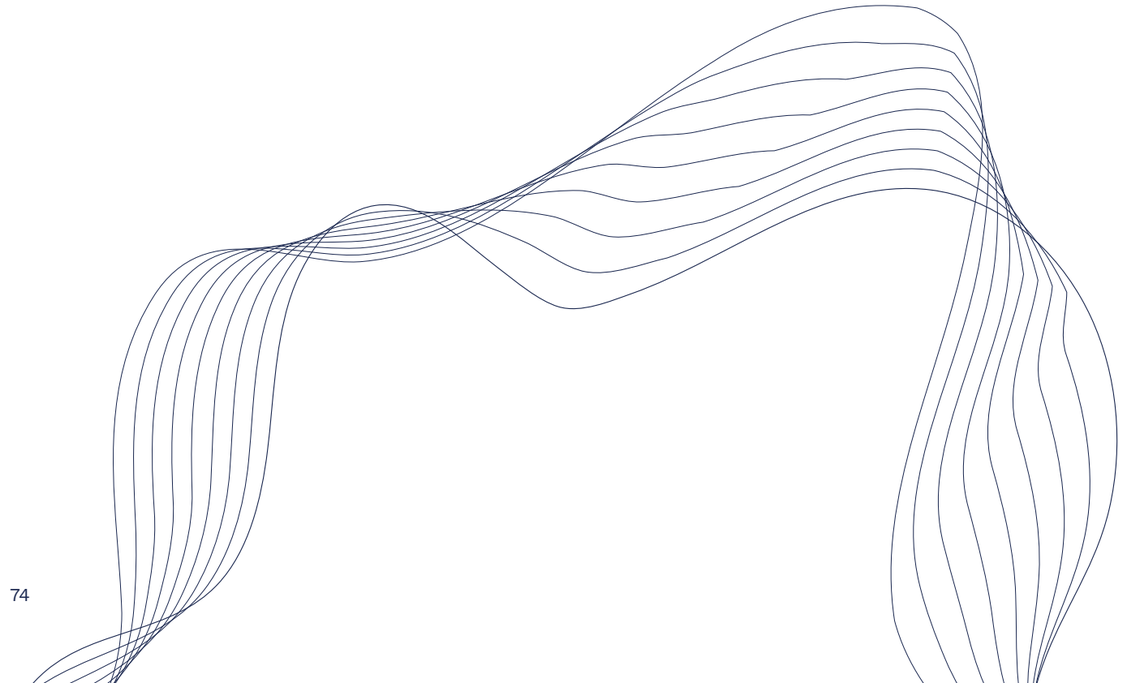


Anna Duarri - hiPSC-brain cells 2019

services and activities

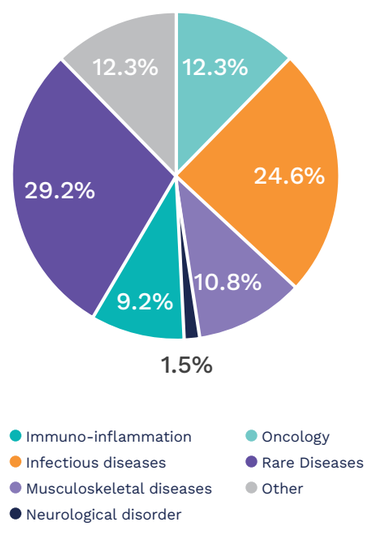
The EATRIS portfolio of users is diverse, with academia accounting for the most served sector. We perform extensive outreach, relative to our overall funding envelope, including to industry. We meet on average 100 companies per year at partnering events and conferences, which yields approximately 20 requests annually from the private sector. These SMEs often have straightforward research requests that can be handled by EATRIS Research Services. It allows companies and academics to very quickly identify the main challenges they will face along their development programme. This is especially true for complex products in the field of ATMPs.

The user access procedure is designed to facilitate fast, resource efficient and fair access of top quality translational projects to the EATRIS infrastructure. The role of EATRIS C&S in this context is to 1) Ensure that proposed projects display high translational potential with a significant expected impact on patient health and/or efficiency of the healthcare process. 2) Ensure that eligible projects are matched to top quality infrastructure with precisely the expertise and facilities required to undertake the proposed activities. 3) Facilitate a smooth and effective process, both in preparation and execution of projects.

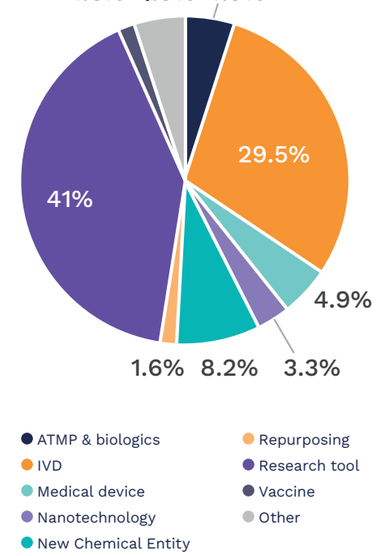


In 2022, the EATRIS portfolio saw an increase in service requests, highlighting a steady growth of research services offered. Notably, the number of translational assessments, which provide expert advice to projects, saw a significant rise. Our analysis of the project portfolio indicates that nearly half of the projects focused on the development of translational research tools, including biomarkers to support clinical trial decision-making and the creation of new in vivo tracers. Additionally, IVD projects accounted for 30% of the total. The remaining projects supported the development of therapies across all modalities, including ATMPs, vaccines, innovative delivery methods such as nanotechnologies, and repurposing. Infectious and rare diseases represented 70% of the projects, followed closely by musculoskeletal diseases, immune-inflammation, and oncology.

Disease Areas



Product Type



Research services dedicated to industry

In 2022, a new strategy to coordinate outreach towards small and medium-sized enterprises (SMEs) and business development activities was piloted and executed by the Scientific and SMEs Outreach Manager and Science Team, with the support of the EATRIS Nodes. The following initiatives were carried out that engaged private partners and raised awareness among industry for collaborative opportunities with EATRIS:

SMEs Outreach Activities, webinar for National Coordinators (24 January 2022)

EATRIS Connect event with BioInnovation Institute (22 participants, 28 February 2022)

Online meetings with SMEs in the context of the Codex4SMEs event “From research & product development to market uptake within the diagnostics sector” (21 April 2022)

Target services provided to SMEs working on companion diagnostics through Codex4SMEs project

Industry/SMEs engagement (SMEs pitches) for National Nodes Workshop (10 May 2022, Malaga)

Participation to European SLAS panel sessions on Data Management & Best Practices for Strengthening Collaborations (Dublin, 24-27 May 2022)

EATRIS-Plus workshop on “Building strong partnerships between industry and academia” (29-30 September 2022, Ljubljana)

“Health-RI 2022: Setting Data in Motion” Conference (6 October 2022, Utrecht)

Meeting with BeHEALTH 2022, Panel Discussion on Translational Medicine (25 October 2022, online)

BioFIT partnering event (7-8 December 2022, online, 16 meetings)

Translational Neuroscience Day (6 December 2022, Paris)

Further, EATRIS participated in the following B2B (business-to-business) and partnering events:

- **BioFIT (19 meetings, 7-9 December 2022, digital)**
- **Knowledge for Growth (12 meetings, 18-19 May 2022, Gent)**
- **Advanced Therapies Congress (8 meetings – 24-25 May 2022)**
- **BIO International Convention (27 meetings, 13-16 June 2022, San Diego)**
- **Artificial Intelligence and Machine Learning Revolution in Health Care brokerage event (2 meetings, 30 June 2022)**
- **Nordic Life Science Days (29 meetings, 28-29 September 2022, Malmö)**
- **Accelerating drug development using biomedical imaging biomarkers, organised by PASREL-Imagerie (21 October 2022, online, 6 meetings)**

As a result 10 research services were requested by SMEs in 2022. Among them, 6 requests were infectious/COVID-19 related. Additionally, Translational Assessments and regulatory advice services were offered to 10 companies through 3 projects (2 EU funded projects: TRANSVAC-2 and ISIDORe and the Interreg project Codex4SMEs). 3 additional SMEs benefited from our assessment through The Brain Foundation and The Dutch Arthritis Foundation.

