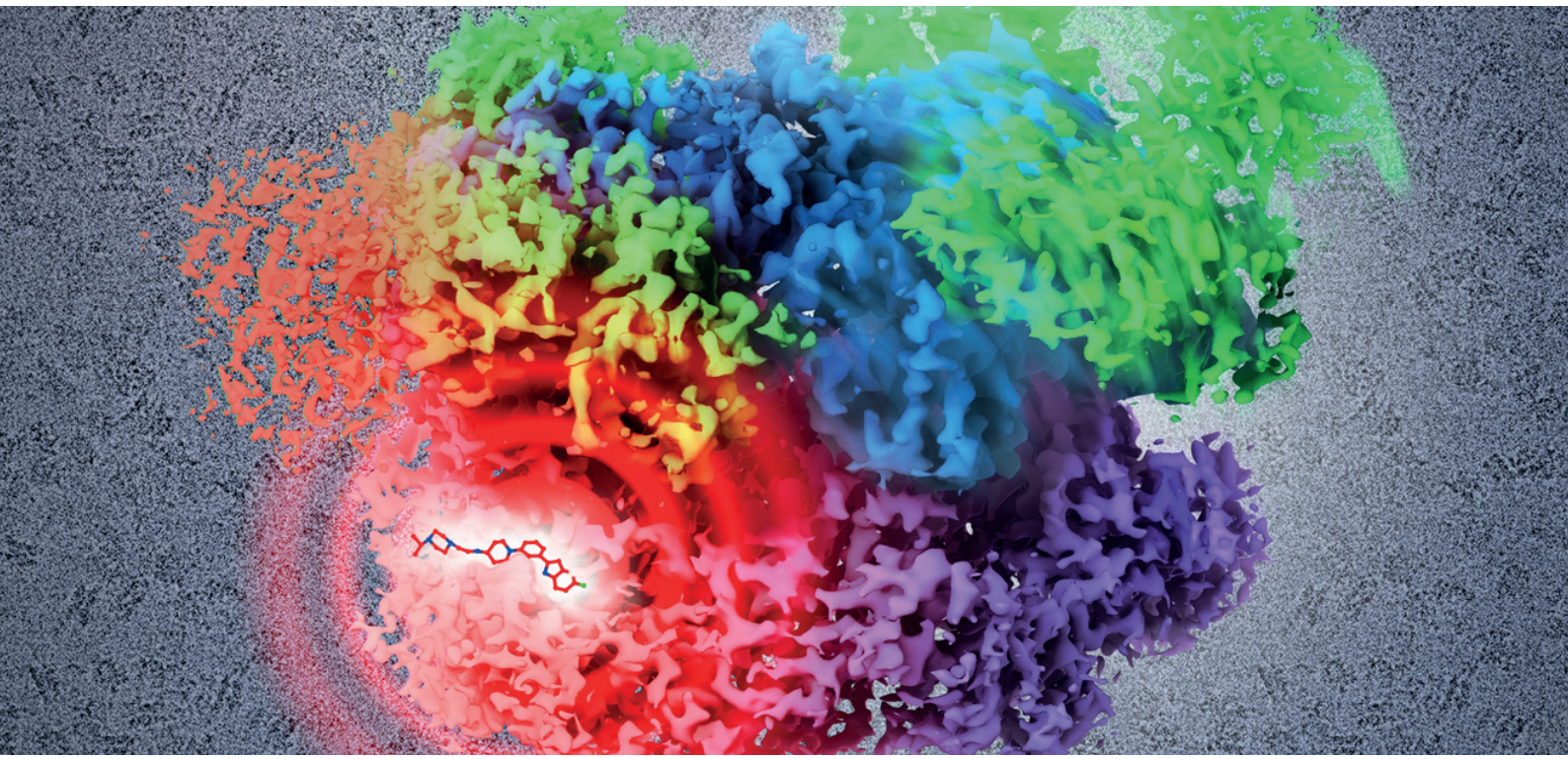
EUROPEAN INSTITUTE
FOR BIOMEDICAL
IMAGING RESEARCH



ANNUAL REPORT 2018

CONTACT

EIBIR Office
Neutorgasse 9/12
1010 Vienna, Austria
P: +43 1 533 4064 13
E: office@eibir.org

DESIGN AND LAYOUT

Peter Gordebeke

Follow us @EIBIR_biomed

For more information visit www.eibir.org

DISCLAIMER

The editorial board, editors and contributing authors make every effort to ensure that no inaccurate or misleading data, opinion or statement appears in this publication. All data and opinions appearing in the text and advertisements herein are the sole responsibility of the contributor or advertiser concerned. Therefore, the editorial board, editors and contributing authors and their respective employees accept no liability whatsoever for the consequences of any such inaccurate or misleading data, opinion or statement.

COVER IMAGE

Cancer drug target visualized at atomic resolution.

The protein p97 is trapped in an inactive state by a new inhibitor (red) and the molecule cannot proceed into its normal reaction cycle. Image created using cryo-electron microscopy.

Courtesy of National Cancer Institute, National Institutes of Health

TABLE OF CONTENTS

EDITORIAL

Dear Network Members, Corporate Partners, Colleagues, and Friends,

It is my pleasure to present you the Annual Scientific Report of the European Institute for Biomedical Imaging Research (EIBIR) for the year 2018. It has been another successful year, full of events and new perspectives, in the field of biomedical imaging research. One of the milestones in 2018 was the publication of our first Strategic Research Agenda (SRA) for Biomedical Imaging. The document was developed in collaboration with our Scientific Advisory Board and Shareholders and illustrates how biomedical imaging and derived data can help to overcome current challenges and meet future needs in healthcare. The SRA also focusses on the growing importance of big data, artificial intelligence, and innovative imaging technologies. This trendsetting plan shows EIBIR's long-term commitment to improving diagnosis, treatment and prevention of disease.

2018 was a successful year for projects coordinated by EIBIR: our team continued to manage and support seven Horizon 2020-funded projects - CoSTREAM, HYPMED, GLINT, LUCA, MEDIRAD, SOLUS and EURO-CAS. The latest news on all these projects is included in this report. In addition to these collaborative EU funded projects, EIBIR also supported two investigator-initiated, industry-sponsored clinical studies: The MIPA and the SPECIFIC studies, both of which are dedicated to current issues in the field of biomedical imaging and aim to improve patient safety and overall clinical results.

The past year also saw an increase in the activity of the EIBALL QIBA Taskforce, which works to create a unified set of guidelines on how to use arterial spin labelling as a biomarker. The taskforce is supported administratively by EIBIR. Our broad range of support activities is completed by our seven current Joint Initiatives, which represent interdisciplinary groups working towards a common bioimaging-focused research goal.

Prof. Gabriel Krestin
EIBIR Scientific Director

I would like to take this opportunity to thank our members for their great support again in 2018. As a result of their continued backing, EIBIR is able to offer proposal preparation and project management services to biomedical imaging researchers at a fraction of the cost charged by similar entities in the private sector. On behalf of the entire EIBIR team, I can say that we all look forward to seeing our partnership continue to flourish for years to come.

I hope our Annual Scientific Report will inspire and empower you. If you want to be a part of this success, I encourage you to contact us so we can assist you in preparing a successful research proposal and guide you through your European research initiatives.

Sincerely,

Gabriel Krestin

OUR SERVICES

WE PROVIDE PROPOSAL PREPARATION AND PROJECT MANAGEMENT SUPPORT FOR HORIZON 2020 AND OTHER EUROPEAN FUNDING SCHEMES

OVER THE LAST 10 YEARS, EIBIR HAS HELPED SHAPE THE LANDSCAPE OF EUROPEAN BIOMEDICAL IMAGING RESEARCH BY SUPPORTING SCIENTISTS AND HELPING THEM SECURE FUNDING FOR THEIR PROJECTS.

