



2025 ANNUAL REPORT

At the heart of health



IHU
Ican

Foundation for Innovation
in Cardiometabolism
and Nutrition

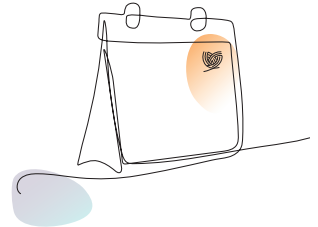
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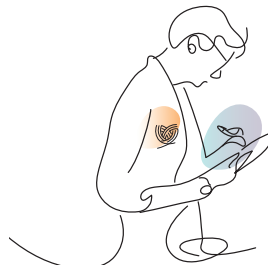
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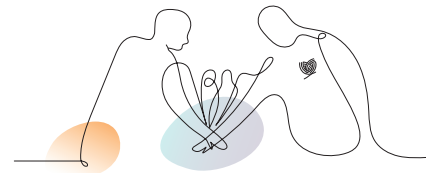
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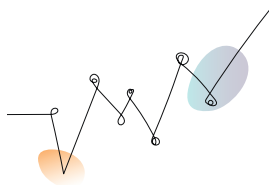
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OVERVIEW OF IHU ICAN



Editorial

Anne-Marie Armanteras
President of the Board of Trustees

In 2025, IHU ICAN maintained its strong momentum with the support of a scientific and clinical community committed to meeting patients' needs. Our teams continued to work on innovative projects shedding light on cardiometabolic diseases. Efforts to build new cohorts, develop European projects and roll out awareness-raising campaigns in partnership with patient associations all clearly reflected the ambitious course set by IHU ICAN in recent years aimed at establishing cardiorenal and metabolic diseases as a multidisciplinary research field and a public health policy priority.

However, above and beyond these achievements, 2025 was primarily a year for looking ahead. Faced with the increasing burden of cardiometabolic diseases, which represent a major public health challenge, we set to work on developing a new strategic plan for 2026-2030. Its clear ambition is to make IHU ICAN a leading French institute able to unite stakeholders in this area and speed up the pace of necessary change.

Our vision is rooted in three key priorities. The first is to **strengthen interdisciplinary and translational research** by organising our resources around major integrated scientific fields. The second is to **use continuous prevention and personalised care pathways as a means to improve patient management**. Finally,

“Changes to the way cardiometabolic diseases are managed can only be achieved by incorporating innovative strategies and working together.”



the third is to **proactively invest in health data and artificial intelligence** to transform research and care in the long term.

This plan is founded on the firm belief that **changes to the way cardiometabolic diseases are managed** can only be achieved by **incorporating innovative strategies** and working **together**. It requires researchers, clinicians, patients, and public and industrial partners to join forces in pursuit of a shared goal.

To that end, IHU ICAN intends to play a key role for the community in France while also extending its international reach.

IHU ICAN brings rigour, an open mind and responsibility to the cardiometabolic revolution.

*“IHU ICAN brings
rigour, an open mind
and responsibility to the
cardiometabolic
revolution.”*

AN EXPERT DRIVING CHANGE IN THE HEALTH SYSTEM

Anne-Marie Armanteras is an EHESP alumna who held numerous management positions in hospitals and institutes before being appointed French Director General of Healthcare Services (DGOS) and then Health Adviser to the French President. She chairs the board of ANAP, the Health & Tech Think Tank and IHU ICAN (since 2024), striving to build bridges between innovation, research and health policy.



Prof. Stéphane Hatem
Chief Executive Officer

In 2025, IHU ICAN continued to show an unfailing commitment to understanding, preventing and more effectively treating cardiometabolic diseases. Our teams further advanced key projects, particularly in the fields of health data, imaging and multi-omics approaches, while also strengthening ties between researchers and clinicians. The progress achieved by our teams has led to a collective realisation that we need a change of scale. Cardiometabolic diseases are part of a progressive and largely preventable continuum, requiring us to pivot to more preventive, personalised and integrated medicine.

This is the goal set out in our 2026-2030 strategic plan. The aim is to develop an approach to medicine based on data integration, an understanding of interactions between organs, and steps to factor in individuals' unique journeys. All this with the clear objective of improving prediction and diagnosis, while also intervening earlier in the patient pathway.

To that end, new care pathways involving a joined-up approach to prevention and treatment will need to be developed, with digital tools and artificial intelligence also used to support medical decisions. A new generation of healthcare professionals and researchers able to consider all the complex aspects of these diseases will furthermore need to be trained.

Finally, this strategy calls for a collective response from patients, healthcare professionals, public authorities and society as a whole. IHU ICAN intends to help drive this change towards more effective, patient-centred medicine.

“The strategic plan aims to develop an approach to medicine based on data integration, an understanding of interactions between organs, and steps to factor in individuals' unique journeys.”

2025 KEY FIGURES

€9.1 MILLION
BUDGET

76 EMPLOYEES

CLINICAL CARE AND RESEARCH

170 DOCTORS

79
CLINICAL
STUDIES

49% commercial and 51%
academic

- 24 in rhythmology
- 15 in lipidology
and endocrinology
- 17 in hepatology
- 10 in cardiology
- 5 in nutrition
- 8 other disciplines

22 NEW CLINICAL RESEARCH
PROTOCOLS

MORE THAN

4,000 PATIENTS INCLUDED IN
COHORTS

AND

46,000 PATIENTS OR VOLUNTEERS
IN COHORTS OR REGISTRIES
SINCE ICAN WAS FOUNDED

1,041 PATIENTS INCLUDED IN
PROSPECTIVE OR RETROSPECTIVE
STUDIES

PRECLINICAL AND APPLIED RESEARCH

221 RESEARCHERS

6 CUTTING-EDGE
TECHNOLOGICAL
PLATFORMS

10 RESEARCH TEAMS

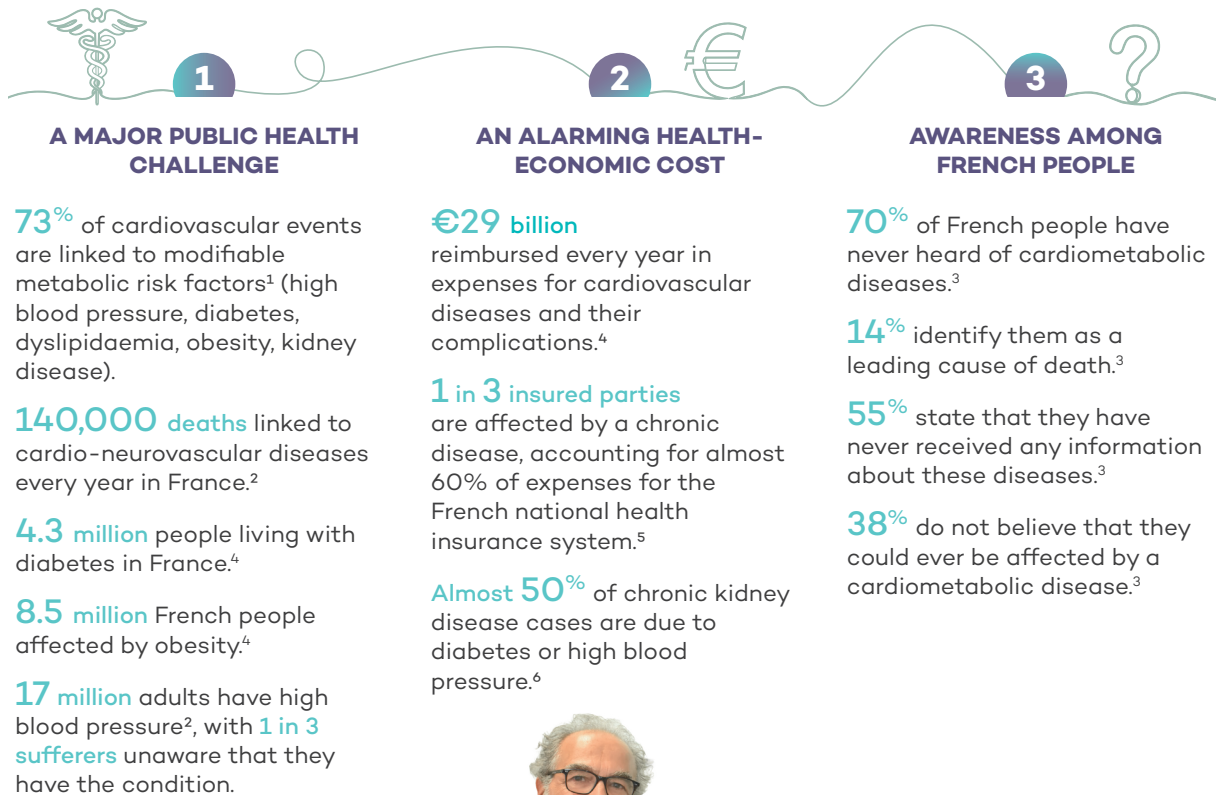
552 SCIENTIFIC
PUBLICATIONS
106 with a SIGAPS score > 18

29 PATENTS
IN THE PORTFOLIO

CARDIOMETABOLIC DISEASES

A HEALTH EMERGENCY

The number one cause of preventable cardiovascular diseases about which there is little French public awareness.