Spotlight story on EATRIS' Translational Feasibility Assessment: Human Plus and Bcon Medical

Human Plus is an impact investment fund based in the Netherlands that accelerates high potential discoveries for the benefit of patients. The fund supports innovative product development in biomedical technology, diagnostic and pharma products. The fund focusses on de-risking the translational product development phase. To this end, Human Plus works together with EATRIS for its due diligence process including Translational Assessment (TA) and Health Technology Assessment (HTA). When selecting its projects, Human Plus partners with, amongst others, the Netherlands Cancer Institute (NKI), which is an EATRIS institute.

Bcon Medical

Since 2020, the partnership with NKI resulted in two commitments, one of them was Bcon Medical. The company is a spin-out from NKI, founded in March 2021 by the Netherlands Cancer Institute, Theo Ruers, Nijs van der Vaart and Robin de Paus. Bcon Medical aims to make navigation solutions available, affordable and easy to implement in all surgical oncology departments. In over 20% of the operated cancer patients, surgery is inadequate. In these cases, either surgical resection margins still show tumor cells or too much healthy tissue is removed or damaged. Each type of cancer has its own specific challenges. Tumor positive resection margins are a strong predictor for tumor recurrence, while damage to healthy tissue can result in long lasting complications. A surgeon has to balance radical tumor resection and sparing healthy tissue. Bcon Medical develops state-of-the-art navigation solutions to guide surgeons during complex surgical procedures. The first applications are advanced rectal and lymph node cancer surgery.

Creating added value for all partners

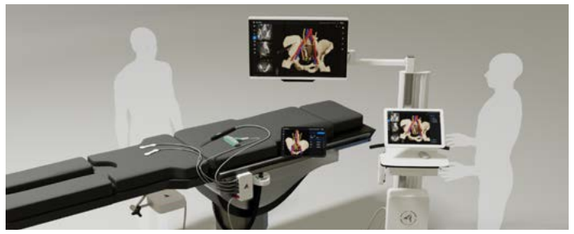
The Human Plus fund recognises the importance of a comprehensive due diligence process when it comes to investing in the international biomedical sciences sector. In collaboration with EATRIS, the fund conducts a multidisciplinary evaluation of potential investments. This approach allows the fund to tap into a vast pool of knowledge and expertise beyond its in-house resources. By leveraging EATRIS' infrastructure, the fund can select a project-tailored team of experts to ensure that each investment is thoroughly evaluated and aligned with its investment strategy. The result is a more informed and effective investment decision-making process for the Human Plus fund.

Key pillars of the due diligence process for which EATRIS provides support, are:

Conduct an international scientific review of the existing clinical assessments to verify the underlying clinical rationale and outcomes.

Review the full translational potential of the product development plan including reverse planning, milestones and potential red flags to support the project team to manage risks and increase the potential success of the project.

Assess the health technology to determine whether the new product is really innovative, not a 'me too' product and creates such added value for patients that it most likely will be reimbursed when brought to the market.



In the case of Bcon Medical, the due diligence process was mainly focused on the HTA. The new innovative approach was developed in the NKI operating room under the 'clinical exemption' flag. Early implementation of partial improvements have already led to better patient outcomes and provisional approval for reimbursement by authorities in the Netherlands.

The HTA conducted by EATRIS demonstrated the relevance and added value of the Bcon Medical approach and reaffirmed its potential for provisional reimbursement. All project partners and funders share the common goal of maximizing the chances of success by promoting full transparency and sharing due diligence reports among themselves.

Codex4SMEs

COmpanion Diagnostics EXpedited for SMEs

Interreg North-West Europe Codex4SMEs

With the mission of “the right drug, at the right dose, at the right time, to the right patient“, the Interreg North-West Europe Codex4SMEs project funds the development of innovative diagnostics for improved personalised healthcare in Europe. The funding programme aims to support small and medium-sized enterprises (SMEs) in the life sciences and medical technology sectors engaged in the development of diagnostics, by offering them a wide range of services along the entire value chain.

In the context of the Fast Track Programme EATRIS offered the following services:

Partner search: for helping SMEs find the right European academic partner thanks to EATRIS’ comprehensive database of high-end capabilities and expertise of 145 top-tier institutions.

Translational assessment: for assessing and optimising the translational feasibility and potential of the projects developed by the SME.

Full regulatory assessment: for assessing and optimising the regulatory strategy of the projects that the SME is developing.

COVID-19 research services: for supporting SMEs in their efforts in moving towards better diagnostics solutions for COVID-19, by offering the latest COVID-19 related technologies and core facilities in the field from 145 EATRIS research institutes.

Feedback from companies that have used EATRIS services through the Codex4SMEs project:

“We were pleased with the regulatory help and advice. It has helped us get a better understanding of our product in regulatory terms and provided us understanding on how to proceed. Thanks for the help and valuable insights. ”

Marenne Hoogenboom, Omnigen, Regulatory support

“I think the report is comprehensive and well-written. We extracted some relevant data and references to support our case. I also had some nice “aha” moments while reading it. We will take your feedback and recommendations very seriously, and work towards a de-risked version of our plan. I want to thank you and your team incredibly for this piece of work, and I hope that you already learned a thing or two along the way.”

Violette Defourt, Rapidemic, Translational Assessment

“Thanks for sending the draft. I’m so happy with the content. It’s very detailed and specific for our device. So, this report is of great value to us. A big thank you from our side for all your efforts!”

Varsha Thakoersing, IMcoMET, Regulatory Support

Codex4SMEs interview with Dr Miguel Angel Souto Mora

Dr Miguel Angel Souto Mora is the Director of Business Development and Innovation Management at the Bellvitge Biomedical Research Institute (IDIBELL*) in Barcelona. He was the founder of one of the first medical device start-ups established in Spain in 1999, where he was responsible for the Development and Market Placement of 16 Class III medical devices. Miguel collaborated with EATRIS as a Regulatory Expert as part of the Codex4SMEs project in 2022, and kindly agreed to tell us about his experience working as an expert for EATRIS.

**IDIBELL is now an EATRIS Expert Centre: eatris.eu/eatris-expert-centres*

eatris services and activities

How did you get involved with EATRIS?

In June 2022, we were contacted by EATRIS asking us if we might be interested in providing Regulatory support services within the field of IVD to three selected projects within the framework of the Codex4SMEs project. A few weeks later we had a first interview in which we talked about my experience in the field of medical devices and IVDs and what the work to be done within the project would consist of. A couple of weeks later EATRIS informed me that they had assigned me two projects to evaluate.