High-level project management is required to ensure the successful accomplishment of every project's goals. We offer expert advice, project management and coordination, communication and dissemination services for collaborative research projects and clinical studies. Our mission is to ensure optimal conditions for researchers to develop their dream projects by relieving them from all related administrative and management work.

EIBIR IS AN EXPERT IN DEVELOPING COMPETITIVE PROJECT PROPOSALS

There are several unique benefits of having EIBIR support the preparation of a research proposal. Over the course of the last 10 years, the EIBIR team have gained a clear understanding of what the European Commission expects in each section of a research proposal. EIBIR is a strong partner in all aspects related to writing a proposal for research funding, including assistance in drafting and finalising the budget.

One of the main advantages of working together with EIBIR is the opportunity to benefit from the expertise of our Scientific Advisory Board. It consists of more than 35 international experts from various specialties who can provide critical scientific feedback on your project ideas.

We also offer assistance in consortium formation and identifying suitable academic, industry or SME partners for your project.

SUCCESSFUL PROJECT MANAGEMENT SUPPORT

Once your research proposal has been granted, we offer professional project management and coordination, communication and exploitation services for your research projects and clinical studies.

EIBIR is a reliable partner in following the rules and regulations of Horizon 2020 while making them more easily accessible and less burdensome and gives you space and time to focus on project's success.

SAVE PRECIOUS TIME

We are aware you already have many demands on your time. By assuming management and administrative responsibilities, we relieve you of these time-consuming tasks, allowing you to focus on your research instead.

SINCE 2006, EIBIR HAS HELPED TO SECURE OVER € 80 MILLION IN RESEARCH FUNDING FOR BIOMEDICAL IMAGING. THIS IS TESTAMENT TO OUR EFFECTIVENESS IN PROMOTING AND SUPPORTING BIOMEDICAL RESEARCH.

Service	Description
EIBIR Proposal Preparation Support, Consortium Building and Project Management	**Proposal Preparation** •Submission of project idea and pre-proposal check •Consortium formation and communication •Proposal writing and budget planning •Document polishing and editing •Submission via EC online portal **Project Management** •Grant and consortium agreement preparations •Regular European Commission project reporting •Financial management of your project •Communication and dissemination
EIBIR Electronic Data Capture Platform	The EIBIR Electronic Data Capture (EDC) Platform can be used to collect and manage almost any type of digital data that is part of your biomedical research — from numerical values or text, to DICOM images.
EIBIR Joint Initiatives	Participate in EIBIR's interdisciplinary groups that work towards a biomedical imaging research goal or start a new joint initiative related to your field.
EIBIR Scientific Advisory Board	Have your institution represented on our Scientific Advisory Board and help shape the future of biomedical imaging research (candidates are subject to approval procedure by the current EIBIR shareholders before appointment).
EIBIR Dissemination Support	Send us updates and news from your research and we will share it via our online and social media channels.
EIBIR Members Bulletin	Receive regular updates on expected funding calls to give you a head start on your proposal preparation. This service gives our members an early indicator of the funding opportunities available to them, which also gives them a crucial advantage in proposal preparation.
EIBIR Online Members Database	Search our database of member institutions to find new research partners. Take the latest clinical and fundamental biomedical imaging research, multiply it with top-quality biomedical imaging research laboratories and academic imaging departments, add many more talented, senior scientists and you will have an extensive, high quality research network.

FLEXIBLE PRICING

Our range of support services to research institutions can be accessed via three service package categories at affordable, flexible pricing. As a non-profit organisation, EIBIR aims to boost the success of biomedical imaging research in the European funding landscape by providing crucial support services.

To fully benefit from our services, you can become part of the EIBIR Network for a reasonable annual fee.

For proposal preparation only, we now offer alternative pricing options including a success fee of 1.5% of the total requested project budget. For more information on the available pricing options, please contact our office.

Service package fee per calendar year per institution	Active €1000	Regular €200	Associate €100
EIBIR Proposal Preparation support, Consortium Building and Project Management (full proposals, stages 1 and 2)	✓		
EIBIR Proposal Preparation support, Consortium Building and Project Management (first stage only)		✓	
EIBIR Network Consortium Building	✓	✓	✓
EIBIR Electronic Data Capture Platform	✓	✓	
EIBIR Joint Initiatives	✓	✓	
EIBIR Scientific Advisory Board[1]	✓	✓	
EIBIR Dissemination Support[2]	✓	✓	✓
EIBIR Members Bulletin	✓	✓	✓
EIBIR Network Database	✓	✓	✓

1: Please note that this is conditional on the approval of EIBIR's shareholders

2: Please note that EIBIR cannot guarantee that every update or news item sent to it can be published via its dissemination & communication channels.

OUR NETWORK

THE EIBIR NETWORK HAS ESTABLISHED ITSELF AS A VITAL LINK FOR ITS PARTICIPATING ORGANISATIONS

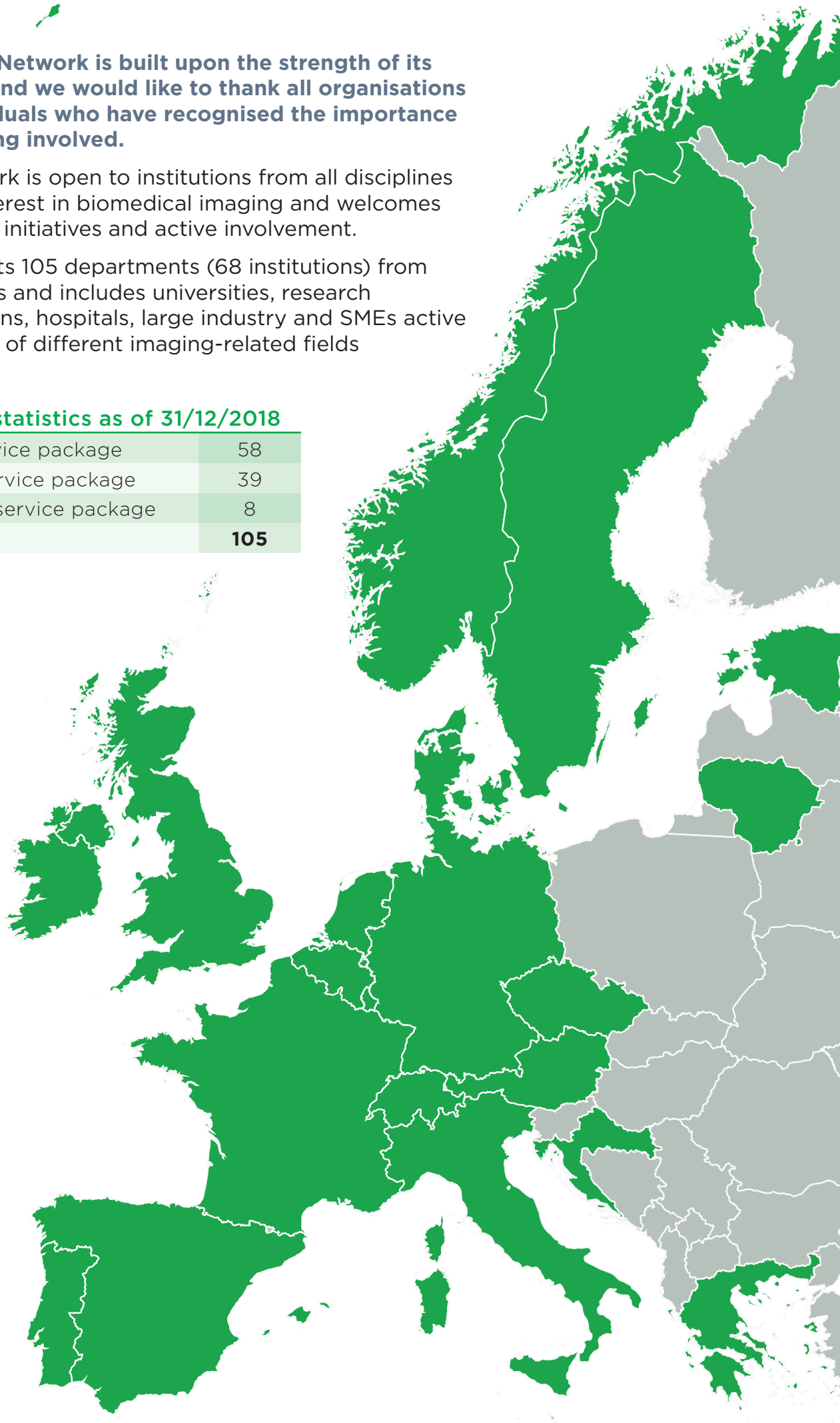
The EIBIR Network is built upon the strength of its partners, and we would like to thank all organisations and individuals who have recognised the importance of becoming involved.