Prof. Stéphane Hatem

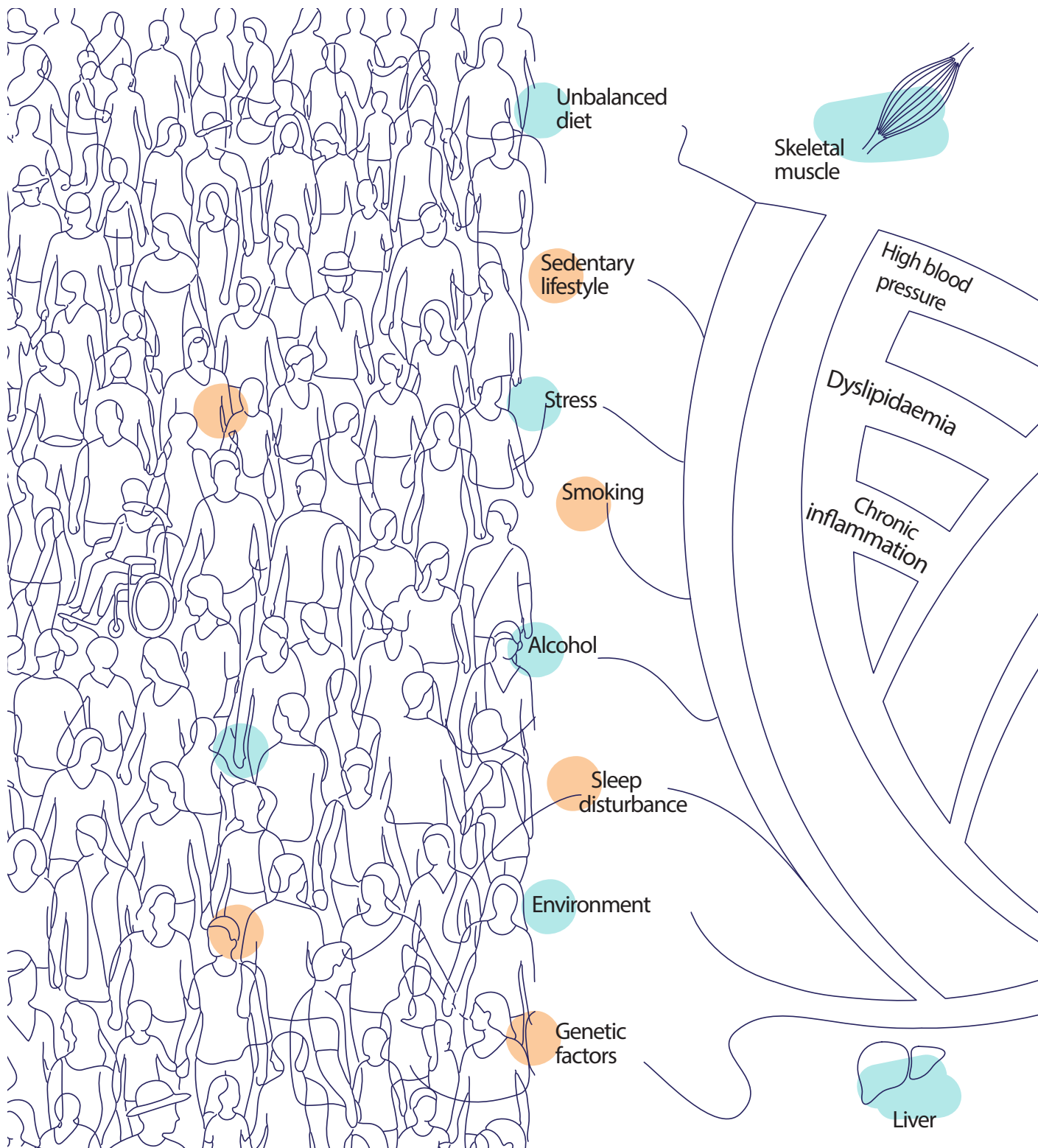
IHU ICAN Chief Executive Officer

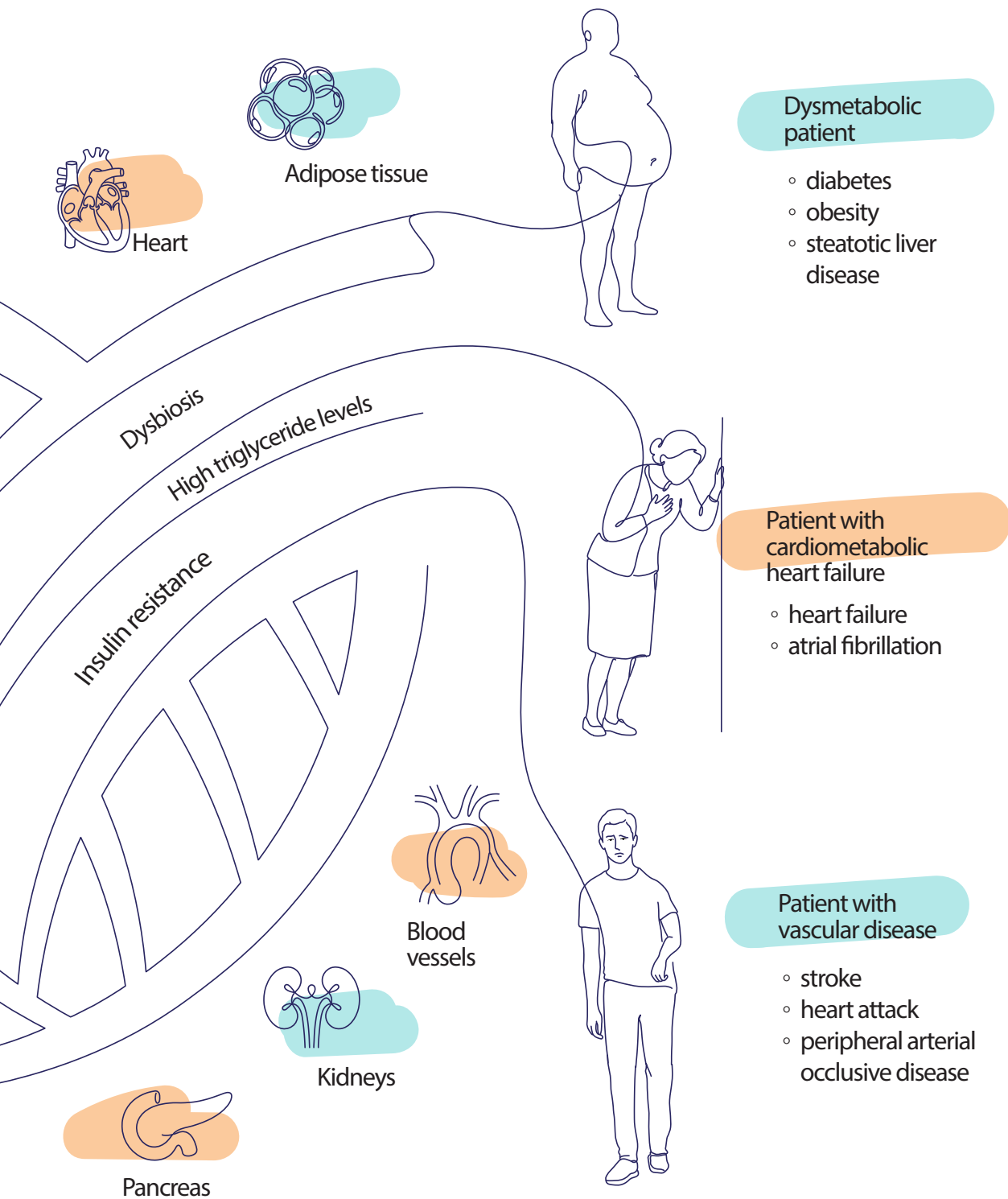
“ Although cardiometabolic diseases cause most cardiovascular events, they continue to be largely underestimated by the public. Awareness-raising, prevention and early screening are therefore important tools for limiting their human and economic impact. ”

Sources

1. Global Burden of Disease 2021; analysis of the burden of cardiovascular disease attributable to metabolic risk factors. (PMC)
2. Santé publique France, *Cardiovascular diseases in France*, 2024-2025 data.
3. 2025 IFOP-IHU ICAN barometer.
4. French National Health Insurance Fund, 2023 Pathology Data.
5. French National Health Insurance Fund, 2025 Report on Costs and Income.
6. French Academy of Medicine, *Paradigm shift in cardio-renal-metabolic diseases*, 2024.

Cardiometabolic continuum





Governance

BOARD OF TRUSTEES

Includes 16 members and sets the IHU's general policy.

President of the Board of Trustees
Anne-Marie Armanteras.

Founders' Representatives

Nathalie Drach-Temam,
President of Sorbonne University

Nicolas Revel,
Chief Executive of the Paris Public Hospital Network (AP-HP)

Didier Samuel,
Chairman and Chief Executive Officer of Inserm

Elisabeth Angel Perez,
Vice-President for Research and Training,
Sorbonne University

Elli Chatzopoulou,
Vice-CEO for Scientific Strategy, Inserm

Milan Lazarevic,
Clinical Research and Innovation Director, AP-HP

Bruno Riou,
Dean of the Faculty of Medicine,
Sorbonne University

Qualified Persons

Catherine Boileau, University Professor/Hospital Practitioner, AP-HP

Julien Ettersperger,
CEO Medicen, Paris Region

Patient association representative

Jean-François Thébaut,
Cardiologist and Vice-President for Advocacy at the French Federation of People with Diabetes

Private-Sector Representatives

Laurence Comte-Arassus,
GE Healthcare, Chief Executive, FBFA zone,
Representative for SNITEM

Philip Janiak, Chief Executive of
Corteria Pharmaceuticals

Julie Rachline,
CEO of LallianSE

Representatives of Researchers and Associate Professors

Bruno Fève,
University Professor/Hospital Practitioner in the Endocrinology and Diabetes Department at Saint-Antoine Hospital (AP-HP), Head of the Lipodystrophies, Metabolic and Hormonal Adaptations, and Ageing team, UMR 938

Antonio Gallo,
Lecturer/Hospital Practitioner, Lipidology and Cardiovascular Prevention Unit, Centre of Expertise on Rare Forms of Dyslipidaemia (CEDRA), Nutrition Department, Pitié-Salpêtrière Hospital, AP-HP.



“Cardiometabolic diseases require ever closer coordination between research, care and patients' lived experiences. It is for precisely this reason that the French Federation of People with Diabetes has joined forces with IHU ICAN to pursue the common goal of promoting metabolic health as a major preventive lever.”

Jean-François Thébaut
Vice-President for Advocacy at the French Federation of People with Diabetes

EXECUTIVE COMMITTEE (COMEX)

Prof. Olivier Bourron,
Diabetes

Prof. Philippe Charron,
Cardiology and Vascular Diseases

Prof. Alain Combes,
Intensive Care Medicine

Dr Laurie Soulat-Dufour,
Cardiology and Vascular Diseases

Prof. Bruno Fève,
Endocrinology and Metabolism

Dr Antonio Gallo,
Lipidology and Cardiovascular Disease Prevention

Prof. Estelle Gandjbakhch,
Cardiology and Vascular Diseases

Prof. Richard Isnard,
Head of the ARCHIMEDE DMU, Cardiology and Vascular Diseases

Julie Laigre,
Director of Research, Innovation and Rare Diseases, AP-HP



Julie Laigre,
Director of Research, Innovation and Rare Diseases, AP-HP

“ IHU ICAN is helping to shape the future of medicine through a combination of scientific excellence, technological innovation and clinical impact. Its vision is fully aligned with the AP-HP's research and innovation strategy. ”

IHU BOARD

The IHU Board is chaired by the IHU Chief Executive Officer and composed of the General Secretary, the Dean of Sorbonne University Faculty of Medicine, the directors and team leaders of the UMRs involved in ICAN, and the Medical Director and department heads of the ARCHIMEDE DMU.

The IHU Board provides a forum for discussing and sharing strategic priorities and the IHU's scientific policy.

Wilfried Le Goff,
Metabolism and Cardiometabolic Diseases

Prof. Irène Netchine,
Physiology – Paediatric Functional Investigation

Prof. Vlad Ratziu,
Gastroenterology and Hepatology

Prof. Alban Redheuil,
Cardiovascular and Thoracic Imaging

All the members of the IHU ICAN Steering Committee are also members.

STEERING COMMITTEE

Prof. Stéphane Hatem
Chief Executive Officer

Stéphane Barritault
General Secretary

Stéphane Commans
Innovation and Research
Valorisation Division

Maud Decraene
Legal, Compliance and Data
Policy Division

Jeanne Haidar
Clinical Research Division

Saadé Kheir
Platforms and Business
Development Division

Stéphanie Lapous
Administration, HR and
Finance Division

Francine Trocmé
Communication and
Sponsorship Division

The IHU's ecosystem

IHU ICAN brings together a multidisciplinary community of preclinical and clinical research experts united in pursuit of a common goal: tackling cardiometabolic diseases.

RESEARCH UNITS

UMR 938

Adipocyte,
Lipodystrophy,
Diabetes and
Hepatocyte
Glucocorticoid

UMR 1146

Cardiovascular
Imaging and
Artificial
Intelligence

UMR 1166

Cardiomyopathy,
Atherothrombosis,
Cardiac
Arrhythmias and
Lipid
Transportation

UMR 1269

Nutrition,
Microbiota,
Adipose tissue
and Data
Integration

CLINICAL TEAMS

ARCHIMEDE DMU (Medical-University Department)

Pitié Salpêtrière Hospital Group

- › Cardiology department
- › Cardiovascular and thoracic surgery department
- › Department of intensive care medicine
- › Endocrinology department
- › Diabetes department
- › Endocrinology and reproductive medicine department
- › Endocrinology, metabolism and cardiovascular disease prevention department

- › Functional unit for thyroid disorders and endocrine tumours
- › Internal medicine department
- › Nutrition department

Saint-Antoine Hospital Group

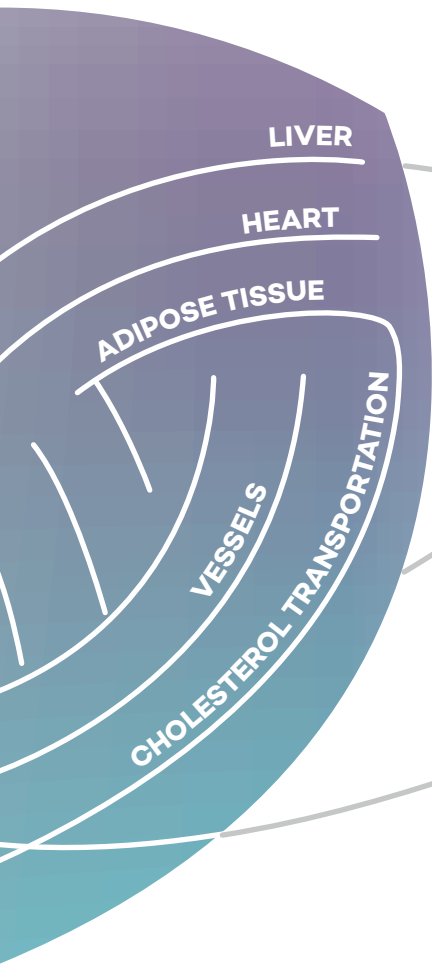
- › Cardiology department
- › Endocrinology, diabetes and reproductive medicine department

CARDIOVASCULAR AND THORACIC IMAGING UNIT (DIAMENT DMU)