Tell us about the regulatory support that you gave as part of the Codex4SMEs project.

When a company plans to develop an IVD or Medical Device, they must bear in mind that Regulatory Strategy is one of the most, if not the single most, challenging aspects of development and launching a device to the market. This regulatory strategy is established to determine the regulatory requirements applicable to this device (technical and financial), and time the company needs to obtain a CE mark or FDA approval and launch the product to the market. Our goal with this service is to give to the company a step-by-step personalised report to bring a medical device to the market from a Regulatory Perspective. How do we do it? First, meeting with the company to understand the idea about the device. The roadmap includes a description of the device, the clinical need, the intended purpose, indications, classification of the device, legal requirements and standards, conformity assessment procedure to obtain a CE mark or FDA approval, quality management system and technical file.

Who did your support benefit?

Early-stage companies that have developed a prototype of medical device or IVD or Software as a Medical Device (SaMD). In some cases, they are looking for financing and knowing everything that the regulation implies is very important when defining their economic and technical needs.

Research services dedicated to academia

In 2022, we continued our business development and marketing efforts to bring steady visibility to EATRIS services through relationship building with consultancy companies and regular updating of communication materials available (e.g. dedicated service page, newsletters, leaflets, social media). National nodes were regularly informed of European funding opportunities, which could be strategic for their node development, notably through the weekly national nodes' teleconferences. To encourage EATRIS members to make use of these services and increase members' capacity to prepare high quality funding applications, EATRIS continued to update the Funding Opportunities database for EATRIS members diligently and accurately.

Specific attention was paid to monitoring and identifying member institutions and/or nodes with sufficient relevant expertise and track record in regulatory and innovation management support to represent EATRIS in funding proposals, as a preliminary step towards establishing future expert centres, and as a means to expand our academic user base.

2022 was marked by the kick-off of several key initiatives, including REMEDi4ALL (coordinated by EATRIS), canSERV, ISIDORe and EU-CAIM. These projects represent programmes that align with the current scientific strategies of each of EATRIS' five scientific platforms and contribute to EATRIS' SRIA, to identify and develop new tools and technologies enabling the progress of Personalised Medicine.
EATRIS joined 13 proposals as partner and supported the development of 23 proposals through its consortium building service effort.

Funders and charities dedicated services

Although business development towards funders and charities was limited, demand for the expert advice service and translational assessment continued to grow. In 2022, EATRIS provided 31 expert advices, ranging from regulatory expertise for vaccines production (TRANSVAC-2), In-vitro Diagnostic Regulation to SMEs (Codex4SMEs) to mentoring to second-stage proposals under development (EJP RD JTC2022). In addition, support for Orphan Drug Designation was given to one project as a follow-up activity from the mentoring effort provided under EJP RD. In regard to our Translational Assessments, 11 were performed totalling circa 300 hours work. ReumaNederland remains the main user of our Translational Assessment in 2022 with 6 assessments performed while a pilot was initiated with the Dutch brain foundation. Following the success of this first assessment, a long-term service agreement was signed in early 2023.

Summary of activities

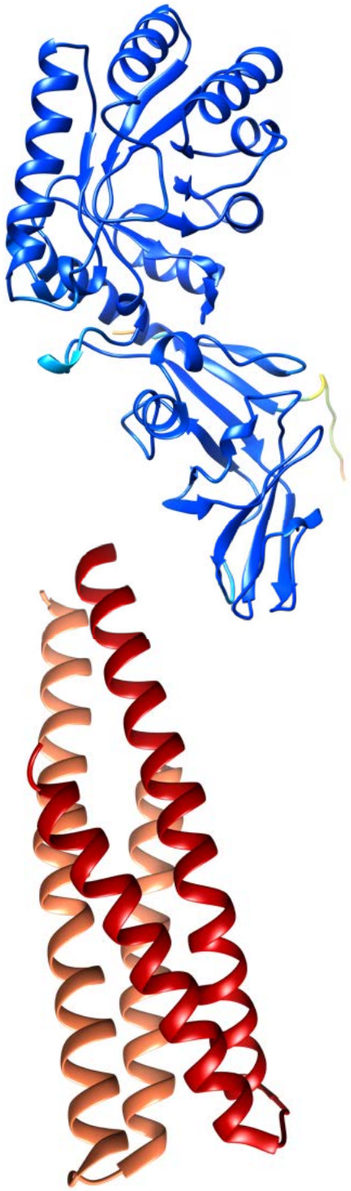
Summary of activity

SERVICES	2019	2020	2021	2022
Grant support service				
• Consortium building	13	23	35	23
• EATRIS C&S as partner	17	13	21	13
• Letter of support	3	10	7	5
Research Service	10	18	17	28
Translational Assessment/Expert advice	9	21	29	44
Industry Partnering	1	2	1	3
Hub Management	1	1	1	1

INCOME C&S OFFICE	2019	2020	2021	2022
Service fees	€ 85,339	€ 57,530	€ 50,246	€ 53,432
Grants	€ 355,107	€ 885,042	€ 828,050	€ 1,618,068

INCOME INSTITUTIONS (BUDGET NEGOTIATED)	2019	2020	2021	2022
Industry Projects	€ 818,500	€ 296,487	€ 593,651	€ 228,797
EATRIS Linked Third Party grants	€ 7,713,536	€ 136,250	€ 851,131	€ 8,217,239
Users	6,500	6,978	2,010,329	2,620,121

Digital Transformation



In 2022, EATRIS Digital Transformation constructed a multi-year vision and associated roadmap for implementation to address the data-related needs of our community of users. Specific EATRIS data-related challenges and needs were uncovered via a survey of our Nodes. The results of this survey laid the foundations for the EATRIS Digital Transformation Pillar of our 2023 –2026 Strategic Plan: Pillar 5 'Accelerate the digital transformation of Translational Medicine'.

In Q2 of 2022 EATRIS Digital Transformation worked to crystallise the challenges and bottlenecks related to sharing of datasets across our community. Commissioned by EFPIA (European Federation of Pharmaceutical Industries and Associations), EATRIS alongside Team-IT (ES), Lygature (NL), and ITTM (LU) produced a Data Sharing Playbook that focussed on the five key challenges in this area: Data Sharing Culture; Legal & Intellectual Property: Internal Processes; Security & Technology; and implementation of the General Data Protection Regulation. The resulting Playbook was published and will be used by EFPIA, and the wider community, to describe best practices, common pitfalls to avoid, and services that are able to be employed to streamline the sharing of data in collaborations.

Throughout 2022, but with a higher degree of focus in Q3 and Q4, EATRIS Digital Transformation worked to build an awareness and appreciation of the data challenges seen by translational medicine researchers to the wider scientific community. Our involvement in key projects such as EOSC-Future, EOSC-Life, and HealthyCloud in relation to community building, stakeholder engagement, and strategic agenda forming collectively allowed us to work with, for example, other European Research Infrastructures, the European Commission, and EU Member State representatives. This work will continue into 2023 across our existing portfolio of data related projects but also in those granted in 2022, namely: EOSC4Cancer, EUCAIM, REMEDi4ALL, TRUSTroke, and canSERV.