Our Network is open to institutions from all disciplines with an interest in biomedical imaging and welcomes bottom-up initiatives and active involvement.

It represents 105 departments (68 institutions) from 21 countries and includes universities, research organisations, hospitals, large industry and SMEs active in a variety of different imaging-related fields

Network statistics as of 31/12/2018

Active service package	58
Regular service package	39
Associate service package	8
Total	**105**

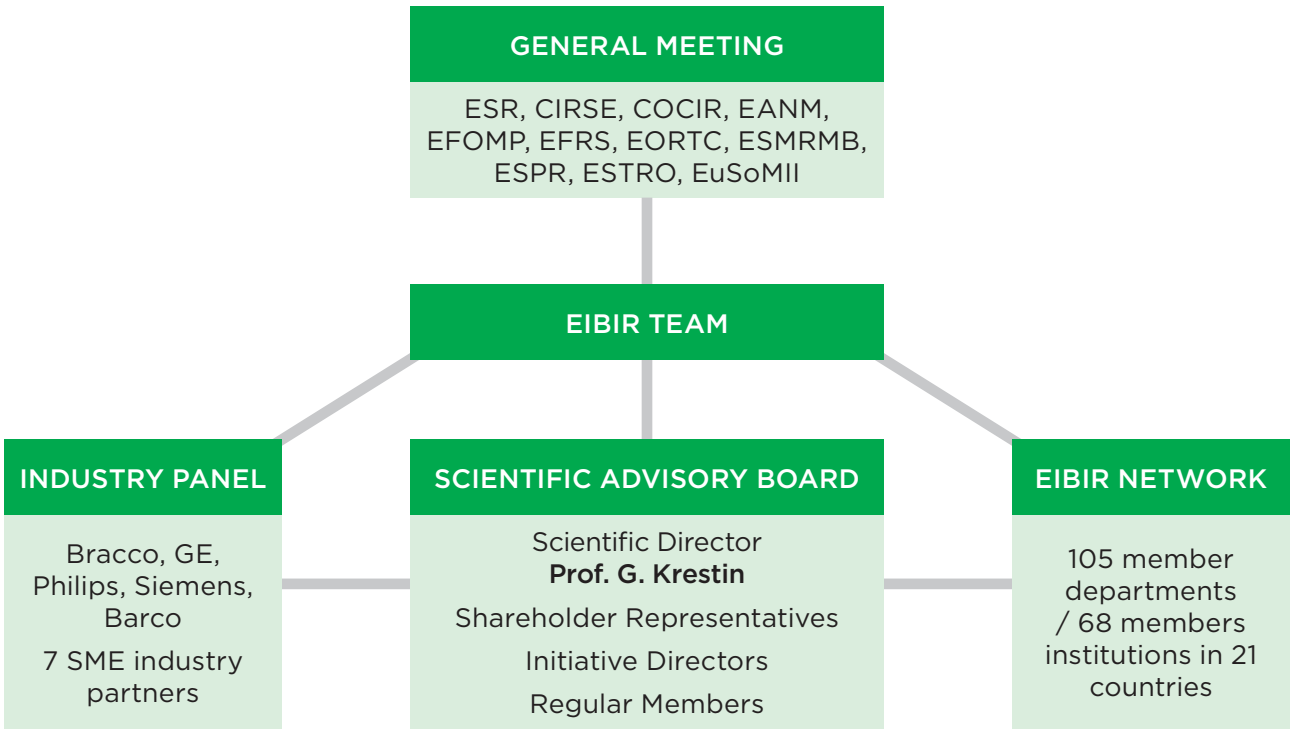


ABOUT US

EIBIR IS A NON-PROFIT RESEARCH ORGANISATION FOUNDED BY THE EUROPEAN SOCIETY OF RADIOLOGY

OUR ORGANISATIONAL STRUCTURE

Combining the expertise of our scientific advisory board, advice from our multi-disciplinary shareholder groups, input from the European Society of Radiology Research Committee and recommendations from the industry panel, EIBIR benefits from the guidance and support of a multi-faceted organisational structure that ensures EIBIR and biomedical imaging are at the forefront of research activities in Europe.



SCIENTIFIC ADVISORY BOARD

Our Scientific Advisory Board (SAB) sets and guides the organisation's long-term strategies and goals for biomedical imaging research. It also provides invaluable expert advice and feedback to researchers on their proposals.

In 2018, the SAB met twice to discuss EIBIR's strategy for future research calls and to brainstorm on new ideas that can better serve researchers and further promote the role of biomedical imaging in European research.

SCIENTIFIC DIRECTOR

Gabriel P. Krestin is full professor of Radiology and Chairman of the Department of Radiology at Erasmus MC, University Medical Center Rotterdam, the Netherlands. His main areas of research are: imaging of abdominal organs and of cardiovascular diseases, molecular imaging and population imaging. He is a member of the recently established Scientific Panel for Health of the European Commission.

SHAREHOLDER REPRESENTATIVES 2018

Philippe Pereira, *Cardiovascular and Interventional Radiological Society of Europe (CIRSE)*

Casper Garos, *European Coordination Committee of the Radiological, Electromedical and Healthcare IT Industry (COCIR)*

Kristoff Muylle, *European Association of Nuclear Medicine (EANM)*

Anja Almen, *European Federation of Organisations in Medical Physics (EFOMP)*

Jonathan McNulty, *European Federation of Radiographer Societies (EFRS)*

Yan Liu, *European Organisation for Research and Treatment of Cancer (EORTC)*

Matthias Günther, *European Society for Magnetic Resonance in Medicine and Biology (ESMRMB)*

Owen Arthurs, *European Society of Paediatric Radiology (ESPR)*

Olivier Clément, *European Society of Radiology (ESR)*

Vincenzo Valentini, *European Society for Radiotherapy and Oncology (ESTRO)*

Angel Ablerich, *European Society for Medical Imaging Informatics (EuSoMII)*

JOINT INITIATIVE DIRECTORS

Wiro Niessen *(Biomedical Image Analysis Platform)*

Michal Neeman *(Cell Imaging Network)*

Silvio Aime *(Chemistry Platform)*

Nandita de Souza *(European Imaging Biomarkers Alliance)*

Christoph Hoeschen *(European Alliance for Medical Radiation Protection Research)*

Francesco Sardanelli *(EuroAIM)*

Karen Rosendahl *(Paediatric Radiology)*

Vincenzo Valentini *(Image Guided Radiotherapy)*

REGULAR MEMBERS

Henryk Barthel
Vincent Dousset
Alejandro Frangi
Xavier Golay
Horst Hahn
Myriam Hunink
Hans-Ulrich Kauczor
Georg Langs
Luis Marti-Bonmati
Celso Matos
Konstantin Nikolaou
Anders Persson
Antonio Pifferi
Katrine Riklund
Andrea Rockall
Oliver Speck
Steven Sourbron

SHAREHOLDERS

EIBIR's shareholder organisations exemplify the importance of a multidisciplinary approach in biomedical imaging research. Their support is vital to EIBIR's decision making.