REFERENCE AND COMPETENCE CENTRES FOR RARE DISEASES

- › Reference Centre for Rare Forms of Dyslipidaemia (CEDRA)
- › Prader-Willi syndrome and other rare obesities - PRADORT
- › Hereditary or rare cardiac diseases
- › Rare insulin-secretion and insulin-sensitivity diseases
- › Inflammatory diseases of the biliary tract and autoimmune hepatitis
- › Rare endocrine diseases of growth and development
- › Rare gynaecological diseases





CARDIOMETABOLISM AND NUTRITION FOUNDATION

6 CUTTING-EDGE SCIENTIFIC PLATFORMS



ICAN Omics
Lipidomics



ICAN Omics
Metabolomics



ICAN BioCell
Human Liver Biology



ICAN BioCell
iPS



ICAN BioCollection
Biobanking



ICAN I/O
Data Sciences

2 CLINICAL RESEARCH PLATFORMS



ICAN Clinical Investigation
Cardiometabolic Diseases



ICAN Imaging
MRI - Core Lab

4 SUPPORT FUNCTIONS

Innovation and
Research
Valorisation
Division

Legal,
Compliance and
Data Policy
Division

Administration,
HR and Finance
Division

Communication
and
Sponsorship
Division

 IHU ICAN Foundation teams

 Research and clinical teams

Research teams

Research Unit 1166 for Cardiovascular and Metabolic Diseases

Team 1 – Genomics and Pathophysiology of Myocardial Diseases

Prof. Philippe Charron

Team 2 – Atherothrombosis and Applied Pharmacology

Dr Michel Zeitouni

Team 3 – Molecular and Cellular Plasticity in Cardiovascular Diseases

Sophie Nadaud and Elise Balse

Team 4 – Cellular and Systemic Lipid Metabolism in Cardiometabolic Diseases

Maryse Guérin and Wilfried Le Goff

Team 5 – Metabolic Diseases, Diabetes and Co-morbidities

Fabienne Foufelle and Frédéric Jaisser

UMR 1146 – Biomedical Imaging Laboratory (LIB) CNRS – Inserm

Team – Cardiovascular Imaging
Nadjia Kachenoura

UMR 938 – Saint-Antoine Research Centre

Team 9 – Lipodystrophies, Metabolic and Hormonal Adaptations, and Ageing

Prof. Bruno Fève

Team 11 – Metabolic Fibro-inflammatory and Liver Bile Diseases

Jérémie Gautheron

Team 12 – IGF System, Foetal and Postnatal Growth

Prof. Irène Netchine

UMR 1269: Nutrition and Obesity: Systemic Approaches (Nutriomics)

Prof. Karine Clément

SCIENTIFIC ADVISORY BOARD (SAB)

The scientific advisory board offers expert, critical and constructive oversight of ICAN's scientific strategy. It consists of eight independent external members with an outstanding reputation among the international scientific community for their work on cardiometabolism and nutrition.

Prof. Karin Sipido,

Chair of the SAB, Professor of Medicine and Head of Experimental Cardiology, University of Louvain (*Belgium*).

Prof. Connie Benzina,

Professor of Experimental Cardiology - Amsterdam University Medical Center (*Netherlands*).

Prof. André Carpentier,

Endocrinology and Lipidology, Holder of the Research Chair in Molecular Imaging of Diabetes, Université de Sherbrooke (*Canada*).

Prof. Arnold von Eckardstein,

Director of the Institute of Clinical Chemistry at Zurich University Hospital (*Switzerland*).

Prof. Amalia Gastaldelli,

Leader of the Cardiometabolic Risk Group and the Mass Spectrometry Lab at the Institute of Clinical Physiology (IFC) within the National Research Council (CNR) (*Italy*).

Prof. Michel Komajda,

Emeritus Professor in Cardiology at Sorbonne University. Member of the National Academy of Medicine (*France*).

Prof. David Savage,

Professor of Molecular Metabolism in the Department of Clinical Biochemistry at the University of Cambridge, Member of the Metabolic Research Laboratory at the Wellcome Trust–MRC Institute of Metabolic Science (*United Kingdom*).

Prof. Rozemarijn Vliegthart,

Radiologist and Professor of Cardiothoracic Imaging, University Medical Center Groningen (*Netherlands*).

Clinical teams

ARCHIMEDE MEDICAL-UNIVERSITY DEPARTMENT (DMU)

Prof. Richard Isnard

The ARCHIMEDE DMU combines clinical departments and units involved in the treatment and care of acute and chronic cardiovascular and metabolic diseases, as well as certain rare conditions.

Pitié-Salpêtrière Hospital Group Institute of Cardiology

Prof. Johanne Silvain

Cardiology Department

Prof. Pascal Leprince

Cardiovascular and Thoracic Surgery
Department

Prof. Alain Combes

Department of Intensive Care
Medicine

Prof. Laurent Chiche

Vascular Surgery Department

E3M Institute

Prof. Zahir Amoura

Internal Medicine Department

Prof. Anne Bachelot

Endocrinology and Reproductive Medicine
Department

Prof. Olivier Bourron

Diabetes Department

Prof. Camille Buffet

Functional Unit for Thyroid Disorders
and Endocrine Tumours

Dr Antonio Gallo

Functional Unit for Endocrinology, Metabolism and
Cardiovascular Disease Prevention

Prof. Christine Poitou

Nutrition Department



Saint-Antoine Hospital Group

Prof. Franck Boccara

Cardiology Department

Prof. Sophie Christin-Maître

Endocrinology, Diabetes and Reproductive
Medicine Department

DIAMENT DMU

Prof. Alban Redheuil

Cardiovascular and Thoracic Imaging Unit

The ICT is the cardio-radiology unit at Pitié-Salpêtrière, specialising in cardiac, vascular and thoracic imaging. The team is involved in research through the ICAN Imaging platform.





Q EXACTIVE

HIGHLIGHTS



Platforms at the heart of scientific innovation

The technological platforms at IHU ICAN are a major driver of scientific progress, allowing researchers and clinicians to explore the mechanisms of cardiovascular, metabolic and liver diseases with a very high degree of precision. In 2025, several key publications reflected these platforms' contribution to innovative research projects combining cellular biology, molecular analysis, artificial intelligence and clinical data processing.

Shedding light on “good cholesterol” through lipidomics

ICAN OMICS & ICAN I/O

HDL-cholesterol is often described as “good cholesterol”. However, work carried out by teams at ICAN has shown that its protective function is not solely attributable to its quantity.

Researchers combined high-resolution lipidomics with advanced data analysis to demonstrate that the molecular composition of HDL particles may be substantially modified in certain patients, despite high blood concentrations. These results confirm the benefit of a more nuanced approach to cardiovascular risk based not just on the quantity of lipoproteins but also their quality. This study has shown just how well the OMICS platform's analytical expertise dovetails with the data analysis capabilities of the ICAN I/O platform.



PUBLICATION

Pisciotta L., Lhomme M., Pavanello C., Ponnaiah M., Calabresi L., Bertolini S., Chapman M.J., Kontush A., et al. Lipidome of high-density lipoprotein is strongly perturbed in hyperalphalipoproteinemia resulting from a rare mutation in endothelial lipase. *Atherosclerosis Plus*. 2025;61. DOI: 10.1016/j.athplu.2025.07.001. PMID: 40703622

A new avenue of treatment for hereditary heart diseases

ICAN BIOCELL iPS

Researchers at IHU ICAN revealed the role of the CASK protein in organising connections between heart muscle cells. Using cardiomyocyte models derived from induced pluripotent stem cells (iPS), it was possible to reproduce arrhythmogenic cardiomyopathy, a genetic disease linked to a high risk of arrhythmia and sudden death, in laboratory conditions.

This work demonstrated that modulating this protein improves the organisation of heart cells and restores certain impaired functions. The discovery paves the way for new opportunities to develop targeted therapies for hereditary cardiomyopathies.



PUBLICATION

Blandin C., Dilanian G., Fontaine V., Mougnot N., Gravez B., Bobin P., Duboscq-Bidot L., Farhi D., Chardonnet S., Nadaud S., Sanchez-Alonzo J.L., Shevchuk A., Gorelik J., Gandjbakhch E., Hatem S.N., Villard E., Balse E., Depleting trafficking regulator CASK promotes intercalated disc organization and ventricular function, 2025.

AI-enhanced diagnosis of metabolic diseases

ICAN I/O

Metabolic dysfunction-associated liver diseases currently affect hundreds of millions of people throughout the world. Early detection of at-risk patients represents a major challenge.

In a multi-centre European study, teams using the ICAN I/O platform demonstrated the efficacy of thrombospondin-2, a novel blood biomarker for detecting severe forms of metabolic dysfunction-associated steatohepatitis (MASH) and advanced fibrosis.

Clinical and biological data from hundreds of patients were processed to develop effective predictive models that could eventually limit the use of invasive examinations such as liver biopsies.



PUBLICATION

Ratzu V., Surabattula R., Bugianesi E., Schattenberg J.M., Myneni S., Rosso C., Armandi A., Pais R., Kara L., Charlotte F., Ponnaiah M., Schuppan D.

Thrombospondin-2 is a performant biomarker of at-risk MASH and advanced MASH fibrosis in a large multicentre European cohort. Gut. 2025. DOI: 10.1136/gutjnl-2025-335598. PMID: 40738743.

Reconditioning livers to increase access to transplants

ICAN BIOCELL - Human Liver Biology

Faced with a shortage of organs available for liver transplants, researchers are exploring new strategies aimed at making livers transplantable even if they are initially considered unusable.

A study involving the ICAN BIOCELL - Human Liver Biology platform demonstrated that a pharmacological treatment administered during an ex situ perfusion was capable of significantly reducing fat accumulation in highly steatotic human livers. This approach encourages the activation of natural lipid

elimination mechanisms and paves the way for reconditioning organs that are currently ruled out for transplantation.

These findings represent a promising breakthrough in efforts to increase the number of available donor organs and improve the management of patients awaiting transplants.



PUBLICATION

Goumard C., Turco C., Aoudjehane L., Savier E., Scatton O., et al. *Effect of a defatting pharmacologic cocktail with rapamycin during cold-to-warm ex situ perfusion of discarded human livers: A comparative study. Surgery. 2026. DOI: 10.1016/j.surg.2025.109818.*



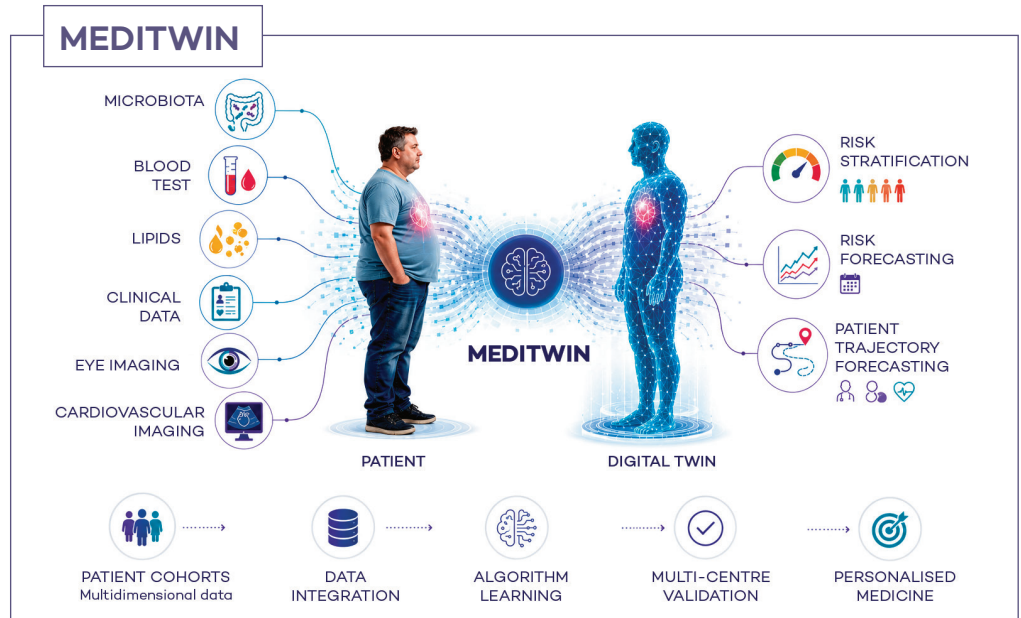
Commissioning of a new Agilent SFC-QQQ system on 13 April 2025 for ICAN OMICS

This latest-generation equipment enhances the platform's targeted analysis capabilities, particularly within the field of lipidomics. Using this new technology, ICAN teams will be able to speed up the development of innovative biomarkers, improve the characterisation of patients' molecular profiles, and support numerous translational research projects.