Finally, in the latter part of 2022 EATRIS Digital Transformation focussed on the application of Artificial Intelligence to Translational Medicine processes. A workshop was organised to provide a platform for experts to share their insights, experiences, and knowledge, and to identify potential solutions to overcome the existing challenges. The outcomes of the workshop are being drafted and will contribute to the EATRIS strategy in this area to facilitate development and implementation of AI solutions in healthcare, improving the speed and efficiency of bringing new treatments to patients.

The protein structures on this page were created by Tanushree Tunstall (EATRIS Translational Community Data Manager). They show the predicted structure of M. tuberculosis alanine racemase (top image) and M. tuberculosis homo dimer Dhp domain of PhoR sensory histidine kinase (bottom image).

Partnerships

Engaging with key global stakeholders to collectively address the high risk of failure in medicines development is essential to the core mission of EATRIS. Successful translational research requires cross-sectoral collaboration among diverse stakeholders, namely academia, industry, funders, hospitals, regulators and patient organisations.

Helping consolidate the Research Infrastructures' Landscape

EU-AMRI, the European Alliance of Medical Research Infrastructures formed by BBMRI, EATRIS and ECRIN officially launched in Brussels

In 2022, the collaboration of EATRIS with two other patient-centric research infrastructures (BBMRI and ECRIN) reached a new milestone with a launch event in Brussels. Over 140 online guests tuned in to watch a keynote address from Professor Walter Ricciardi (former Chair of the Cancer Mission Board), who kicked off the event by stressing the importance of leadership and of joining forces to tackle complex health challenges, such as cancer.

EU-AMRI representatives, Toni Andreu (EATRIS), Jens Habermann (BBMRI) and Jacques Demotes (ECRIN) took the audience through the EU-AMRI journey, which started back in 2018. They highlighted the need for their infrastructures to join forces with other organisations which share a similar vision for the European Research Area: accelerate patient-centric biomedical research. Finally, they provided examples of the outputs already produced by the Alliance and shared their outlook on the future impact of the initiative on researchers and policy-makers, and more importantly, patients. Five additional panellists, representing policy-makers, funders and patients, joined EU-AMRI leaders for a vivid conversation on the future of biomedical research.

The Alliance also continued to further build its advocacy presence through the organising of a side event at the International Conference on Research Infrastructures (ICRI), hosted by the Czech Presidency of the European Council, in Brno (CZ). The theme of the side event was "Finding Opportunity Among Health Challenges: Allowing the Space for Research Infrastructures Synergies" and shed a light on national and international collaborations creating synergies between Research Infrastructures. Visit the eu-amri.org website for more information.

EATRIS continues to play a central role in the ERIC Forum in 2022

The ERIC Forum brings together all European Research Infrastructure Consortia (ERICs). The ERIC Forum aims to provide information, best practices and potential solutions to challenges which ERICs can face in the preparation phase or throughout the implementation of the ERIC Regulation. The ERIC Forum is also a consultation body for EU policies related to Research Infrastructures.

Anton Ussi, EATRIS Operations and Finance Director, continued his mandate as Vice-Chair of the Forum, and supported the Chair, then Paco Colomer (JIVE Executive Director), with public representation duties, and interactions with key stakeholders for the Forum, such as the European Commission. 2022 was also the last year of the ERIC Forum project supported by H2020. Anne-Charlotte Fauvel, EATRIS Head of European Affairs, continued to lead one of the Work Packages dedicated to Operations, Finances, HR and Administration and chair the Forum's Gender Equality Working Group. The EATRIS-led WP deliverables constituted an important source of input for the ERIC Forum toolkit, an online platform helping RIs in their different life cycle stages.

Asserting EATRIS' role in the global research environment

EATRIS international partnerships, Translation Together and NewFound

Translation Together is a forum for Translational Medicine organisations across the globe to interact and exchange skills and knowledge around key challenges in the field, bringing a collective voice to advance the science and understanding of biomedical translation. Participating in this multi-national endeavor are NIH-NCATS (US), TIA (AU), AdMare Bioinovations (CA), AMED (JP), LifeArc (UK), FIOCRUZ (BR).

In 2022, the group continued to leverage its complementary scientific and operational strengths around key actions and collaborations. Collective feedback was gathered on the Innovation Management Toolbox developed under EJP RD – EATRIS-Plus and further disseminated. In addition, a taskforce on gene therapy was launched to create a forum to share experiences on the challenges and gaps in the development pipeline of these ATMPs, including the lack of standards and manufacturing capacities and the adherent regulatory challenges. The commentary piece entitled "A call to action for translational sciences in COVID-19 and future pandemics" was finally published in Nature Reviews Drug Discovery. Further progress and future plans were discussed during the Translation Together annual event which took place across two weeks and various timeslots – bringing people joining from 5 different time zones together. A Translation Together video series about translational scientists was recorded and published on the Translation Together website. Titled 'My Career in Translational Research', the series features 7 scientists with leading roles in the participating organisations. In addition, the website was updated to make visible (and easily searchable) on-going training offerings from the different partners. Last but not least, the Education and Training working group of Translation Together is drafting an article that describes how the concept of the seven traits identified in 'The Fundamental Characteristics of a Translational Scientist' was applied when developing training activities to support innovation or the next generation scientists.

A second partnership of global nature is NewFound, a joint venture with the Oswaldo Cruz Foundation (FIOCRUZ), the US National Institute of Health's (NIH) National Center for Advancing Translational Sciences (NCATS), and the Open Source Pharma Foundation (OSPF). NewFound aims to support the development of project plans and regulatory enabling studies that would expedite Drug Repurposing projects efficiently. The website launched in 2021 gained further traction with an invitation to contribute to a round table of repurposing efforts around the globe at the Washington DC 10th Conference on Drug Repurposing, Repositioning and Rescue (14-15 Nov). NewFound efforts are complementary to the objectives of the REMEDi4ALL project.

Listening to patients and fostering multi- stakeholder engagement

Advocating for meaningful patient engagement in translational research

Building on partnerships initiated since 2019 with EUPATI and the European Patients' Forum, EATRIS has taken further steps towards raising further awareness on the need to make meaningful patient engagement in translational research the "new normal". It assembled a patient engagement multistakeholder taskforce composed of researchers, research funders and patients to support the development of a 'Patient Engagement Resource Centre', an easy to navigate platform to help researchers get started with patient engagement which will be launched in 2023. As part of this effort, EATRIS co-organised several online and in-person workshops to improve its understanding of researchers' needs and barriers towards patient engagement, notably through the event series, 'Patient Engagement Open Forum'. In addition, EATRIS continued to support patient education by offering training opportunities to patients in addition to its regular training courses on medicines development and by authoring layman explanatory articles on translational medicine and personalised medicine available on the EUPATI Toolbox.