European Society of Radiology
www.myesr.org

Cardiovascular and Interventional Radiological Society of Europe
www.cirse.org

European Coordination Committee of the Radiological, Electro-medical and Healthcare IT Industry
www.cocir.org

European Association of Nuclear Medicine
www.eanm.org

European Federation of Organisations in Medical Physics
www.efomp.org

European Federation of Radiographers Society
www.efrs.eu

European Organisation for Research and Treatment of Cancer
www.eortc.org

European Society of Paediatric Radiology
www.espr.org

European Society for Magnetic Resonance in Medicine and Biology
www.esmrmb.org

European Society of Medical Imaging Informatics
www.eusomii.pro

European Society for Radiotherapy and Oncology
www.estro.org

INDUSTRY PANEL

The Industry Panel allows EIBIR and its member industry organisations to identify shared interests and opportunities for collaboration.

The cost for membership packages range from €10,000 for Gold, €5,000 for Silver and €1,000 for SMEs. Industry Partners benefit from EIBIR services according to their varying financial commitment.

The long-standing commitment of EIBIR's industry partners have allowed projects such as the MIPA study, and EIBIR looks forward to enhanced cooperation in the coming years.

GOLD PARTNERS

BRACCO

GE Healthcare

PHILIPS

SIEMENS

SILVER PARTNERS

BARCO
Visibly yours

SME PARTNERS

Small and medium-sized enterprises (SMEs) are actively encouraged to participate in Horizon 2020 programmes through new dedicated SME measures. These aim to fill gaps in funding for early-stage, high-risk research and innovation by SMEs as well as stimulating breakthrough innovations. EIBIR helps its SME members take advantage of SME-targeted funding opportunities by identifying suitable calls and connecting the right partners from within our Member Network.

Futura

Future Composites
www.futuracomposites.nl

Vermon
world leader in Composite Piezoelectric Transducers

Vermon
www.vermon.com

NORAS MRI products

NORAS MRI Products
www.noras.de

Quantib

Quantib Imaging Biomarkers
www.quantib.com

NOVAURA

Novaura
www.novaura.com

quibim

Quibim
www.quibim.es

EIBIR TEAM

We are a professional team with significant experience in the field of biomedical imaging research funding, extensive knowledge of the European Commission requirements and European research landscape.

Feel free to contact us directly or email office@eibir.org for more information or a personalised offer of our services.

Mag. Monika Hierath
Executive Manager
+43 1 533 4064 20
mhierath@eibir.org

Dr. Pamela Zolda
Project Manager
+43 1 533 4064 538
pzolda@eibir.org

Peter Gordebeke, MSc
Project Manager
+43 1 533 4064 323
pgordebeke@eibir.org

MMag. Katharina Krischak, BA
Project Manager
+43 1 533 4064 13
kkrischak@eibir.org

Ulrike Mayerhofer-Sebera, MA
Project Manager
+43 1 533 4064 43
umayerhofer-sebera@eibir.org

Dr. Carina Kern
Project manager
+43 1 533 4064 321
ckern@eibir.org

Yoanna Ivanova, BA
PR and media expert
+43 1 533 4064 525
yivanova@eibir.org

JOINT INITIATIVES

OUR EIGHT JOINT INITIATIVES REPRESENT INTERDISCIPLINARY GROUPS WORKING TOWARDS A COMMON BIOIMAGING-FOCUSED RESEARCH GOAL

EIBIR SUPPORTS JOINT INITIATIVES IN SETTING UP A NEW RESEARCH-ORIENTED COMMUNITY OF SCIENTISTS

EIBIR Joint Initiatives (JI) represent interdisciplinary groups working towards a common biomedical imaging-focused research goal to strengthen the JI's specific research area.

In 2018, EIBIR supported eight JIs with specific activities, including the coordination of collaborative research efforts, communication and dissemination of research results or announcements, and the organisation of workshops, meetings and training.

- Biomedical Image Analysis Platform
- Cell Imaging Network
- Chemistry Platform
- European Network for the Assessment of Imaging in Medicine (EuroAIM)
- European Alliance for Medical Radiation Protection Research (EURAMED)
- European Imaging Biomarker Alliance (EIBALL)
- Image Guided Radiotherapy
- Paediatric Radiology

START YOUR OWN JOINT INITIATIVE

To start a JI within EIBIR, a written concept describing the group's aims, goals and mission is to be presented to our Scientific Director. It should include the name of the future Director of the JI, potential members and ideas for activities for the coming year.

The application will be reviewed by the Scientific Director and the SAB. After positive feedback from the Scientific Director and the SAB, the JI and its Director have to be formally appointed by the EIBIR shareholders during the annual EIBIR General Meeting held on the occasion of the annual European Congress of Radiology. The JI Director then becomes an ex officio member of the EIBIR SAB.

Following formal establishment, the JI Director invites potential members of the JI. We can help you in advertising the new JI by sending out information in our newsletters and distributing it to our shareholders.

The overall goals and aims are consolidated in a kick-off meeting of the JI, in which the strategic course of action and responsibilities of the JI Director and JI members are defined.

During meetings of the SAB, the JI Director is reports on the JIs activities and present the strategic goals for the upcoming year(s).

EIBIR will offer administrative support to the JI Director, however, there is no additional financial support available for the directors or members unless provided within specific projects. All JIs will benefit through the EIBIR networking opportunities and collaboration in research projects.

2018 HIGHLIGHTS

WE LOOK BACK ON ANOTHER SUCCESSFUL YEAR, OPENING NEW PERSPECTIVES IN THE FIELD OF BIOMEDICAL IMAGING RESEARCH

EUROPEAN CONGRESS OF RADIOLOGY 2018

In 2018 EIBIR continued its presence at the European Congress of Radiology's programme with a session dedicated to three of EIBIR´s running H2020 projects. The Session 'European imaging researchers united in diversity' took place on March 1, 2018 and featured three speakers from projects, in which innovative solutions for cancer diagnosis are being developed. It also informed the wider scientific community of how EIBIR can support them. Udo Weigel from the LUCA project reported on the envisaged technology for non-invasive thyroid cancer screening, Thomas Helbich presented the HYPMED project`s planned multi-centre clinical trial of a new hybrid MR/PET insert and Paola Taroni, Coordinator of the SOLUS project, talked about the combination of optical methods with ultrasound for enhanced breast cancer diagnosis. Pamela Zolda from the EIBIR team informed about support services for researchers. The lively discussion between speakers and attendees showed the broad interest in all presented topics.

EIBIR AT ECR 2019

At ECR 2019, EIBIR will host a special Coffee & Talk Session with the topic: EU-funded research in imaging and how you can get your research funded. The session will introduce our services and activities, present a researcher's experience in collaborating with us and give an outlook about upcoming EU calls in the field.

EIBIR will also be respresented at an EFRS workshop discussing radiography research. During this session you can also learn about how to turn your research idea into reality and about opportunities for European funding.

EIBIR NETWORKING EVENT

We will host a Networking Event at the EIBIR Lounge in the main entrance hall. Researchers from EIBIR-supported projects and members of various EIBIR bodies will attend. Throughout ECR 2019, results of the LUCA, SOLUS, HYPMED and CoSTREAM projects will be on display. More information on these projects is available on page 24 and onward.