This acquisition forms part of the strategy to continually modernise the IHU's scientific infrastructure and maintain its level of technological excellence in the interest of research and innovation.

MEDITWIN IHU ICAN joins the age of the digital twin for health

Using artificial intelligence to predict cardiovascular risk and personalise the future of medicine.



In 2025, IHU ICAN consolidated its position in the field of artificial intelligence with the launch of the MEDITWIN project. This major programme, supported by France 2030 and coordinated by Dassault Systèmes, seeks to develop digital twins able to replicate organ, tissue and disease mechanisms in order to better predict patient progression and tailor treatments to individuals' specific circumstances. Within this consortium, IHU ICAN is coordinating a use case on familial

hypercholesterolaemia, a genetic disease exposing patients to particularly high cardiovascular risk. Patients' clinical trajectories can vary significantly even if they share a common genetic profile. Understanding this variability represents a major challenge for the improvement of cardiovascular event prevention. To meet this challenge, **IHU ICAN teams are drawing on several unique patient cohorts** and integrating clinical, biological, genomics, metabolomics, lipidomics and cardiovascular imaging data. AI-based methods developed through the project are being applied to these data to identify individual cardiovascular risk factors and build increasingly accurate predictive models. A key milestone was reached in 2025 with the integration and processing of the first datasets from the FH-CALC cohort and the operational launch of new cohorts aimed at enhancing and validating the algorithms developed. **This programme gives IHU ICAN a central role in the most ambitious projects currently being run in France in the field of health data and digital medicine.**



Dr Antonio Gallo
Head of the Lipidology
and Cardiovascular
Prevention Unit
(Pitié-Salpêtrière
Hospital)

“Through MEDITWIN, we are updating cardiovascular medicine for the age of the digital twin. A combination of artificial intelligence, imaging and biological data will allow us to improve our understanding of familial hypercholesterolaemia patients' unique trajectories and identify those with the highest levels of cardiovascular risk.”



CardI-HACK

A first key data challenge for IHU ICAN

The **CardI-HACK** project is the **first data challenge organised by IHU ICAN**, marking a key milestone in the development of data science approaches within the institute. Artificial intelligence provides precision medicine with a powerful tool enabling the analysis of complex data volumes and the detection of patterns invisible to the human eye. **CardI-HACK** perfectly illustrates this potential by turning heterogeneous data into tools to help with clinical decision-making.

It was run in collaboration with the **Health Data Hub** with backing from **Bpifrance** and the **Bouygues Group**. The project, led by **Prof. Philippe Charron**, involved the **ICAN I/O – Data Sciences** platform, demonstrating the IHU's ability to coordinate complex projects combining medicine, data and innovation.

SCIENTIFIC OBJECTIVE

CardI-HACK seeks to use artificial intelligence to improve **clinical risk prediction** for hypertrophic cardiomyopathy (HCM), a common genetic disease linked to the risk of sudden death and heart failure.

Its goal is to develop **next-generation bioclinical scores** incorporating clinical and genetic data to offer more qualified guidance with therapeutic decisions.



Prof. Philippe Charron
Cardiologist

KEY RESULTS

- A cohort of **500** strongly phenotyped patients
 - Enrichment with **genomics data**
 - Establishment of a **robust pipeline of synthetic data**
 - Organisation of a **major international data challenge**
- The challenge involved:
- **76 international teams**
 - **375 algorithms submitted**
 - **3 winning teams** (Brazil, India, France)

OUTLOOK

The project has now entered a phase in which **the models developed are undergoing clinical validation** with a view to incorporating them in medical practice. Ultimately, this work could lead to **more accurate risk stratification** and concrete improvements in patient management.



FIND OUT
MORE

“Hypertrophic cardiomyopathy is the most common form of hereditary heart disease and a leading cause of sudden death in young people. The main aim of the CardI-HACK project is to improve cardiovascular risk prediction to enable optimal therapeutic management based on personalised medicine incorporating genomics. IHU ICAN played a critical role in this project. I am delighted with the success of this challenge, which has opened up some exciting opportunities.”

ICONIC

IHU ICAN launched the first heart-liver imaging atlas for the general population

A pioneering study to improve understanding, prevention and prediction of cardiometabolic diseases

In 2025, IHU ICAN reached a key milestone with the launch of **ICONIC** (Cardiometabolic Imaging for the General Population), an **unprecedented study** conducted in partnership with Inserm's national CONSTANCES cohort. Its aim is to create the first French imaging atlas of the heart, blood vessels, liver and adipose tissue for the general population, with a large number of young adults aged under 40 included for the first time.

With cardiometabolic diseases constantly on the rise, **ICONIC addresses a major public health challenge**. The study harnesses cutting-edge imaging technologies to identify early cardiovascular and metabolic ageing mechanisms, identify novel reference values according to age, sex and risk factors, and discover new biomarkers capable of improving prevention, diagnosis and patient follow-up. **The inclusion of 2,400 participants is foreseen in the first phase of the study.** The data collected will provide a unique scientific resource combining **multimodal imaging**,

biological data and epidemiological data. Using this infrastructure, it will be possible to develop innovative precision medicine approaches for cardiometabolic diseases and support multiple translational research projects in the coming years.

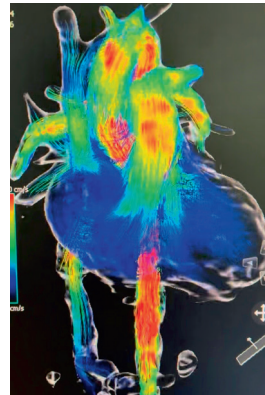
The first phase of the project was funded by the Bpifrance Sésame Filières programme, a large-scale sponsorship deal with MSDAVENIR, and a contribution from the Sicame endowment fund



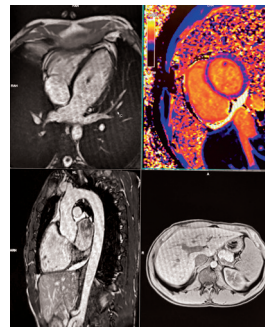
“ With **ICONIC**, we are developing an unprecedented scientific resource that will improve our understanding of early cardiometabolic disease mechanisms and provide imaging references tailored to the French population. ”

Prof. Alban Redheuil

Cardiovascular radiologist and Head of the Cardiovascular and Thoracic Imaging Unit at Pitié-Salpêtrière Hospital



4D flow MRI image showing blood circulation at individual red blood cell level between the heart and great vessels of the aorta and pulmonary arteries.



TOP LEFT: MRI image of the heart in cross-section showing the left and right ventricles and atria and the valves between the ventricles and atria.

TOP RIGHT: MRI image of the heart in colourised cross-section enabling the detection of any fibrosis or oedema of the heart muscle.

BOTTOM LEFT: MRI image of the aorta, the body's largest artery and trunk of the arterial tree, pumping approximately 10,000,000,000 L of blood over a lifespan.

BOTTOM RIGHT: MRI image of an abdominal cross-section showing the liver on the left and the spleen on the right.

10 key publications driving progress in cardiometabolic medicine

From fundamental biology to international clinical trials, work published by IHU ICAN teams in 2025 reflects the excellence and diversity of research spanning the entire cardiometabolic continuum.

These ten key publications reflect the ability of the IHU ICAN community to generate new knowledge, drive progress in precision medicine, and transform patient management.

UNDERSTANDING CARDIOMETABOLIC DISEASE MECHANISMS

1. Regulation of hdl dysfunctionality by phosphatidylethanolamine links poly-unsaturated fatty acids with atherosclerotic cardiovascular diseases

Journal: *Molecular Metabolism*

Date: 15/11/2025 DOI: 0.1016/j.molmet.2025.102281

PMID: 41248752

Authors Taradeh M, Hardy LM, Dahik VD, Lhomme M, Wang H, Reydellet C, Materne C, Kc P, Bun E, Clemessy M, Pais-De-Barros JP, Galier S, Frisdal E, Durand H, Ponnaiah M, El Khoury P, Villard EF, Lesnik P, Gallo A, Kappeler L, Giral P, Bruckert E, Masson D, Guerin M, Kontush A, Guillas I, Le Goff W

2. MAIT Cells Promote Cholesterol Excretion Pathways Mitigating Atherosclerosis.

Journal: *Circulation Research* / Date: 2025 March 26 / PMID: 40135347

Authors Wang H, Kc P, Zhang K, Materne C, Lhomme M, Galier S, Ichou F, Neves C, Lehuen A, Haas JT, Salem JE, Guerin M, Lesnik P.

3. RIPK1 inhibition reduces biliary injury and fibrosis in primary sclerosing cholangitis.

Journal: *Science Advances* / Date: 2025 Dec 17 / PMID: 41406236

Authors Soret PA, Steunou V, Hedou J, Tokgozoglu J, Pistorio V, Majdi A, Darwane N, Delaunay JL, Benyahia S, Dinard L, Ledent T, Metatla I, Guerrera C, Lhomme M, Ponnaiah M, Galon J, Soussan P, Serfaty L, Corpechot C, Housset C, Ait-Slimane T, Verdonk F, Chazouillères O, Wendum D, Ratziu V, Lemoine S, Cadoret A, Chignard N, Gautheron J.

IMPROVE PREDICTION AND CHARACTERISATION OF CARDIOVASCULAR DISEASES

4. Prognostic value of CT-derived epicardial adipose tissue volume over coronary artery calcium in systemic lupus erythematosus.

Journal: *European Journal of Preventive Cardiology* / Date: 2025 August 29 / PMID: 40880220

Authors Azoulay LD, Kachenoura N, Boussouar S, Charpentier E, Pasi N, Nguyen LA, Broussaud T, Giron A, Parker L, Leite J, Hatem S, Abdallah NA, Lhote R, Pha M, Hié M, Mathian A, de Chambrun MP, Papo M, Cohen-Aubart F, Haroche J, Amoura Z, Redheuil A.

5. RBM20 Gene in Patients With Cardiomyopathy: Phenotypic Expression for Loss-of-Function Versus Hotspot Variants.

Journal: *Circulation Heart Failure* / Date: 2025 Jan 17 / PMID: 39823286

Authors Hermida A, Ader F, Millat G, Jedraszak G, Vogel L, Garçon L, Maury P, Fay F, Beyls C, Bréhin AC, Champ-Rigot L, Dauphin C, Dauriat B, De Groote P, Donal E, Dupin-Deguine D, Faivre L, Janin A, Jobbe Duval A, Jondeau G, Laredo M, Magnin I, Marijon E, Nguyen K, Palmyre A, Perani A, Picard F, Reant P, Richard P, Rooryck C, Roubille F, Rouzier C, Toutain A, Vernier A, Winum PF, Scarlatti D, Sacher F, Diouf M, Chevalier P, Charron P, Gandjbakhch E.

6. Imaging features of desmoplakin arrhythmogenic cardiomyopathy: A comparative cardiovascular magnetic resonance study.

Journal: *Journal of Cardiovascular Magnetic Resonance* / Date: 2025 February 26 / PMID: 40021092

Authors Laredo M, Charpentier E, Soulez S, Nguyen V, Martino A, Calò L, Ader F, Hermida A, Fressart V, Charron P, Kachenoura N, Gandjbakhch E, Redheuil A.

TRANSFORM PATIENT MANAGEMENT

7. Levosimendan to Facilitate Weaning From ECMO in Patients With Severe Cardiogenic Shock: The LEVOECMO Randomized Clinical Trial.

Journal: *JAMA* / Date: 2026 Jan 6 / PMID: 41324946

Authors Combes A, Saura O, Nesseler N, Lebbah S, Rozec B, Levy B, Fellahi JL, Beurton A, Meslin S, Gaudard P, Bouglé A, Vincentelli A, Sonnevile R, Lebreton G, Lévy D, Ouattara A, Tubach F; LEVOECMO Trial Group and the International ECMO Network.

8. Arrhythmia-induced cardiomyopathy: focus on atrial fibrillation

Journal: *Nature Reviews Cardiology*

Date: 15 September 2025

DOI: 10.1038/s41569-025-01195-2

Authors Fabritz L, Hatem S.N., Sossalla S.

ADVANCE THE FIGHT AGAINST METABOLIC LIVER DISEASES

9. Thrombospondin-2 is a performant biomarker of at-risk MASH and advanced MASH fibrosis in a large multicentre European cohort.