EATRIS maintains close dialogue with regulatory authorities

Finding ways to work closely with the European Medicines Agency (EMA) to learn how best to support our researchers in the regulatory strategy of their therapeutic development remains a key focus of EATRIS. Through the ADVANCE Programme which aimed to educate and train the next generation of ATMP developers, the EMA and EATRIS have worked closely together to drive the regulatory aspect of an open online course. EATRIS, EMA and the ADVANCE Programme also co-hosted three webinars, attended by over 800 participants, with scientists and regulatory experts represented from across academia, industry, and governmental organisations. Additionally, within the European Joint Programme for Rare Diseases, EATRIS and the EMA's Regulatory Science and Innovation Task Force and the Orphan Office have joined forces to develop a tutorial for academic medicines developers who would like to apply for an Orphan Drug Designation (ODD). In the video tutorial, the benefits of an ODD are highlighted, and applicants are guided through the different steps from accessing the secure online submission portal IRIS, filling in the application form, applying for protocol assistance and finding useful information to build a strong drug development strategy.

eatris services and activities

Raising the voice of EATRIS for improved framework conditions

EATRIS seized several opportunities throughout 2022 to advocate for a stronger translational research culture and ecosystem in Europe; those included joining two new coalitions and preparing a response to the EC's consultation on the future European Health Data Space.
As part of our support towards more responsible research practices, EATRIS signed the "Agreement on Reforming Research Assessment" and became a member of the Coalition for Advancing Research Assessment (CoARA). The agreement sets out a shared direction for changes in assessment practices for research, researchers and research organisations with the overarching goal of maximising the quality and impact of research. This requires basing assessment primarily on qualitative judgement, for which peer review is central, supported by responsible use of quantitative indicators.

In order to boost translational research in the field of rare diseases, EATRIS also joined the 'Rare Disease Moonshot' coalition alongside EuropaBio, EURORDIS-Rare Diseases Europe, and EFPIA, among others. The 'Rare Disease Moonshot' is a commitment and collaboration between seven organisations to break down the barriers to finding new treatments and cures for the world's most severe conditions which currently have no therapeutic options, and which often affect the youngest patients.

Finally, EATRIS answered the EC's public consultation on the future European Health Data Space (EHDS)'s Regulation. The EHDS is a Commission priority that aims at making the most of the potential of digital health to provide high-quality healthcare, reduce inequalities and promote access to health data for research and innovation on new preventive strategies, diagnosis and treatment.

Communications

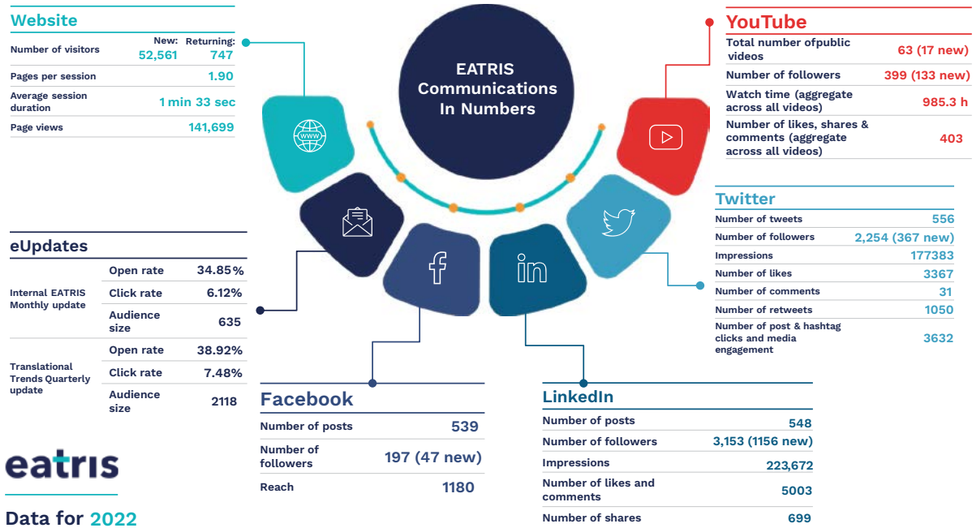
In 2022, our Communications team adopted a digital-first strategy aimed at enhancing the organisation's visibility through visually engaging content across multiple channels. Our communication approach was anchored on five key areas: website, social media, email updates, branding, and community engagement initiatives.

We continued to improve the EATRIS website, with new features, pages, design layouts, analytics and security measures implemented. These efforts yielded a significant increase in traffic, with 141,699 page views recorded, up from 111,035 the previous year.

We also took an insight-based approach to our social media accounts, resulting in strong and sustained growth across all channels, with a 23% increase in Twitter followers, 60% on LinkedIn, 104% on YouTube, and 48% on Facebook. Our email update subscriptions also increased by 23%, while the open rate rose by 7%.

A number of key EATRIS materials were designed, including a welcome message for new EATRIS institutions, roll-up banners, the EATRIS Gender Equality Plan and platform leaflets amongst others. We refreshed the branding for our five scientific platforms and established a new EATRIS tagline - 'Science beyond barriers, Medicine beyond borders' - that will roll out in January 2023 with the launch of the EATRIS 2023-2026 Strategic Plan.

In addition, we launched several initiatives that celebrate the diverse and talented people in the EATRIS community, including the EATRIS Meets, 'My Career in Translational Research,' and 'Patient voice on' interview series.



Looking ahead, we aim to enhance our communication efforts by prioritising the nurturing and expansion of our audiences, showcasing our impact, and empowering our members to become effective EATRIS ambassadors in their respective communities. This approach will enable us to establish stronger audience engagement, while highlighting our contributions to society and equipping our members with the necessary tools to represent EATRIS effectively.

EATRIS Events 2022

In 2022, EATRIS hosted a series of successful events both online and offline, providing valuable opportunities for engagement and collaboration. One highlight was the collaboration between EATRIS and the ADVANCE consortium with EMA, which resulted in multiple webinars for early-career biomedical scientists developing ATMPs. These webinars allowed participants to engage in deeper conversations and gain insights into the latest trends and best practices in the field.

Another significant event was the launch of the European Alliance of Medical Research Infrastructures (EU-AMRI), which EATRIS formed in collaboration with BBMRI and ECRIN. The launch event was held in Brussels and broadcast live on 5 April. It provided a platform for leaders in the field to discuss the importance of research infrastructures and their impact on biomedical sciences.