WE LOOK FORWARD TO SEEING YOU AT ECR 2019!

STRATEGIC RESEARCH AGENDA

We published our Strategic Research Agenda (SRA) for Biomedical Imaging in September 2018. The SRA identifies current challenges and needs in healthcare and illustrates how biomedical imaging and derived data can help to address these challenges. These include:

The EIBIR Strategic Research Agenda fo Biomedical Imaging is available on the our website at **www.eibir.org/sra** and had also been published in the **Insights Into Imaging Journal** (10.1186/s13244-019-0684-z)

- Meeting the healthcare demands of Europe's population
- Developing new disease-specific, targeted, and image-guided therapies
- Contributing to a healthy start
- Providing assessment of lifestyle and environmental impact factors on health
- Making Europe the world leader in machine learning and artificial intelligence

In particular, the agenda describes the current paradigm shift in medicine, which has moved from reactive to proactive approaches by providing predictive, preventive, and personalised solutions for individual patients. It highlights the growing impact of personalised medicine on patients and its ability to address the challenges of ineffective treatment and rising costs.

The SRA also focusses on the growing importance of big data, artificial intelligence, and innovative imaging technologies, emphasising the role of biomedical imaging as a forerunner in the digital transformation of healthcare and as a leading discipline in terms of the adoption of innovative solutions like deep learning.

The SRA is aimed at informing policymakers and funding authorities about key areas of research in biomedical imaging while also highlighting hot topics to consider in future funding programmes. It was developed by the EIBIR office and Scientific Advisory Board, in collaboration with its eleven shareholder organisations, representing scientific societies related to biomedical imaging.

EIBALL QIBA ASL TASKFORCE

In 2018, EIBIR supported a joint taskforce of the ESR/EIBIR initiative EIBALL (European Imaging Biomarkers Alliance) and RSNA initiative QIBA (Quantitative Imaging Biomarkers Alliance).

EIBALL
EUROPEAN IMAGING BIOMARKERS ALLIANCE

This taskforce, led by Prof. Xavier Golay from the University College London (London/UK), is collaborating in the development on a set of guidelines on how to use Arterial Spin Labelling (ASL) as a biomarker.

Early advances of the guidelines, supported by preliminary experimental results, have been presented at the RSNA Annual Meeting 2018 in Chicago/US. A dedicated workshop has been planned in Ann Arbor/US for early 2019.

The taskforce hopes to complete the ASL guideline document for extensive review during the course of 2019.

EDC USED BY EUCLID PROJECT

The ESR is leading the European Commission tender project EUCLID (European Study on Clinical Diagnostic Reference Levels for X-ray Medical Imaging).

EUCLID | European Study on Clinical DRLs

In 2018, its main activity was the implementation of surveys to collect patient data from twenty participating European centres for the establishment of clinical DRLs for 10 predefined CT indications and 4 predefined interventional radiology procedures.

The project team is using the EIBIR electronic data capture (EDC) platform for the data collection. Together with the project team, EIBIR developed and set up multiple questionnaires, and is supporting the EUCLID team in preparing the data for analysis.

The data collection started in June 2018 and is expected to conclude in early 2019. The EUCLID team presented the data analysis methodology and preliminary survey results to the European Commission in November 2018.

BBMRI-ERIC COLLABORATION

EIBIR has been working together with the ESR experts of the MIABIS-DICOM working group to set up a collaboration with BBMRI-ERIC to extend their biobank directory to describe and include image collections.

EIBIR provides the operational support for the activities regarding the federation of imaging biobanks, at first to demonstrate the added value of such collections, especially for applications using Artificial Intelligence.

The activities on collecting descriptions of imaging biobanks and imaging collections will make use of the EIBIR Electronic Data Capture Platform.

OUR PROJECTS

WE ARE PROUD TO SUPPORT MORE THAN 140 PARTNERS FROM 30 COUNTRIES RESEARCHING VARIOUS FORMS OF CANCER AND NEUROLOGICAL DISORDERS, AND DEVELOPING NOVEL IMAGING TECHNOLOGIES.

EURO-CAS

EUROPEAN EHEALTH INTEROPERABILITY CONFORMITY ASSESSMENT SCHEME FOR EUROPE

Launched in December 2016, the EURO-CAS project aimed to deliver an eHealth Interoperability Conformity Assessment Scheme for Europe (CASforEU). The scheme will promote the adoption and take-up of interoperability testing of eHealth solutions against eHealth standards and profiles defined in the eHealth European Interoperability Framework (eEIF).

The project concluded in November 2018. EIBIR was project coordinator, responsible for the overall project management and supported dissemination and validation activities, with IHE Europe as Scientific Coordinator. Fourteen national and regional government bodies, competence centres and associations from 11 different European countries were part of the consortium.

Together they defined the CAsforEU as a pragmatic and realistic scheme in terms of governance and execution: profiles that were selected are broadly deployed in many countries already today and testing tools are already available as well as expertise and testing organisations. A dedicated business plan for a EURO-CAS organisation (ECO) was developed and thus CASforEU is now ready to be deployed. For the first time the focused organisation will (1) operate on international, European and country level; (2) be transparent and based on multi-stakeholder consensus and (3) reduce effort and time to market.

15 collected Letters of Intent from key stakeholder organisations from across Europe, indicate a clear willingness and demand for a scheme such as CASforEU and a European organisation to ensure good coordination.

Visit the project's website at **www.euro-cas.eu** for more information.

Concluded November 30, 2018

FUNDING
€995,287.50

WEBSITE
www.euro-cas.eu

CONSORTIUM
EIBIR, AT
IHE Europe, BE
Medcom, DK
Offis, DE
COCIR, BE
eSANTE, LU
Arsenal.IT, IT
ASIP, FR
Continua Health Alliance, BE
Lombardia Informatica, IT
European Hospital and Healthcare Federation, BE
Hrvatski zavod za zdravstveno osiguranje, HR
Ilektroniki Diakyvernisi Koinonikisasfalisis, EL
Stichting Nationaal ICT Instituut in de Zorg, NL
Serviços Partilhados do Ministério da Saúde, PT
Centrum Systemów Informacyjnych Ochrony Zdrowia, PL

The EURO-CAS project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 727028

HYPMED

DIGITAL HYBRID BREAST PET/MRI FOR ENHANCED DIAGNOSIS OF BREAST CANCER

Our EU-funded collaborative project HYPMED aims to develop a new hybrid PET/MRI technology to improve the detection and diagnosis of breast cancer at significantly lower radiation dose. The international consortium of academic and industry partners is designing, building and testing a PET insert with an integrated radiofrequency (RF) coil that can be utilised with any MRI machine to enable high-resolution PET/MRI imaging. EIBIR acts as the project coordinator and runs project management and dissemination activities.

HYPMED
FINDING BREAST CANCER.
SAVING LIVES.

Within 2018 the PET-RF insert mechanical design and prototype component testing was refined, the high sensitive RF-coil and low-loss RF screen as well as the MR-compatible PET detector modules were designed. Tests of the first version of the MR-compatible PET detector module sensors showed a promising performance. Good progress was also made in terms of image reconstruction, where, a quantitative MR-Fingerprinting sequence was adapted and extended by a water-fat separation approach. In the following the distinction between normal and cancerous tissue based on the quantitative MR Fingerprinting results will be investigated. The preparatory work for ethical approvals was continued meeting national and EC requirements. In terms of tissue-based biomarkers a control series for the development of the immunoscore was available and the multi-scanning immunofluorence microscopy was established.