Journal: *Gut* / Date: 2025/2026 / PMID: 40738743

Authors Ratziu V, Surabattula R, Bugianesi E, Schattenberg JM, Myneni S, Rosso C, Armandi A, Pais R, Kara L, Charlotte F, Ponnaiah M, Schuppan D.

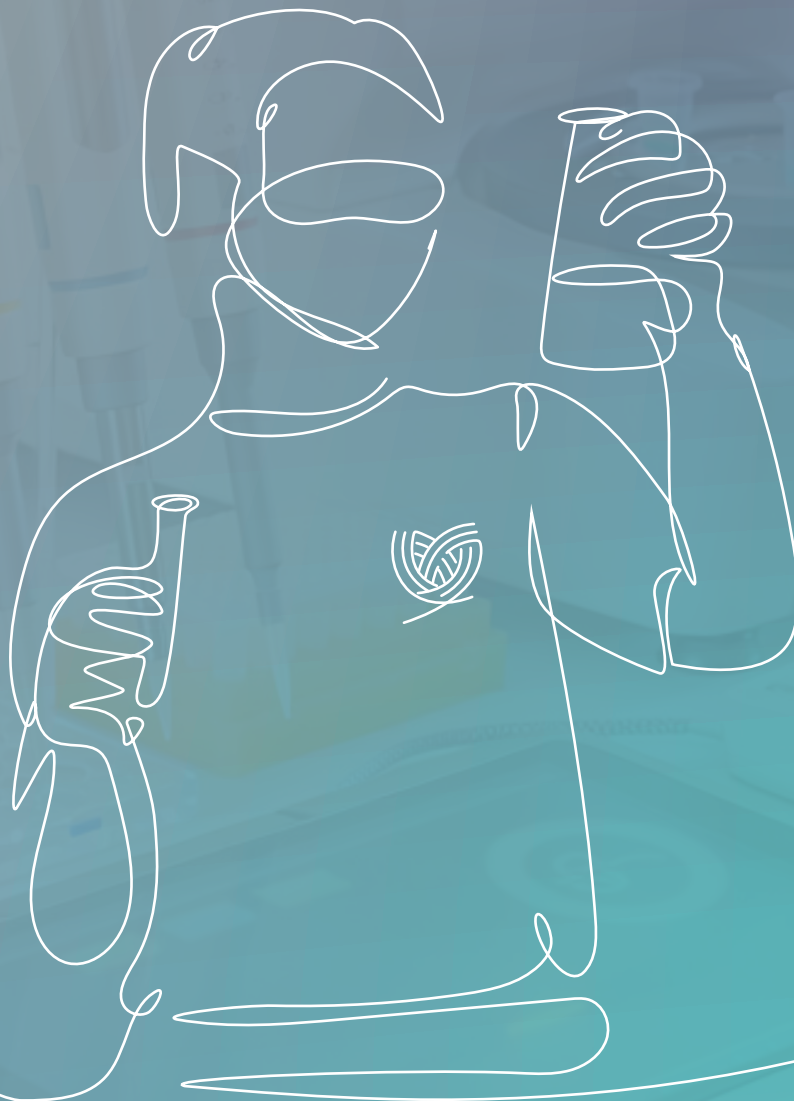
Lay summary: Validation of a promising biomarker for identifying at-risk advanced fibrosis in patients with MASH.

10. Phase 3 Trial of Semaglutide in Metabolic Dysfunction-Associated Steatohepatitis.

Journal: *New England Journal of Medicine* / Date: 2025 Apr 30 / PMID: 40305708

Sanyal AJ, Newsome PN, Kliers I, Østergaard LH, Long MT, Kjaer MS, Cali AMG, Bugianesi E, Rinella ME, Roden M, Ratziu V; ESSENCE Study Group.

RESEARCH AND INNOVATION



From cohorts to digital twins: the innovation value chain at IHU ICAN

COHORTS AND DATABASES

PREDIRISK

SUPAT & FH-CALC & DESTINY-FH & ERICAH



Number of patients

10,000

Scope

From primary cardiovascular prevention to familial hypercholesterolaemia

EPOS-LT

FRAMES & ANNITIA



Number of patients

2,600

Scope

From MASLD-related liver fibrosis to metabolic hepatocellular carcinoma

CARRARE

Cardiogen HCM, DCM & DVDA, OPTIM & ACORe database



Number of patients

3,000

Scope

Rare hereditary cardiac diseases

Atrial Cadiomyopathy Cohort

FASTRHAC, MAESTRIA, CATS-AF, CT-AF & CARE



Number of patients

4,000

Scope

Development of the atrial fibrillation substrate

Cardiac and Aortic Radiomics Cohort

MRI-HIRA, ORPHAN, CT-AF, CATS-AF, Sequoia & ICONIC



Number of patients

10,000

Scope

Imaging data warehouse

Cardiac Surgery Cohort

IP-CICA

CAVALCADE

Cohort V02



Number of patients

3,000

Scope

Heart failure with preserved ejection fraction of metabolic origin

Key



Biocollection



MRI CT Scan



ECG



Biopsies



Longitudinal data



Genetics



Monitoring



Ultrasound

PROJECTS	START	»	END	DIGITAL REVOLUTION
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TRACK 1 • NATIONAL CONSORTIUM



1 April 2024



1 Jan. 2030

» **DIGITAL TWINS**

TRACK 2 • EUROPEAN CONSORTIA



1 Dec. 2023



30 Nov. 2027



1 Jan. 2024



31 Dec. 2027



1 Jan. 2024



31 Dec. 2028

» **ANNITIA DATA CHALLENGE**

1 March 2024



28 Feb. 2030

TRACK 3 • EUROPEAN CONSORTIUM

**DCM-NEXT
OPTIM ACORE**

1 Oct. 2023



30 Sept. 2027

» **CARDI-HACK DATA CHALLENGE**

TRACK 1 • EUROPEAN CONSORTIUM



1 March 2026



31 August 2026

» **MAESTRIA DEMONSTRATOR**

TRACKS 1 AND 2 • MAJOR IHU-ICAN PROJECT



April 2024



1 Jan. 2030

**First inclusion
15 Sept. 2025**» **THE FIRST HEART/LIVER IMAGING ATLAS FOR THE GENERAL POPULATION**

PSPC CALYPSO • NATIONAL CONSORTIUM

PSPC CALYPSO

10 July 2018



July 2025

» **ML-KIDCAR DATA CHALLENGE****Projects being set up
in France and Europe**

TRACK 1: Ectopic adipose tissue



RESEARCH TEAMS

BASIC RESEARCH

UMRS-1166

Research Unit for Cardiovascular and Metabolic Diseases

- **Team 1** Genomics and Pathophysiology of Cardiovascular Diseases (Prof. Charron – Qualified Research Supervisor, University Professor/Hospital Practitioner, Sorbonne University) • **Team 3** Molecular and Cellular Plasticity in Cardiovascular Diseases (E. Balse – Research Director, Lecturer, Sorbonne University / S. Nadaud – Qualified Research Supervisor, Research Fellow, Inserm) • **Team 4** Cellular and Systemic Lipid Metabolism in Cardiometabolic Diseases (M. Guerin – Qualified Research Supervisor, Research Director, Inserm, W. Le Goff Qualified Research Supervisor, Research Director, Inserm) • **Team 5** Metabolic Diseases, Diabetes and Comorbidities (F. Foufelle – Qualified Research Supervisor, Research Director, Inserm, F. Jaisser)

UMRS-938

- **Team:** Lipodystrophies, Metabolic and Hormonal Adaptations, and Ageing (Prof. B. Fève, MD, PhD)
- **Team:** Biliary and Metabolic Liver Diseases (J. Gautheron, PhD)

BIOMEDICAL IMAGING LABORATORY (LIB)

- **Team:** Cardiovascular Imaging (N. Kachenoura)

CLINICAL RESEARCH

ARCHIMEDE DMU – Prof. Richard Isnard Pitié-Salpêtrière Hospital

- Cardiology Department (Prof. J. Silvain)
- Rhythmology Unit (Prof. E. Gandjbakhch)
- Cardiovascular and Thoracic Surgery Department (Prof. P. Leprince)
- Nutrition Department (Prof. C. Poitou)

Saint-Antoine Hospital

- Saint-Antoine Cardiology Department (F. Boccara)
- Endocrinology, Diabetes and Reproductive Medicine Department (Prof. S. Christin-Maitre) • Internal Medicine Department 2, Autoimmune and Systemic Diseases (Prof. Z. Amoura)

SAPER DMU

- Gastroenterology and Hepatology Department (Prof. D. Thabut/Prof. V. Ratziu)

DIAMENT DMU

- Cardiovascular and Thoracic Imaging Unit (A. Redheuil)



SPECIFIC TOOLS

CELLULAR MODELS

- Human cardiomyocyte progenitor cells
- Human adipocyte precursor cells
- Human PBMCs

PRECLINICAL MODELS

- High-fat diet mouse models
- Genetic mouse models for monitoring epicardial and myeloid precursors/monocyte deletion and/or macrophages
- Genetic mouse models for the corticosteroid pathway
- Genetic mouse models for the necroptosis pathway

COHORTS

- **METACARDIS** • **FASTRACK** • **CT and CATS-AF** • **PF-MRI** (electroporation and imaging) • **ICONIC** • **HIV cohort** • **OBEVIH**: Subcutaneous and visceral adipose tissue • **ADDORE** (AT biopsy after therapeutic switch: with weight gain under antiretroviral treatment) • **PIECVIH** (epicardial and subcutaneous AT) • **LUPUS** (CT chest scan)

PATIENT PATHWAYS

- CRMR PRISIS pathway

BIORESOURCES

- Genetic lipodystrophy collection (fibroblasts, tissue samples): AT, etc.)
- Collection of samples from human atria • Ventricular dysplasia bank [DVDA]

IMAGES

- AP-HP clinical data warehouse (ICT)
- MRI Research • CORE Lab Imaging



COLLABORATIONS, NETWORKS, PARTNERSHIPS

NATIONAL

- IHU LYRIC • PRISIS Reference Centre for Rare Diseases

INTERNATIONAL

- MAESTRIA H2020 European project
- ORPHAN & MAESTRIA-AFNET-10
- ELDORADO • ECLIP

INDUSTRY

- Siemens Healthineers • VOLT-AF and OCEANIC studies • Lilly • MSD

Findings of the ICARD clinical study



Prof. Alban
Redheuil



Prof. Fabrizio
Andreelli

The ICARD clinical trial, led by Prof. Redheuil and Prof. Fabrizio Andreelli, is an exploratory study aimed at assessing the cardiometabolic effects of dapagliflozin on the myocardium in heart failure with reduced ejection fraction. Deep phenotyping of heart and vascular function will be carried out by MRI. Myocardial tissue will be characterised based on MRI and FDG-PET scans to assess glucose metabolism. Liver steatosis and fibrosis will be assessed simultaneously.

The ability to alternate the use of glucose and lipids depending on myocardial requirements is a key characteristic of heart muscle physiology. After a large, high-glucose meal, the heart uses more pyruvate and lactate. During fasting periods, it uses more lipids. The proportion of anaerobic metabolism increases during periods of hypoxaemia. Ketone bodies only play an important role as substrates for cardiac metabolism in cases of advanced heart failure. The increase in triglyceride (TG) and non-esterified fatty acids (NEFA) availability, observed in type 2 diabetes, is linked to impaired heart function in rodents and humans. In cases of lipotoxicity, less glucose is captured by the heart, and lipids become the main substrate for synthesising ATP. Untreated diabetic patients' hearts use more lipids than those of control subjects. The heart's ability to use different metabolic substrates is referred to as “metabolic flexibility”. The impairment of this ability, observed in type 2 diabetes, is known



as “metabolic inflexibility”. Since energy substrate use is essential for cardiac contractility, optimising substrate oxidation could rapidly improve heart function and reduce adverse events such as hospitalisation for heart failure and all-cause mortality in the short term. Clinical consequences observed in clinical trials with gliflozins may be attributable to their promotion of metabolic transition.

IHU ICAN teams formulated the hypothesis that dapagliflozin may modify heart contractility and strain parameters by restoring a more physiological relationship between glucose and lipids as energy substrates. This led to a proposal to investigate the potential of dapagliflozin to induce subtle changes in regional and overall heart contractility using non-invasive methods (myocardial strain MRI).