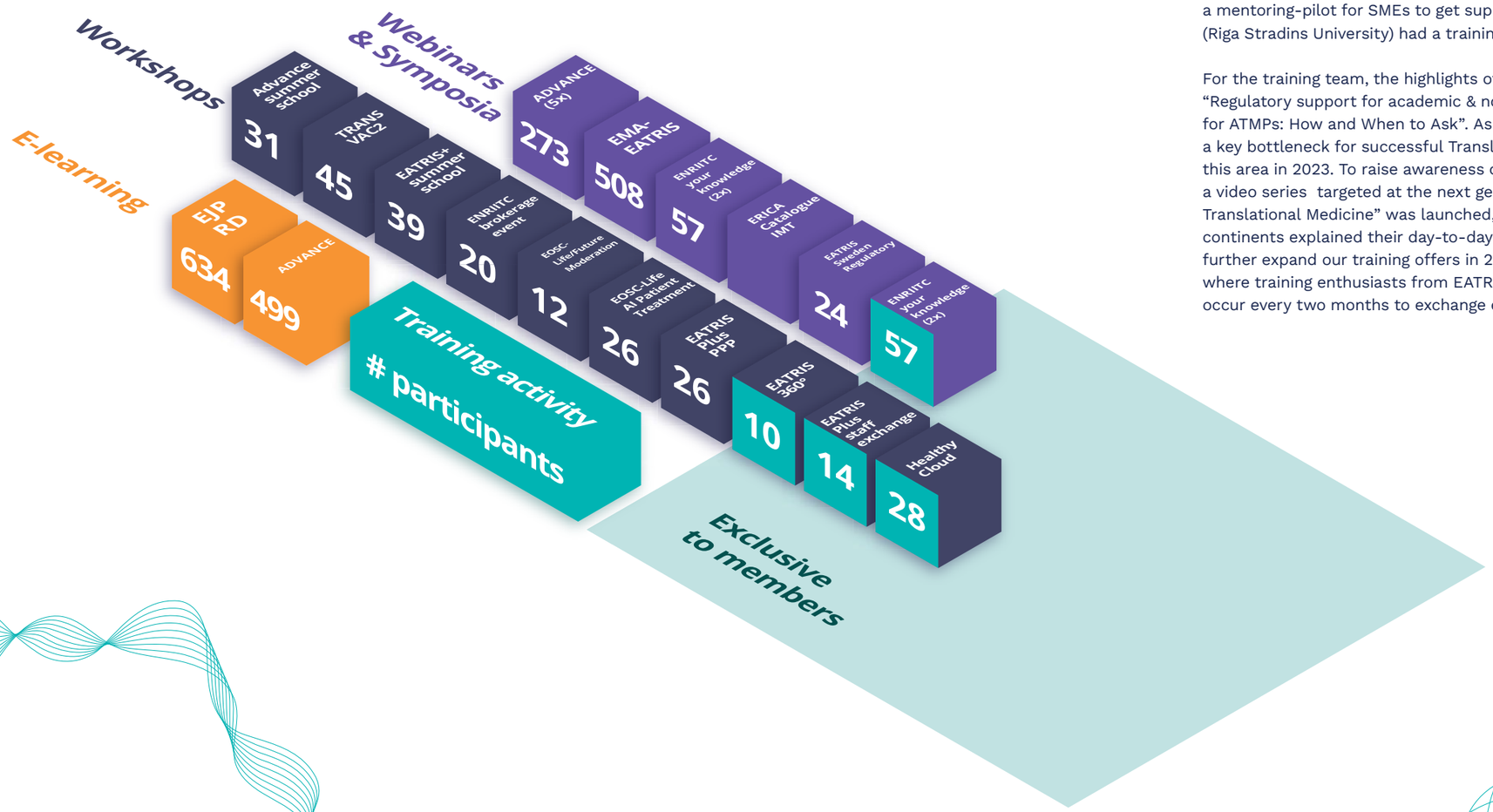
In September, EATRIS hosted the REMEDi4ALL Kick-off Meeting, which gathered over 100 representatives at the iconic building The Eye in Amsterdam. The event provided an opportunity for the consortium to network and engage in discussions around the project and latest developments in the field of medicines repurposing.

This year we also welcomed a new Events Coordinator, Ivette Corominas, to the team, whose expertise proved to be invaluable in facilitating the successful events throughout the year. With her support, the EATRIS Communications team was able to effectively deliver more events to more stakeholders, while maintaining a high level of professionalism.

Overall, EATRIS events in 2022 provided a platform for people to engage in deeper conversations, network, and strengthen relationships, contributing to bringing people together to translate scientific discoveries into benefits for patients.

Education and Training

In 2022, the training team contributed to the EATRIS mission of supporting researchers in developing their biomedical discoveries into novel translational tools and interventions for better health outcomes by designing and executing a multitude of training activities: a total of 10 webinars and 7 live courses reached more than 650 participants. Two e-learning courses that were developed as part of an EU funded project saw more than 500 participants each. All EATRIS nodes participated in our e-learning and live courses with a total of 671 participants coming from EATRIS Member States.



In 2022, we transferred our e-learning platform to a new learning management system (LMS) to continue providing online training free of charge and expanding our portfolio in a cost-effective way. The Moodle platform offers better tools, user experience and functionalities than the former platform, while allowing for proper reporting capabilities and interchangeability of courses between EATRIS member institutes and partners. During the transfer period, we took the opportunity to update existing course materials and expand our online offering. You can see for yourself here: e-learning.transmedacademy.eu

The e-learning “Cell & gene therapy (ATMP) development” was developed as part of the ADVANCE project, which included EATRIS Italian node (Istituto Superiore di Sanita) and the Slovenian node (University of Ljubljana) as partners. The e-learning “translational medicine for rare diseases” was developed as part of EJP-RD with contributions from Vall d’Hebron Institute of Research (VHIR, Spain) and EATRIS node coordinating institution in Norway. Furthermore, the Swedish Node (University of Uppsala) organised a webinar and a mentoring-pilot for SMEs to get support in regulatory matters, and the Latvian node (Riga Stradins University) had a training workshop for their researchers on grant writing.

For the training team, the highlights of 2022 were the two joint webinars with EMA on “Regulatory support for academic & non-profit ATMP developers” and “Scientific Advice for ATMPs: How and When to Ask”. As the lack of regulatory expertise in Academia is a key bottleneck for successful Translational Research, we will continue our efforts in this area in 2023. To raise awareness of the variety of careers in Translational Medicine, a video series targeted at the next generation of researchers entitled “My career in Translational Medicine” was launched, where 8 researchers from 7 countries and 4 continents explained their day-to-day job and their commitment to patient benefit. To further expand our training offers in 2022 we started the “EATRIS training network” where training enthusiasts from EATRIS institutes are invited to join our meetings that occur every two months to exchange experiences and develop ideas for collaboration.

Spotlight on ADVANCE

An EU-project to train the next generation of early-career biomedical scientists working in the field of advanced therapy medicinal products (ATMPs)

—

November 2019 - December 2022

People

4,000
PARTICIPATIONS

1,756
WEBINAR PARTICIPANTS

23K
VIEWS ON WEBSITE AND YOUTUBE

40
COUNTRIES

30+
SPEAKERS

Online Course

1,047
ONLINE COURSE REGISTRANTS

13%
OF REGISTRANTS FROM LOWER INNOVATION AND RESEARCH PERFORMING COUNTRIES (THE "EU 13")

8.5/10
PARTICIPANT RATING

30%
SAID THE COURSE IS "HIGHLY LIKELY TO IMPACT THEIR CAREER"

The ADVANCE project received funding from the European Union's Erasmus Plus programme under grant agreement 2019-1-NL01-KA203-060286.

ADVANCE
Next Generation of Advanced Therapies' Specialists

Workshop

55
PARTICIPANTS

9/10
PARTICIPANT RATING

100%
OF PARTICIPANTS STATED THEY WOULD RECOMMEND THIS WORKSHOP TO THEIR PEERS

47%
STATED THAT THE WORKSHOP IMPACTED "MUCH" OF THEIR NEXT STEPS IN THE CAREER

3
PARTICIPANTS FOUND A NEW CAREER OPPORTUNITY AS A RESULT OF THE WORKSHOP

33%
OF THE 5-DAY WORKSHOP PARTICIPANTS WERE FROM LOWER INNOVATION AND RESEARCH PERFORMING COUNTRIES (THE EU 13)