Dissemination activities embraced the project`s representation at major medical imaging conferences. Overall the HYPMED project is on good track and consortium partners are confident to achieve the project`s objectives in the forthcoming period.

More information on the project is available at **www.hypmed.eu**.

Active until December 31, 2019

FUNDING
€5,861,957.50

WEBSITE
www.hypmed.eu

CONSORTIUM
EIBIR, AT
Universitätsklinikum RWTH Aachen, DE
Forschungszentrum Jülich, DE
Medical University Vienna, AT
Delft University of Technology, NL
University Hospital Münster, DE
NORAS MRI products. DE
Futura Composites, NL
Intrasense, FR
Philips, NL

The HYPMED project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 667211

MEDIRAD

IMPLICATIONS OF MEDICAL LOW DOSE RADIATION EXPOSURE

The four-year MEDIRAD project aims to enhance the scientific bases and clinical practice of radiation protection in the medical field and thereby addresses the need to better understand and evaluate the health effects of low-dose ionising radiation exposure from diagnostic and therapeutic imaging and from off-target effects in radiotherapy.

During 2018, the MEDIRAD project mainly focused on the development of working procedures and protocols, validations of tools and obtaining ethics approvals where needed.

Work in particular included patient identification and recruitment for the epidemiological studies related to breast radiotherapy and secondary cardiovascular risks (EARLY-HEART and BRACE) and on possible health impacts of paediatric scanning. Moreover, the protocol for the study on the impact of low dose radiation exposure from I-131 radio-iodine (NaI) ablation of thyroid cancer and ethics documentation were prepared. MEDIRAD progressed towards the development of novel optimisation methods in chest CT and of an imaging and radiation dose biobank.

The second full consortium meeting was held in Rome in April 2018. The first reporting period was concluded by the end of November 2018. Despite some minor delays with ethics approvals and problems with patient recruitment in the clinical studies, the MEDIRAD project is well on track and confident to significantly improve the science base and practice of radiation protection in the medical field.

Visit the project's website at **www.medirad-project.eu** for more information.

Active until November 30, 2020

FUNDING
€9,995,145.75

WEBSITE
www.medirad-project.eu

CONSORTIUM
EIBIR, AT
Barcelona Institute for Global Health ISGlobal, ES
Paris Descartes University, FR
University of Crete, EL
Royal Marsden Hospital, UK
UMC Groningen, NL
Institut de radioprotection et de sûreté nucléaire, FR
Otto von Güricke University Magdeburg, DE
Polytechnic Institute of Coimbra, PT
Sahlgrenska University Hospital, SE
Polytechnic University of Catalonia, ES
Nofer Institute of Occupational Medicine, PL
B-COM, FR
Universitätsmedizin der Johannes Gutenberg-Universität Mainz, DE
University of Geneva, CH
Helmholtz Zentrum Munich, DE
Belgian Nuclear Research Centre, BE
Ghent University, BE
University Hospital Würzburg, DE
University Hospital Marburg, DE
French National Institute of Health and Medical Research INSERM, FR
Associação para Investigação e Desenvolvimento da Faculdade de Medicina, PT
University Hospital Rechts der Isar, Technical University Munich, DE
Sapienza University of Rome, IT
Imperial College London, UK
VU University Medical Center, NL
University of Newcastle upon Tyne, UK
Netherlands Cancer Institute, NL
Autonomous University of Barcelona, ES
Istituto Superiore di Sanità, IT
University College Dublin, IE
Institut Claudius Regaud, FR
Catalan Institute of Oncology, ES

The MEDIRAD project has received funding from the Euratom research and training programme 2014-2018 under grant agreement No. 755523

COSTREAM

COMMON MECHANISMS AND PATHWAYS IN STROKE AND ALZHEIMER'S DISEASE

The Common mechanisms and pathways in stroke and Alzheimer's disease (CoSTREAM) project aims to improve our understanding of the co-occurrence of stroke and Alzheimer's disease. The project builds upon extensive sets of longitudinal follow-up studies spanning up to 25 years. These studies include data on both diseases as separate clinical outcomes and contain information on genetics and metabolomics to brain structure assessed by imaging, and cognition.

An essential concept of the project is that stroke and Alzheimer's disease are sequential diseases with overlapping pathophysiological mechanisms and shared risk factors. The project focuses particularly on finding common mechanisms to reveal when and how these diverge to cause either stroke, Alzheimer's disease, or both.

Major progress has already been achieved in genetics and metabolomics analyses, finding candidate genes and metabolites causing either disease, or acting as a link between them. Effects of compensatory mechanisms were studied using epidemiological research. Imaging studies revealed and validated the conclusion that amyloid and the volume of particular brain regions can be predictors of disease pathology and may be suitable for risk prediction. Finally, an in vitro cell culture model which co-cultures endothelial cells neurons, astrocytes, and pericytes to for a functional model of the neurovascular unit and the blood-brain barrier is being developed.

Visit **www.costream.eu** for details about the project.

Active until 30 November, 2020

FUNDING
€5,100,372.50

WEBSITE
www.costream.eu

CONSORTIUM
Erasmus MC, NL
EIBIR, AT
King's College London, UK
University of Cambridge, UK
Ludwig-Maximilians-University Munich, DE
Karolinska Institutet, SE
MIMETAS, NL
Institut Pasteur de Lille, FR
Leiden University, NL
University of Geneva, CH
University of Bordeaux, FR

The CoSTREAM project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 667375

GLINT

GLUCOCEST IMAGING IN NEOPLASTIC TUMOURS

The GlucoCEST Imaging in Neoplastic Tumours (GLINT) project is developing an innovative medical imaging tool and a set of technologies for cancer detection which will allow for earlier, more accurate and more reliable cancer diagnosis.

The high level of sophistication in cancer treatment has led to a new problem: differentiating between treatment effect, regrowth, and pseudo-progression of tumours. To address these challenges, the GLINT project will bring to the clinic a new imaging method based on the combined use of D-Glc and 3-OMG that can characterise and image glucose delivery, uptake, and metabolism in cancer.

Once successful, GLINT will provide a radiation-free, non-invasive MRI method as radiolabelled compounds are not required and make it easier to follow early response to therapy. More reliable and predictive of disease outcome than the current standard FDG-PET, the GLINT method will lead to improved clinical decisions and outcomes. Moreover, GLINT will open the field of metabolic imaging for a multitude of non-cancer diseases and help develop advanced MRI techniques for other potential applications.

The project is already recording promising preliminary results: a new data acquisition technique called Snapshot-CEST has been developed, a publicly available toolbox has been created to allow evaluation of CEST data from different vendors, and a radiometric approach for accurate estimation of pH change has been established. 3OMG CEST MRI measurements were successful in animal models while analyses of glucose analogues have also shown the potential of Glucosamine, a novel MRI contrast agent. The GLINT patient study has shown that a positive GlucoCEST signal can only be obtained in glioma patients, on whom the project will focus in the last year of the project.

More information about the project can be found at **www.glint-project.eu**.

Active until December 31, 2019

FUNDING
€6,454,612

WEBSITE
www.glint-project.eu

CONSORTIUM
University College London, UK
EIBIR, AT
Tel Aviv University, IL
University of Torino, IT
Max Planck Society, DE
University of Zurich, CH
Olea Medical, FR
Bracco Imaging, IT

The GLINT project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 667510

LUCA

LASER AND ULTRASOUND CO-ANALYZER FOR THYROID NODULES

The 4-year Laser and Ultrasound Co-Analyzer for Thyroid Nodules (LUCA) project aims to develop and bring to the clinic a state-of-the-art portable device for thyroid cancer screening that enables more specific and more accurate thyroid nodule diagnosis. Increasing the sensitivity and specificity of the screening process is of major importance as current methods lead to a large number of non-diagnostic and/or false positive biopsy results (about 750,000/year in Europe), resulting in about 150,000 unnecessary surgeries in Europe each year.