The very small sample size (12 patients) allowed intra-individual comparisons to be made using an exact Wilcoxon test for paired samples. While this is a statistically appropriate approach, it considerably limits statistical power for detecting minor differences. A very high degree of treatment compliance was observed throughout the study.

ICARD is an exploratory pilot study whose principal endpoint was negative. However, considering the small sample size, there were some very encouraging signs, including multimodal imaging data, particularly from MRI, that reveal a tendency for favourable structural remodelling, an improvement in systolic and diastolic function, improvements in haemodynamic parameters, a reduction in blood volume with haemoconcentration, and a reduction in great artery diameter.

2025 marked a milestone for the **MAESTRIA-AFNET10 COHORT**

The MAESTRIA AFNET-10 cohort is a non-interventional, multi-centre, international observational registry. Its main objective is to enrol a representative group of European patients with atrial fibrillation (AF) in order to analyse relevant clinical parameters (digital ECGs, echocardiograms, cardiac CT scans, MRIs and blood biomarkers) with potential for use in clinical practice for diagnosing atrial cardiomyopathy. The AF patients will be divided into three groups representing the different forms of AF: paroxysmal, persistent and permanent.

Recruitment was completed on 31 August 2025. The target of 515 patients was met. To date, over 300 patients have completed their final visit/follow-up-period. The last patient is due to complete their final visit in August 2026 (LPO), which will mark the closure of the cohort.

A total of **27 centres across four EU countries** (Germany, France, the Netherlands and Spain) have been open for recruitment since the start of 2023, with 21 in Germany, 2 in France, 3 in the Netherlands and 1 in Spain.

MAESTRIA DEMONSTRATOR

4 predictive models are fully operational within the demonstrator:

- Prediction of **sinus rhythm restoration**.
- Prediction of **atrial fibrillation (AF) progression**.
- Prediction of **atrial cardiomyopathy**.
- Prediction of **thromboembolic risk in AF**.

All models operate through a single unified interface and can be run interactively, providing predictions accompanied by uncertainty estimates and detailed explanations.

Key data for the **MAESTRIA AFNET-10 cohort**

515
PATIENTS
INCLUDED

27
CENTRES
ACROSS
4 COUNTRIES

118
BIOLOGICAL
SAMPLES COLLECTED

46
MILLION MINUTES
OF QUALITY CARDIAC RHYTHM
SIGNAL RECORDED INCLUDING
OVER 7 MILLION MINUTES OF
CONFIRMED ARRHYTHMIA



ICAN I/O

AI-enhanced precision medicine

Artificial intelligence is among the current drivers of change in cardiovascular medicine. In 2025, the ICAN I/O platform continued its development by acquiring enhanced capabilities to harness clinical, biological and imaging data to develop decision-making tools for doctors and researchers.

In real terms, these efforts have notably led to the commissioning of the clinical demonstrator developed through the European MAESTRIA project. This platform includes multimodal data, AI-based predictive models and clinical visualisation tools that can be used to support medical decision-making. This step marks a key milestone toward the practical integration of AI in cardiovascular disease patients' care pathways.

Several research projects led by early-career researchers reflect this ambition. As part of the MAESTRIA project, Kimia Sadreddini, a PhD student with the platform, is developing deep learning models able to predict atrial fibrillation progression based solely on cardiac ultrasound videos recorded during initial hospitalisation. Her algorithms combine these imaging data with patients' clinical information to estimate the two-year relapse risk with a promising degree of accuracy, paving the way for more personalised patient management.

PhD student Ali Rammal's work relates to the development of predictive models and decision-making tools using multimodal data from medical imaging, clinical biology and connected devices. His research has notably led to the development of a secure platform that includes validation, traceability and continuous monitoring mechanisms for artificial intelligence algorithms intended for clinical use. He has also demonstrated the potential of connected devices for monitoring the progression of certain cardiovascular diseases based on an analysis of variations in arterial stiffness.

2025 also saw ICAN I/O increase its global reach. The platform secured joint French and Indian funding to develop research collaborations between France and India in the fields of biomedical data science, single-cell sequencing and spatial transcriptomics. A key partnership involving a PhD programme on digital health has also been launched with the SCAl (Sorbonne Center for Artificial Intelligence) and Sorbonne University Abu Dhabi.

Finally, research valorisation work continued with the development of a patent on novel fibrosis serum biomarkers in collaboration with Prof. Vlad Ratzu and Prof. Detlef Schuppan (Mainz, Germany). This innovation reflects the platform's ability to turn translational research discoveries into potential clinical applications.

TRACK 2: Heart-Liver Communication



RESEARCH TEAMS

BASIC RESEARCH	CLINICAL RESEARCH
UMRS-1166 Research Unit for Cardiovascular and Metabolic Diseases • Team 4 Cellular and Systemic Lipid Metabolism in Cardiometabolic Diseases (<i>M. Guerin – Qualified Research Supervisor, Research Director, Inserm, W. Le Goff – Qualified Research Supervisor, Research Director, Inserm</i>) • Team 5 Metabolic Diseases, Diabetes and Comorbidities (<i>F. Foufelle – Qualified Research Supervisor, Research Director, Inserm, F. Jaissier</i>) UMRS-938 • Team: Lipodystrophies, Metabolic and Hormonal Adaptations, and Ageing (<i>Prof. B. Fève, MD, PhD</i>) • Team: Biliary and Metabolic Liver Diseases (<i>J. Gautheron – Research Director, PhD</i>) UMRS-1269 Nutrition and Obesities: Systemic Approaches • Team 1: Impairments in organ function and interactions in metabolic diseases (<i>Prof. K. Clément MD, PhD</i>) • Team 2: Immuno-inflammation in metabolic disorders (<i>Dr E. Gautier, PhD</i>)	ARCHIMEDE DMU – Prof. Richard Isnard • Nutrition Department (<i>Prof. C. Poitou</i>) • Diabetes Department (<i>Prof. O. Bourron</i>) • Lipidology and Cardiovascular Prevention Unit (<i>Dr A. Gallo</i>) SAPER DMU • Hepato-Gastroenterology Department (<i>Prof. D. Thabut / Prof. V. Ratziu</i>) • Hepatobiliary and Pancreatic Surgery and Liver Transplant Department (<i>Prof. O. Scatton</i>) DIAMENT DMU • Specialised Imaging and Emergency Care Department (<i>Prof. O. Lucidarme</i>)



SPECIFIC TOOLS

CELLULAR MODELS	ANIMAL MODELS	COHORTS
ICAN BioCell – Human HepCell	C3H mouse models	EpoS-LT FRAMES / SLD CHC registry Genetic lipodystrophy cohort Cushing cohort
PATIENT PATHWAYS	BIORESOURCES	IMAGES
MASH clinic DELPHI consensus Clinical Practices Guidelines (EASL/EASD/EASO)	Blood samples Liver biopsies	



COLLABORATIONS, NETWORKS, PARTNERSHIPS

NATIONAL	INTERNATIONAL	INDUSTRY
French Federation of People with Diabetes SOS Hepatitis and Liver Disease Federation Poids Plumes France French Federation of Cardiology	European SLD registry (<i>Q. Anstee</i>) – largest biopsy-confirmed MAFLD registry European projects LIVERAIM, GRIPonMASH, ARTEMIS and EDC-MAFLD European Consortium of Lipodystrophies (ECLip)	Industry clinical trials (Madrigal, Novo Nordisk, Lilly, GSK, Boehringer Ingelheim, AstraZeneca, Biotech (Aker, 89 Bio), Menarini [SGLT-2]) Development of novel biomarkers Echosens, E-Scopics, Siemens, HistoIndex, Pharmanest, Genfit, Nordic and Numares

**EARLY IDENTIFICATION OF PATIENTS,
PARTICULARLY THOSE AT RISK OF
PROGRESSION**

The early identification of MASLD patients at risk of progression represents a major challenge for the prevention of liver and cardiometabolic complications. While liver biopsies remain the gold standard for diagnosing MASH and fibrosis, they are invasive procedures, which limits their scope for large-scale use. Non-invasive tests (NITs) offer a promising

alternative for patient screening and follow-up, though further clarification is needed regarding their ability to predict disease progression. One of the current research objectives is to develop new NIT-based scores in order to more effectively identify progressive forms of the disease, improve risk stratification, and facilitate earlier, more personalised patient management.

ANNITIA

AI-enabled risk stratification for metabolic dysfunction-associated steatotic liver disease (MASLD)

This project is supported by France 2030 in partnership with the Health Data Hub

The aim is to develop a risk stratification score enabling the prediction of hepatic events linked to MASLD progression based on repeated non-invasive tests (NITs). It is essential to understand the correlation between repeated NIT trends and disease progression in order to improve current epidemiological surveillance of MASLD and offer patients more personalised follow-up.

THE CHALLENGE

Predicting hepatic events based on non-invasive tests (NITs)

The aim of the ANNITIA challenge is to use clinical data and non-invasive tests (NITs) such as FibroScan, FibroTest and Aixplorer to devise a score capable of predicting the onset of major hepatic events or death during MASLD patient follow-up. Participants were given access to data for 1,676 synthetic patients in early 2026.

THE DATASET INCLUDES



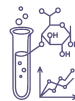
CLINICAL DATA

initial age, sex, BMI (during follow-up) and medical history (diabetes, high blood pressure, dyslipidaemia and bariatric surgery).



BIOMARKERS (NIT)

repeated measurements from FibroTest, FibroScan and Aixplorer.



**BIOCHEMICAL
PARAMETERS**

repeated measurements of ALAT, ASAT, GGT, bilirubin, platelets, glycaemia, triglycerides and total cholesterol.



CLINICAL PROGRESSION

onset of major hepatic events and all-cause mortality.

GRIPONMASH, A EUROPEAN INITIATIVE AIMED AT IMPROVING MASLD SCREENING WITH SUPPORT FROM OUTPATIENT PRACTITIONERS

The burden of morbidity and comorbidities linked to metabolic dysfunction-associated steatotic liver disease (MASLD) raises major challenges for public health systems. There is therefore an urgent need to change care practices related to MASLD and ease the strain of the disease on patients. The EU-funded GRIPonMASH project has set out to meet this need by developing a lasting, upscalable platform for early detection, in primary care settings, of at-risk patients who are developing or already have MASLD.

The French participant in this programme is the hepatology department of Pitié-Salpêtrière Hospital (part of the Paris Hospital Network – AP-HP), which is looking at a new way of organising the care pathway. This allows general practitioners to refer at-risk patients with one or more metabolic risk factors (such as obesity or type 2 diabetes) for hepatic steatosis screening.



This programme aligns with recent recommendations from European learned societies (2024 EASL–EASD–EASO Clinical Practice Guidelines).



WATCH THE PROJECT
PRESENTATION VIDEO
ON [IHUCAN.ORG](https://ihucan.org)

CORONASH study



Dr Raluca Pais

The CORONASH study, led by Dr Raluca Pais, Prof. Vlad Ratziu and Prof. Gérard Helft, seeks to assess the prevalence and severity of metabolic dysfunction-associated liver disease in patients who have undergone a coronary angiography.



Prof. Vlad Ratziu

The results show that approximately a third of patients with confirmed or suspected coronary heart disease also have MASLD. While the degree of steatosis was not linked to coronary heart disease severity, liver fibrosis measured by FibroScan correlated with stable forms of coronary heart disease. These data highlight the benefits of targeted screening of MASLD in certain cardiology patients.