Partners

Takis Biotech
Italy

Elevate Health
The Netherlands

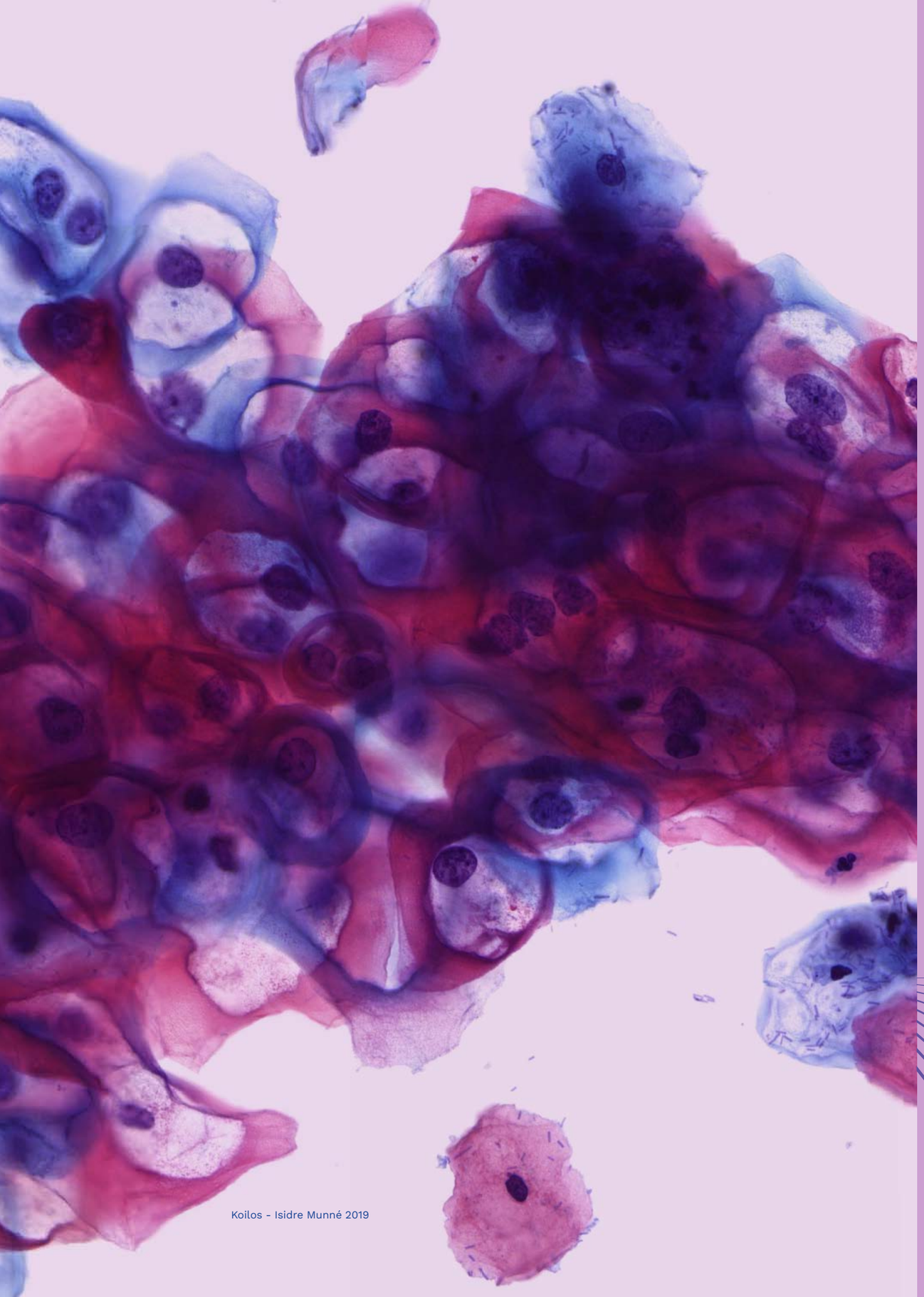
KU Leuven
Belgium

IULB/ I3H
Belgium

University of Ljubljana Faculty of Pharmacy (UL FFA)
Slovenia

Istituto Superiore di Sanità (ISS)
Italy

Other organisations involved:
EMA, Catapult UK, GAiT, EURORDIS, VHIR, LIUC, University of Naples Federico II, UMC Utrecht, EUPATI, Holostem Terapie Avanzate, Cenya Imaging, NeCSTGEN, ReiThera



Koilos - Isidre Munné 2019

financial summary

The amounts stated below are derived from the 2021 and 2022 audited financial statements of EATRIS ERIC

Figure 1 - Income and operating result

	Annual report 2022 €	Annual report 2021 €	Annual report 2020 €
Contributions income	1,644,390	1,558,370	1,664,608
Grant income	1,618,068	872,438	885,044
Total income	**3,262,458**	**2,430,808**	**2,549,652**
Salaries and wages	1,394,556	1,289,956	1,157,179
Recharge to EU projects	-746,874	-613,468	-546,704
Sub total staff	657,003	563,072	580,452
Personnel expenses	**1,304,684**	**1,239,560**	**1,190,927**
Depreciation	6,358	7,060	6,318
Other expenses	647,395	405,612	352,403
Other expenses “project costs EU”	1,351,807	749,009	742,376
Total expenses	**3,310,244**	**2,401,241**	**2,292,024**
Total operating result	**-47,786**	**29,567**	**257,628**

Figure 2 – Analysis of the balance sheet

Below we have included an analysis of the balance sheet as at 31 December 2022 versus 31 December 2021:

	2022	2021	Analysis
Activa	€’000	€’000	
Tangible fixed assets	20	16	The book value of the tangible fixed assets remained broadly similar to 2020, plus regular depreciation.
Current receivables	358	335	
Cash at banks	3,100	2,107	Cash at banks increased mainly due to an increase in current liabilities.
	3,478	**2,458**	

	2022	2021	Analysis
Equity & Liabilities	€’000	€’000	
Reserves	669	717	The reserve increased with a net of €29K, equal to the positive result of the financial year.
Current liabilities	2,809	1,741	The increase is caused by grant advance payments.
	3,478	**2,458**	

meet the community

Alex Gardiol
Senior Science and Business Strategy Developer

Alicia Soler
Scientific Programme Manager

Anne-Charlotte Fauvel
Head of EU Affairs

Anton Ussi
Operations & Finance Director

Ben Lydall
Finance & Sustainability Specialist

Camilla Santinelli
Grants Administrator

Danielle Tonnesen
Operations & Administrative Assistant

David Morrow
Senior Scientific Programme Manager

Donald Lo
Director of Medicines Development

Eliis Keidong
Member Engagement Officer

Emanuela Oldoni
Scientific Programme Manager

Florence Bietrix
Head of Operations

Frank de Man
Advisor to the Executive Board

Meet the EATRIS Coordination & Support team

Gary Saunders
Data Director

Giovanni Migliaccio
Regulatory Advisor

Ivette Corominas
Events Coordinator

Ignacio Quiles
Clinical Venture Director

Jake Fairnie
Head of Communications

Lalageh Masihi
Financial Controller

Lauranne Duquenne
Education & Training Manager

Laure Boudaud
IT & Platforms Coordinator

Lisa Williams
Head of Administration

Martin de Kort
Senior Scientific Programme Manager

Moa Drugge
Human Resources Officer

Patricia Carvajal
Scientific Project Manager

Piret Baur
Communications Manager

Rebecca Ludwig
Head of Training

Rosan Vegter
Senior Rare Diseases Community Manager

Sara Zullino
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BoG, BoND and National Coordinators

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PORTUGAL			
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	Carlos Alves		
SLOVENIA			
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		David Velasco	
		*Fatima Nunez**	
SWEDEN			
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THE NETHERLANDS			
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	Jeanette Ridder		