By combining multi-parametric ultrasound imaging with optical measurement of tissue haemodynamics and thyroid nodule composition, the LUCA device will enhance the non-invasive characterization of the thyroid tissue. Once successfully implemented, the LUCA solution will reduce the number of unnecessary surgeries and related socio-economic costs. The device can also potentially be applied for diagnosis screening and therapy monitoring of other types of cancer, e.g. breast, testicle and neck cancers together with lymphoma.

Since the start of the project in 2016, the interdisciplinary, multinational consortium developed and validated new near-infrared diffuse correlation spectroscopy (DCDS) and time-resolved spectroscopy (TRS) components (lasers, detectors, and electronics) and subsystems, as well as a combined optical US probe. The optical system was integrated with the US system and the software and data analysis suites were completed in 2018. By early 2019, the LUCA group of clinical endocrinologists, radiologists, physicists, and engineers teaming up with industrial partners expects to bring all subsystems together and integrate them into the LUCA demonstrator. The prototype will be used for the clinical studies during the last year of the project, which will see further upgrades, final tests and the validation of the device in real-world settings.

To find out more about the LUCA project, visit **www.luca-project.eu** and watch the LUCA video.

Active until January 31, 2020

FUNDING
€3,628,845.75

WEBSITE
www.luca-project.eu

CONSORTIUM
Institute of Photonic Sciences, ES
EIBIR, AT
Politecnico di Milano, IT
IDIBAPS, ES
HemoPhotonics, ES
VERMON, FR
Echo Control Medical, FR
University of Birmingham, UK

The LUCA project is an initiative of the Photonics Public Private Partnership, and has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 688303.

PHOTONICS21

SOLUS

SMART OPTICAL AND ULTRASOUND DIAGNOSTICS OF BREAST CANCER

The SOLUS project is developing a new hybrid imaging system that can detect and classify breast lesions in a non-invasive manner. This system offers a significant improvement in the ability to differentiate between benign and malignant tumours over current imaging systems. Similarly to thyroid nodule screening, invasive procedures, such as biopsies, are currently carried out in an unnecessarily high number of cases. SOLUS can help avoid such unnecessary biopsies in breast cancer screening by improving the characterisation of lesions in the breast.

The innovative, multi-modal tomographic system that SOLUS is developing combines diffuse optical tomography and ultrasound/shear wave elastography to support the in vivo diagnosis of breast cancer. This will achieve a substantially improved in-depth diagnosis of breast lesions with higher specificity, as well as more effective treatment of breast cancer than conventional ultrasound or MRI imaging.

The SOLUS project recently entered its third year, and has completed the development of novel components and subunits for the SOLUS system prototype. A newly designed, highly sensitive photon detector and high-speed laser drivers were designed, manufactured, and integrated into a smart optode for optical tomography measurements. The smart optode is combined with a regular ultrasound probe to form the multimodal probe of the device.

Additionally, new measurement procedures and phantoms for testing have been developed and validated.

In the coming year, integration of components and manufacturing will continue, and the project's initial validation efforts will begin in a pilot clinical study at the end of the year.

Learn more about the SOLUS project at **www.solus-project.eu**.

Active until October 31, 2020

FUNDING
€3,815,260

WEBSITE
www.solus-project.eu

CONSORTIUM
Politecnico di Milano, IT
EIBIR, AT
CEA-LETI, FR
SuperSonic Imagine, FR
Vermon, FR
University College London, UK
Micro Photon Devices, IT
Ospedale San Raffaele, IT
iC-Haus, DE

The SOLUS project is an initiative of the Photonics Public Private Partnership. This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 731877.

EURO-BIOIMAGING

RESEARCH INFRASTRUCTURE FOR IMAGING TECHNOLOGIES IN BIOLOGICAL AND BIOMEDICAL SCIENCES

In terms of organisational structure Euro-BioImaging well under way to become a European Research Infrastructure Consortium (EuBI-ERIC) in 2019.

So far EuBI consists of a set of 29 geographically distributed specialised imaging facilities (Node Candidates) that grant access to 36 imaging technologies and related services.

The whole infrastructure is supported by the EuBI Hub Candidate, which represents the management and coordination of Euro-BioImaging. The EuBI Hub Candidate is composed of (1) Finland managing the User Access to EuBI, will host the ERIC seat and take on quality control, delivery of service, user satisfaction, and scientific excellence, (2). EMBL supporting the biological imaging community and (3) Italy (Torino University, EIBIR´s network partner) supporting the medical imaging community.

Highlights in 2018 were the Image Data Workshop held by the Euro-BioImaging Industry Board, where challenges and opportunities associated with image data were discussed, the EC recognition of the Global Bioimaging project that created an international network of open research infrastructures and the establishment of new training and networking opportunities between Euro-BioImaging and Japan.

For more information visit **www.eurobioimaging.eu**.

Interim phase (supported by Interim Board Members)

WEBSITE
www.eurobioimaging.eu

INTERIM PHASE SECRETARIAT
EIBIR, EMBL

INTERIM BOARD
Austria
Belgium
Bulgaria
Czech Republic
Finland
France
Hungary
Israel
Italy
The Netherlands
Norway
Poland
Portugal
Slovakia
Spain
United Kingdom
EMBL

CLINICAL STUDIES

EIBIR currently provides its support to two industry-funded multi-centre clinical studies:

- The MIPA study, led by the University of Milan and funded by Bayer, is investigating pre-operative breast MRI for breast cancer and recently finished its patient enrolment.
- The SPECIFIC study is investigating myocardial perfusion imaging using perfusion CT and is funded by Siemens and Bayer, with Erasmus Medical Center and University Hospital Tübingen serving as the scientific leads.

ELECTRONIC DATA CAPTURE PLATFORM

EIBIR launched its Electronic Data Capture platform in 2018. This platform can be used to collect and manage almost any type of digital data which is part of a clinical study, including DICOM images. The platform uses a secure web application for building and managing study databases with great flexibility and ease-of-use. EIBIR can also assist in setting up the data collection forms for your study.

EIBIR's Electronic Data Capture Platform allows its network members to collect a wide range of research data for their studies in an easy-to-use system. Among others, the platform is currently in use by the EUCLID project, a European Commission Tender project on clinical diagnostic reference levels for x-ray medical imaging led by the ESR, and a large multi-centre study on a machine learning CT-derived FFR application under the lead of Erasmus Medical Center.

THE MIPA STUDY

The MIPA study is led by EIBIR and Prof. Francesco Sardanelli (University of Milan, Italy and past-president of EUSOBI).

The study conducts a systematic evaluation of pre-operative breast MRI, examining individual patient data in a multi-centre setting with the aim of clarifying matters regarding the ongoing uncertainty in the application of pre-operative MRI in breast cancer patients.

MIPA collects data on recent first-time breast cancer diagnoses and compares surgical outcomes for those who undergo pre-operative MRI with those who do not. Data is being collected from more than 30 centres in Europe and beyond. The results will be vital for a better understanding of the effect pre-operative breast MRI has on clinical decision-making. In 2018, MIPA completed its recruitment of the target sample size of 7,000 patients.

EIBIR acts as the contracting partner for all participating centres in the MIPA study, provides management and administrative support, and handles all finances and leading dissemination efforts.

THE SPECIFIC STUDY

The SPECIFIC study is an international clinical study investigating myocardial perfusion imaging, which is funded by Siemens and Bayer with Erasmus University Medical Center (Rotterdam, the Netherlands) as the study sponsor, and the University Hospital Tübingen as co-sponsor.