Prof. Gérard Helft

Key data from the GRIPonMASH cohort

OVER
5,000
PARTICIPANTS ALREADY
INCLUDED (50% OF THE
TARGET)

OVER
25,000
SAMPLES COLLECTED
THROUGHOUT EUROPE

TRACK 3: Genes, environment, trajectories



RESEARCH TEAMS

BASIC RESEARCH	CLINICAL RESEARCH
UMRS-1166 Research Unit for Cardiovascular and Metabolic Diseases • Team 1 Genomics and Pathophysiology of Cardiovascular Diseases (<i>Prof. Charron – Qualified Research Supervisor, Sorbonne University</i>) • Team 2 Atherothrombosis and Applied Pharmacology (<i>Dr M. Zeitouni – Lecturer, Hospital Practitioner, Sorbonne University</i>) • Team 3 Molecular and Cellular Plasticity in Cardiovascular Diseases (<i>E. Balse – Research Director, Lecturer, Sorbonne University / S. Nadaud – Qualified Research Supervisor, Research Fellow, Inserm</i>) • Team 4 Cellular and Systemic Lipid Metabolism in Cardiometabolic Diseases (<i>M. Guerin – Qualified Research Supervisor, Research Director, Inserm, W. Le Goff – Qualified Research Supervisor, Research Director, Inserm</i>) UMRS-938 • Team: Pathophysiology of Foetal Growth: IGF System and Parental Imprinting (<i>Prof. I. Netchine – Qualified Research Supervisor</i>) • Team: Lipodystrophies, Metabolic and Hormonal Adaptations, and Ageing (<i>Prof B. Feve – Qualified Research Supervisor</i>) • Team: Biliary and Metabolic Liver Diseases (<i>J. Gautheron – Research Director, Qualified Research Supervisor</i>)	ARCHIMEDE DMU – Prof. Richard Isnard Pitié-Salpêtrière Hospital Cardiology Department (<i>Prof. J. Silvain</i>) • Rhythmology Unit (<i>Prof. E. Gandjbakhch</i>) • Lipidology and Cardiovascular Prevention Unit (<i>Dr A. Gallo</i>) Reference centres for rare diseases • CARDIOGEN (<i>Prof. P. Charron</i>) • Prader Willi & Genetic Obesity (<i>C. Poitou</i>) • PRISIS (<i>Prof. C. Vigouroux</i>) • FILFOIE (<i>P. Couvert, O. Chazouilleres</i>) • FIREENDO (<i>Prof. I. Netchine</i>) • BioGeM DMU – Biology, Medical Genomics and Hygiene • Functional Unit on Obesity and Dyslipidaemia Genetics (<i>Prof. Alain Carrie</i>) • Functional Unit on Molecular and Cellular Cardiogenetics and Myogenetics (<i>Dr P. Richard</i>) • F. ADER



SPECIFIC TOOLS

CELLULAR MODELS	PRECLINICAL MODELS	COHORTS
Pathophysiological modelling via patient iPS cells	Mouse genetic models	CARRARE (<i>Prof. P. Charron</i>) ACORE (<i>Prof. E. Gandjbakhch</i>) PREDIRISK (<i>Dr A. Gallo</i>) ID-MET (<i>Prof. I. Netchine</i>) PRISIS & CEREFoCoeur: OPALE observatory ((laminopathies) BaMaRa
PATIENT PATHWAYS	BIORESOURCES	IMAGES
LIPEA (lipodystrophy from childhood to adulthood) Serious game for the child–adult transition (genetic cardiomyopathies)	iPS-Cardiogen biocollection	



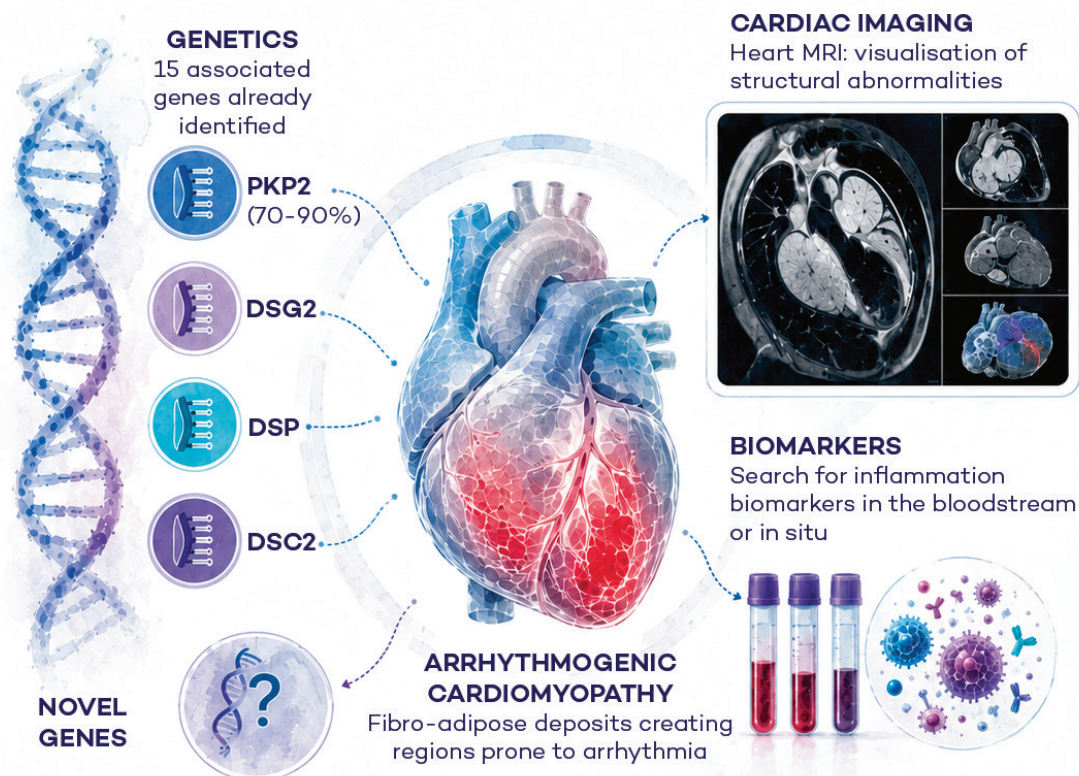
COLLABORATIONS, NETWORKS, PARTNERSHIPS

NATIONAL	INTERNATIONAL	INDUSTRY
National CARDIOGEN network Ligue contre la Cardiomyopathie French Lipodystrophy Association (AFLIP) ANHET.f	Endo-ERN Guard-Heart ERN ERADOS (ARVD) registry DSG2 registry SRS registry ESC-EORP registry ECLip registry DCM-NEXT European projects	Industrial clinical trials Regeneron and Chiesi (lipodystrophies) – leptin pathway – national coordinator BMS – Odyssey (Phase 3 – HCM) – national coordinator Alexion – Amylose (<i>Prof. Lise Legrand</i>) Tenaya – PKP2 gene therapy (<i>Estelle Gandjbakhch</i>) Lexicon – HCM – national coordinator

Cardiometabolic diseases are the result of complex interactions between environmental factors and the genome throughout our lives, as seen with the paradigm of atherosclerosis. Although genomics is currently rarely used for prevention and treatment, it will play a crucial role in personalised medicine for cardio-renal-metabolic (CRM) diseases. One challenge lies in predicting clinical events and complications among individuals for a given genotype. A second challenge is to determine the impact of environment, lifestyle,

nutrition and sport on disease progression.

The final challenge is to establish the multifactorial genomic component of these diseases and how it interacts with the monogenic component. To address these challenges, the track will focus its research on rare familial forms of disease with a strong genetic trait.

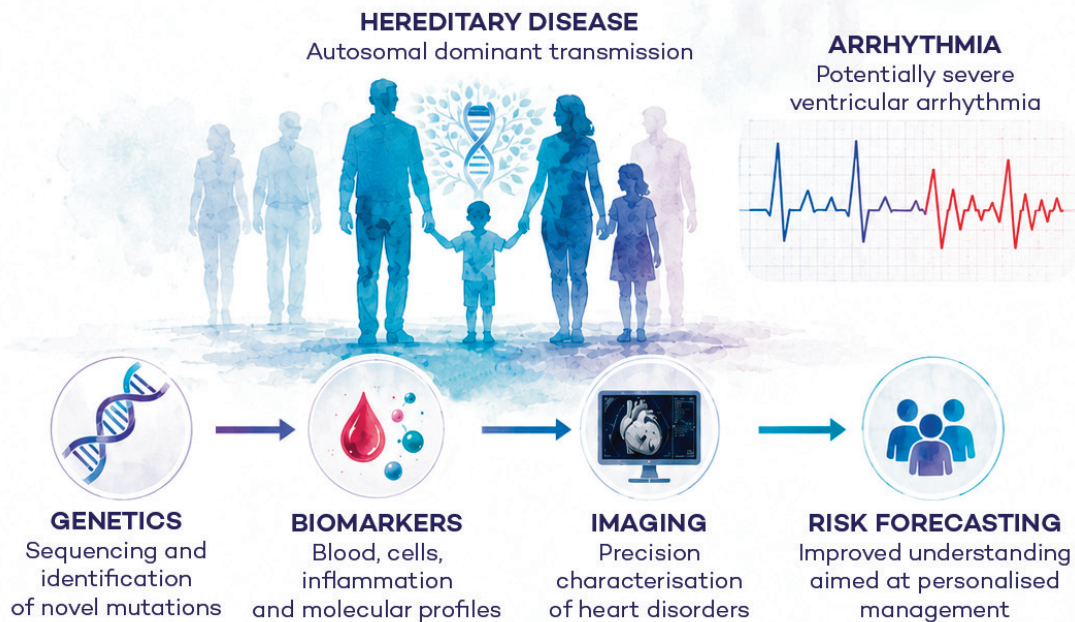


ACORE STUDY

Arrhythmogenic cardiomyopathy (ACM) is a rare hereditary heart disease causing severe ventricular arrhythmia, which can lead to sudden death or heart failure (Gandjbakhch et al. 2018). Fifteen genes linked to ACM have been described to date. In its typical form, ACM manifests as an isolated cardiac form linked to heterozygous mutations (autosomal dominant) of the cardiac desmosome genes PKP2, the main gene (70 to 90% of mutations), DSG2, DSP, and less commonly, DSC2. This rare disease is characterised by the formation of fibro-adipose deposits in the heart's right and left ventricles,

creating regions that are prone to heart arrhythmia.

The ACORE clinical trial seeks to identify novel inflammation biomarkers in atrial cardiomyopathy, either in the bloodstream, in situ or as imaging biomarkers, to shed light on the pathophysiology of the disease and subsequently determine contribution to the clinical management of patients. The amended study protocol was approved by the French ethics committee in September 2023. After the inclusion criteria had been revised, 464 retrospective patients were included in the database, 60 of whom became prospective subjects.



Since November 2023, 145 prospective patients have been recruited including 7 who have undergone an ablation.

Prospectively included patients contributed to a biocollection including samples of DNA, serum, plasma, peripheral blood mononuclear cells (PBMCs) and, in some cases, pericardial fluid. The PBMC biocollection was created for the first 100 patients enrolled to investigate patients' circulating cell profiles.

This biocollection is a critical resource helping us gain a deeper understanding of ACM, explore genetic and molecular aspects of the disease, and develop potential biomarkers.

In 2026, we will continue to recruit new (prospective) patients, who will come into the centre. We will analyse inflammation biomarkers and correlate these with imaging data.

Key data from the ACORE study

10 to 15%

OF SUDDEN DEATH CASES IN YOUNG ATHLETES ARE CAUSED BY ARRHYTHMOGENIC CARDIOMYOPATHY

464

RETROSPECTIVE PATIENTS WERE INCLUDED IN THE ACORE COHORT

145

PROSPECTIVE PATIENTS

15

GENES CURRENTLY LINKED TO ARRHYTHMOGENIC CARDIOMYOPATHY

70 to 90%

OF MUTATIONS RELATE TO PKP2

TRAINING IN CARDIOMETABOLISM



France's first university diploma in cardiometabolic diseases

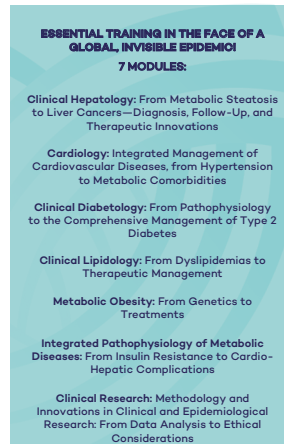


In 2025, IHU Ican and Sorbonne University launched the “Health and Cardiometabolic Diseases” university diploma, an innovative programme designed for healthcare professionals, researchers and care stakeholders seeking to gain an integrated view of cardiometabolic diseases and develop comprehensive expertise on how to prevent, diagnose and manage them.

This initiative addresses a major public health challenge. Global incidence of diabetes, obesity, cardiovascular diseases, dyslipidaemia and metabolic dysfunction-associated liver diseases is steadily rising. Though long considered separate conditions, they are now acknowledged to be closely interconnected with shared pathophysiological mechanisms requiring a cross-disciplinary approach.

This diploma, led by Prof. Vlad Ratziu and Prof. Stéphane Hatem, **is the first of its kind in France to focus solely on cardiometabolic diseases**. It reflects IHU Ican's commitment to promoting the dissemination of knowledge derived from recent scientific breakthroughs and train a new generation of professionals able to understand these diseases in all their complexity.