** Left in 2022*
Alternate contacts are listed in italics

Abbreviations

A	AI	Artificial Intelligence
	ATMP	Advanced Therapy Medicinal Products
B	BBMRI-ERIC	Biobanking and BioMolecular Resources Research Infrastructure
	BoG	Board of Governors
	BoND	Board of National Directors
	BPRC	Biomedical Primate Research Centre
C	CAR-Ts	Chimeric Antigen Receptor (CAR)-T cells
	CEST/MRI	Chemical Exchange Saturation Test – Magnetic Resonance Imaging
E	EANM	European Association of Nuclear Medicine
	EARL	EANM Research Ltd.
	EATRIS	European Infrastructure for Translational Medicine
	EATRIS C&S	EATRIS Coordination and Support Office
	EC	European Commission
	ECRIN	European Clinical Research Infrastructure Network
	EFPIA	European Federation of Pharmaceutical Industries and Associations
	EIC	European Innovation Council
	EJP RD	European Joint Programme on Rare Diseases
	EMA	European Medicines Agency
	EOSC	The European Open Science Cloud
	EPF	European Patients Forum
	EPND	European Platform for Neurodegenerative Diseases
	EQI	EATRIS Quality Initiative
	ERA	European Research Area
	ERIC	European Research Infrastructure Consortium
	ESFRI	The European Strategic Forum for Research Infrastructures
	EU	European Union
	EU-AMRI	Alliance of Medical Research Infrastructures
G	GDPR	General Data Protection Regulation
	GSK	GlaxoSmithKline
H	HE	Horizon Europe
	HESI	Health and Environment Sciences Institute
	HTA	Health Technology Assessment
	HTS	High Throughput Screening
I	IBBL	Integrated BioBank of Luxembourg
	ICO	Industry Contact Officer
	ILO	Industry Liaison Officer
	IMTM	Institute of Molecular and Translational Medicine
	iPSCs	induced Pluripotent Stem Cells
	ISCT	International Society for Cellular Therapy
	IVDs	In Vitro Diagnostics
J	JTC	Joint Transnational Call
L	LoE	Letter of Engagement
	LS RI	Life Science Research Infrastructures
M	MIRCen	Molecular Imaging Research Center
	MOTBX	Multi-Omics Toolbox
	MoU	Memorandum of Understanding
	MRCA	Master Research Collaboration Agreement
N	NC	National Coordinator
	ND	National Director
	NeurATRIS	French Node of EATRIS
	NHP	Non-human primates
	NIH-NCATS	US National Institutes of Health – National Center for the Advancement of Translational Science
P	PAC	Patient Advisory Committee
	PET/CT	Positron Emission Tomography – Computed Tomography
	PET/MRI	Positron Emission Tomography – magnetic resonance imaging
	PI	Principal Investigator
	PMC	Personalised Medicine Coalition
	PoC	Proof of Concept
R	R&D	Research and Development
	RI	Research Infrastructures
	RIS	Regulatory Information System
S	SAB	Scientific Advisory Board
	SMEs	Small and medium-sized enterprises
	SOP	Standard Operating Procedure
T	TIA	Therapeutic Innovation Australia
	TNA	Transnational Access
	TRANSVAC	European Network of Vaccine Research and Development
	TT	Translation Together
U	UMC	University Medical Centres
V	VHIR	Vall d'Hebron Research Institute
W	WP	Work Package
	WS	Workshop

View the full list of EATRIS abbreviations and acronyms here:
eatris.eu/glossary-abbreviations-and-acronyms

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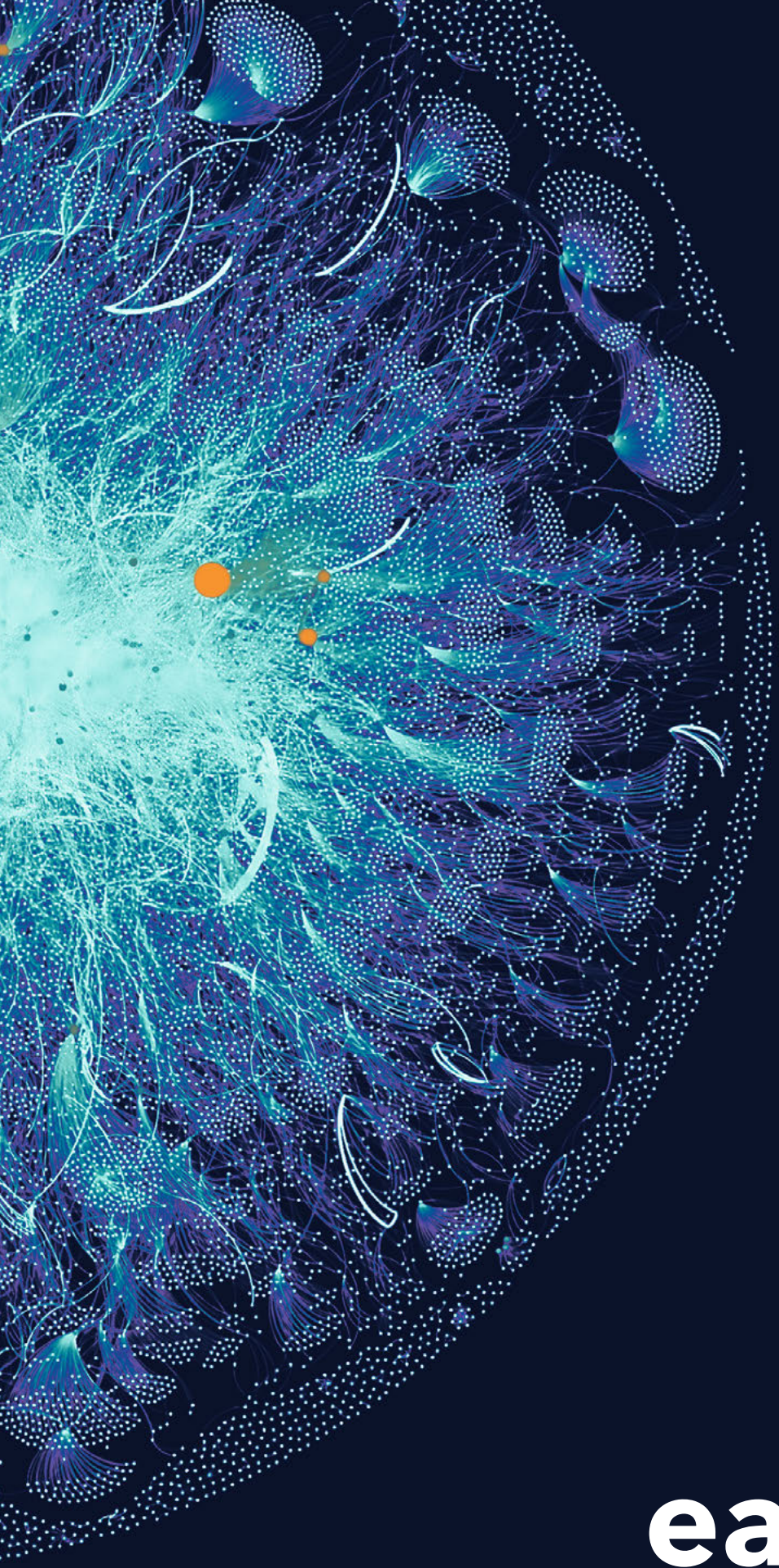
Anna Duarri - hiPSC-brain cells 2019



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