Cardiac CT provides accurate assessment of the coronary arteries and detects significant coronary stenosis with high diagnostic accuracy. This information is highly relevant, but ignores the haemodynamic relevance of lesions detected this way, which is essential for clinical decision-making. The recent development of third-generation, dual-source CT allows for the assessment of myocardial perfusion, and may determine the haemodynamic relevance of coronary lesions.

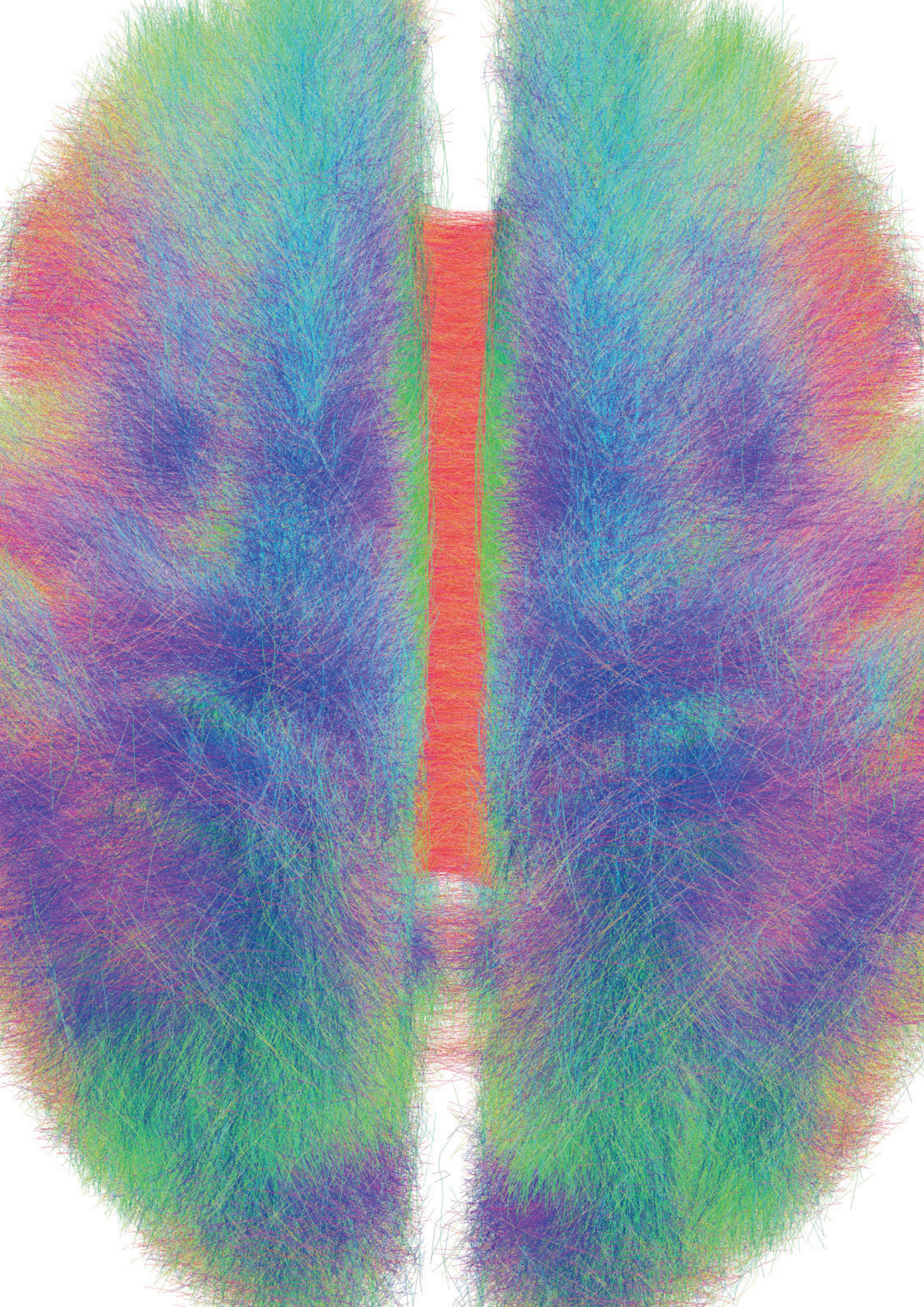
The objective of the SPECIFIC study is to determine the diagnostic accuracy of CT myocardial perfusion imaging for the detection of haemodynamically relevant coronary stenosis, as determined by invasive fractional flow reserve as a reference standard in patients with suspected or known coronary artery disease who have been clinically referred for invasive angiography.

SPECIFIC is investigating the feasibility of this approach through an international multi-centre study with recruitment in the Netherlands, Germany, Poland, Switzerland, Japan and the United States. Approximately 80% of the subjects have already been examined, and the study aims to finish recruitment in mid-2019.

Within SPECIFIC, EIBIR provides management and administrative support, handles financial matters between the study and participating sites, as well as dissemination of the study results through well-established channels such as the European Society for Radiology. Additionally, EIBIR monitors the electronic case report forms for the study.

Rendering of a group connectome. Anatomical fibers that constitute the white matter architecture of the human brain are visualized color-coded by traversing direction.

Courtesy of Adreas Horn, Charité Berlin/DE



FINANCIAL REPORT

EIBIR's activities are financed by a number of sources, including Network and Industry Panel service package fees, support from the European Society of Radiology (ESR) and the shareholder organisations as well as EC funding for European research projects coordinated or supported by EIBIR and EIBIR project-related services provided to institutions against a fee.

A detailed annual financial report is presented to and approved by the shareholder organisations at the annual General Meeting, usually held during the European Congress of Radiology in Vienna.

At the EIBIR General Meeting held at ECR 2018, the financial report was approved;

Approved financial report for 2017	
Total income	€793,102.13
Total expenditure	€668,561.57
Operating profit (fiscal year 2017)	€124,540.56
Recover of support by ESR in start-up years	-€300,000
Total equity (as of January 1, 2018)	**€634,357.39**

WORK WITH US

DO YOU HAVE A GREAT IDEA FOR RESEARCH AND ARE YOU PLANNING TO APPLY FOR FUNDING?

WE OFFER EXPERT ADVICE ON PROPOSAL PREPARATION. OUR SCIENTIFIC ADVISORY BOARD, WITH MORE THAN 35 SCIENTISTS FROM ALL OVER EUROPE, CAN PROVIDE CRITICAL AND HIGHLY VALUABLE FEEDBACK ON YOUR RESEARCH PROPOSAL.

Furthermore, our proposal preparation and project management team has experience and a proven track record in applying for EU funding and managing projects, starting with FP6 all the way to today's highly competitive Horizon 2020 programme. In fact, EIBIR is currently involved in several Horizon 2020 projects, which benefited from our proposal preparation services.

We are a non-profit organisation dedicated to helping scientists from all fields realise their research ideas while promoting the role of biomedical imaging research. You can benefit from our support services by subscribing to a service package and becoming part of the EIBIR Network at a competitive price. For proposal preparation support only, we offer alternative pricing options including a small success fee.

HERE'S HOW EIBIR CAN HELP:

- Call-specific templates with detailed descriptions and input requirements
- Advice on project governance, management and work package structure
- Experienced advice and support on the crucial impact section of your proposal
- Critical reading and feedback from a team of experienced scientific writers with knowledge of European Commission requirements

Get in touch with the EIBIR Office by sending an email to **office@eibir.org** to find out more about our services or tell us about your proposal to see how we can help make your research idea a reality.

EUROPEAN INSTITUTE
FOR BIOMEDICAL
IMAGING RESEARCH

www.eibir.org