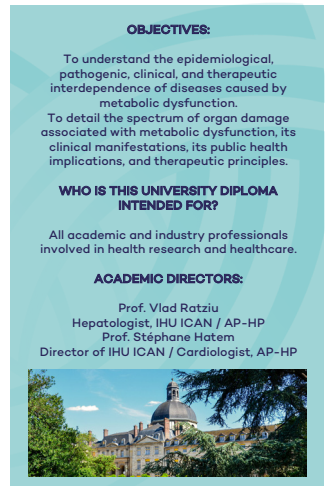
The programme is rooted in a multidisciplinary approach involving experts in hepatology, cardiology, diabetes, endocrinology, lipidology, nutrition and clinical research. Its hybrid format combines elements of theory delivered



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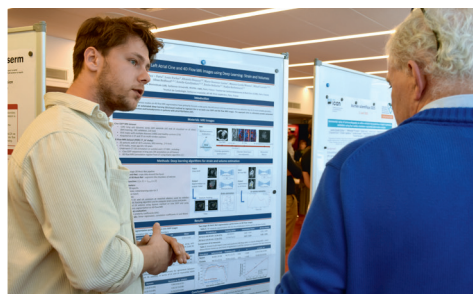
by videoconferencing, interactive discussions with speakers, and hands-on clinical practice.

The programme is structured around seven main themed modules notably covering metabolic dysfunction-associated steatotic liver disease, cardiovascular diseases, type 2 diabetes, dyslipidaemia, metabolic obesity, and diagnostic and therapeutic innovations. There is a specific focus on pathophysiological links between organs as well as integrated management, diagnosis and treatment approaches.

Through this unique programme, the IHU delivers training that covers specific aspects of cardiometabolic diseases, one of the main health challenges facing us in the coming decades.



FIND OUT MORE
ABOUT THE PROGRAMME
AND HOW TO ENROL



ACCESS THE FULL
PROGRAMME FOR
THE DAY



IHU ICAN Scientific Day: at the heart of cardiometabolic research



Prof. Bruno Fève



Wilfried Le Goff

On 11 April 2025, IHU ICAN held its annual Scientific Day in the Faculty of Sciences at Sorbonne University. This event, organised for the IHU's scientific community, sought to strengthen synergies between basic research, translational research and clinical practice in the field of cardiometabolic diseases.

The aim of the day was to encourage interdisciplinary dialogue, share recent scientific discoveries and provide a catalyst for new collaborations within the ICAN ecosystem.

Participants attended a series of plenaries, scientific presentations and discussions showcasing work carried out within IHU ICAN's teams and platforms. Key discussions related to interactions between the adipose tissue, liver, heart and metabolism, novel precision medicine approaches, advanced cardiovascular imaging, genomics, and the increasing contribution of artificial intelligence to research and care pathways.

The spotlight was also on early-career researchers, who were given the opportunity to present their work both orally and using scientific posters. Several prizes were awarded recognising the quality of their projects and their ability to discover new avenues of translational research in the field of cardiometabolism. Profiles of the prize-winners are provided in the next section.

One of the highlights of this 2025 edition was the closing plenary by Anne Bouloumié, Research Director at the Toulouse Institute of Metabolic and Cardiovascular Diseases (Inserm UMR 1297), a key international figure in research on adipose tissue and metabolic inflammation: *"I was keen to be involved in this Scientific Day, as it represents a critical development for our research, encouraging interdisciplinary dialogue to improve our understanding of complex and systemic diseases. IHU ICAN is the very embodiment of this collaborative approach that is so essential for speeding up discoveries for the benefit of patients,"* commented Anne Bouloumié.

According to **Prof. Bruno Fève**, a member of the organising committee: *"This Scientific Day is a perfect illustration of IHU ICAN's commitment to knowledge transfer and training. It allows early-career researchers and clinicians to present their work to recognised experts and gain a clearer understanding of cross-disciplinary challenges in the field of cardiometabolism."*

This view was shared by Research Director **Wilfried Le Goff**, also a member of the organising committee: *"As well as sharing scientific results, this event also provides a genuine forum for collective learning. It encourages the emergence of a new generation of researchers and healthcare staff capable of working at the intersection of basic research, clinical practice and technological innovation."*

This Scientific Day is the concrete expression of one of IHU ICAN's founding missions: **to provide cardiometabolism training for future researchers and clinicians.**

Profiles of early-career researchers



Omar El Zouhayri



TEAM

Institute of Cardiology – Pitié-Salpêtrière Hospital and **UMR-S 1166**. Research Unit for Cardiovascular and Metabolic Diseases.



EDUCATION

After graduating with a degree in medicine from Nantes University (2015-2021), Omar El Zouhayri joined the Paris Public Hospital Network (AP-HP) in November 2021 as a cardiology intern while continuing his university studies at Université Paris Cité. His interest in research stems from his clinical practice in which he saw patients who experienced cardiovascular symptoms despite having non-obstructive coronary arteries.

Given the general lack of understanding of this area at the intersection of interventional cardiology, vascular pathophysiology and personalised medicine, he decided to focus his research on coronary microvascular dysfunction.

Through his work within the Atherothrombosis and Applied Pharmacology team of UMRS 1166-ICAN, he is seeking to better characterise links between coronary and peripheral microcirculation with a view to improving the diagnosis and management of patients with suspected microvascular angina.



RESEARCH PROJECT

Omar El Zouhayri's project investigates the hypothesis that coronary microvascular dysfunction, involved in angina with non-obstructive coronary arteries (ANOCA), could be part of a more systemic microvascular disorder. The prospective study includes patients evaluated for suspected microvascular angina using invasive coronary microcirculation assessment. Alongside this, a non-invasive perilingual videocapillaroscopy is used to assess skin microcirculation abnormalities according to the EULAR classification. The initial findings reveal a high incidence of capillary abnormalities in these patients, particularly in terms of capillary rarefaction, dilated capillaries and haemorrhages. Although the statistical relationship with coronary microvascular dysfunction still needs to be confirmed, these data suggest a potential link between coronary and peripheral disorders that warrants further investigation with larger cohorts.



AWARDS/DISTINCTIONS

2025 – Poster Award – IHU ICAN Scientific Day, for the “Nailfold Capillaroscopic Findings in Patients With Suspected Microvascular Angina” project



KEY PUBLICATIONS

Efficacy and Safety of Intravenous Antiplatelet Therapy in Acute Myocardial Infarction With Cardiogenic Shock 2026 Anthony Elhadad 1, Omar El Zouhayri 1, Johanne Silvain 1, Mathieu Kerneis 1, David Sulman 1, Niki Procopi 1, Perrine Devos 1, Frederic Beaupré 1, Pierre Charleux 1, Louis Giovachini 1, Arnaud Ferrante 1, Nassim Braik 2, Paul Guedeney 1, Olivier Barthélémy 1, Alain Combes 3, Juliette Chommeloux 3, Stéphanie Rouanet 4, Gilles Montalescot 1, Michel Zeitouni 5; ACTION Study Group



Sonny Yde



TEAM

UMRS 1166 – Team 5 – Metabolic Diseases, Diabetes and Comorbidities – Fabienne Fougelle, Frédéric Jaisser – Pitié-Salpêtrière Hospital, Paris
UMR 3691 – Team – Mitochondrial Biology, Timothy Wai, Institut Pasteur, Paris



EDUCATION

My curiosity to understand how biological mechanisms influence health and contribute to disease development has led me to focus my career on biomedical research. Having obtained an advanced vocational diploma (BTS) in Biotechnologies and a Bachelor's degree in Biomedical Research, I undertook internships allowing me to investigate several experimental models covering a range of topics including thyroid development, pancreatic β cell biology and neurodegenerative mechanisms in *C. elegans*.

These experiments further motivated me to understand how cellular and molecular dysregulation can lead to human diseases.

Through Master's degrees in life sciences and molecular and cellular biology, I then focused my studies on mitochondria in neurodegenerative, then liver diseases. This same theme also runs through my current PhD on

mitochondrial dysfunction in MASLD, in which I am seeking to gain a better understanding of the mechanisms involved in these chronic diseases.

“My ambition gives me direction, and the rest is down to self-discipline.”



RESEARCH PROJECT

Metabolic dysfunction-associated steatotic liver disease (MASLD) is the world's most common chronic liver disease. It is characterised by increased adipose storage that can progress to MASH with inflammation, hepatocyte lesions and fibrosis, which can in turn lead to cirrhosis or cancer of the liver. I am investigating the role of mitochondria and, in particular, the mitochondrial protein MTFP1, in this progression. Mtfp1 deletion in hepatocytes protects males consuming a high-fat diet against steatosis and liver damage. I therefore investigated pro-MASH diets to determine whether this protection extends to more advanced stages of MASLD. My work demonstrates that the absence of MTFP1 exclusively protects males against liver lesions and cell death, without significantly reducing steatosis and MASH. These results suggest that MTFP1 controls separate mitochondrial functions in a sex-dependent manner.



AWARDS/DISTINCTIONS

- 2022 — **Ministerial PhD grant** for Doctoral School 394
- 2024 — **Best scientific poster award**, ICAN and CMDO winter camp, Canada
- 2024 — **Best scientific letter of intent award**, ICAN and CMDO winter camp, Canada
- 2025 — **Best scientific poster award**, IHU ICAN Scientific Day
- 2025 — **End of thesis grant** awarded by the Institut Pasteur



KEY PUBLICATIONS

Patitucci, C., Hernández-Camacho, J.D., Vimont, E. et al. *Mtfp1* ablation enhances mitochondrial respiration and protects against hepatic steatosis. *Nat Commun* 14, 8474 (2023).

Yde, S., Patitucci, C. ; et al. *Mtfp1* influences MASH severity in a sex-dependent manner in mice. Currently being written.



Laëtitia Rialland

“I love translational research, as it gives a clear meaning to scientific discoveries.”

Laëtitia Rialland Pinto



TEAM

UMRS 1166 Team 1: Genomics and Pathophysiology of Cardiovascular Diseases: from Single-Gene Disorders to Multifactorial Diseases – Prof. Philippe Charron



EDUCATION

I completed my first cycle of medical studies at Nantes Université. I then turned to basic science, with a first-year Master's internship at the Thorax Institute, which introduced me to the field of cardiovascular research. This led me to complete a second-year Master's, then a PhD in cardiogenetics. My PhD aims to improve understanding of hereditary heart diseases and the detection of their genetic causes, with the potential for immediate clinical impact. This PhD has confirmed my desire for a career combining clinical practice with academic research.



KEY PUBLICATIONS

ORAL COMMUNICATIONS

- Assises de Génétique (2026): “Long-read RNA sequencing combined with haplotype phasing improves the diagnostic potential of RNA-seq: application to dilated cardiomyopathy”; “Targeted NGS of mRNA helps to guide the classification of variants of uncertain significance in cardiomyopathy genes.”
- JESFC (2025) “Targeted mRNA sequencing improves classification of splicing variants in HCM”
- Cardiogen Network Day Events (2024) “Analysis of targeted mRNA-Seq on circulating cells to detect splicing variants and resolve the diagnostic impasse in cardiomyopathies”
- Assises de génétiques (2024) “Developing targeted mRNA-Seq on circulating cells to detect splicing variants and resolve the diagnostic impasse”

POSTERS

- Cardiology Spring (2026): “Phased long-read RNA sequencing uncovers cryptic variants in dilated cardiomyopathy with potential to improve diagnostic yield”
- Cardiology Spring (2025): “Long-read RNA sequencing in dilated cardiomyopathies: a new approach with strong potential?”
- Cardiology Spring (2024): “Targeted mRNA sequencing helps to classify variants affecting splicing in hypertrophic cardiomyopathies”



RESEARCH PROJECT

The “**CALORR**” research project explores the genetic causes of cardiomyopathies, especially those missed by conventional DNA approaches. These disorders, which affect young patients, are generally inherited in an autosomal dominant pattern. Despite DNA sequencing with gene-panel analysis, no genetic causes are found in more than half of cases. This diagnostic impasse is a lost opportunity for patients and their families. We propose an innovative RNA sequencing approach using the long-read technique developed by Oxford Nanopore Technologies. This approach should help detect abnormalities that affect RNA expression and maturation, which can rarely be identified on DNA directly.



AWARDS/DISTINCTIONS

- 2025 — **Best Oral Communication Award** – IHU ICAN Scientific Day
- 2024 — **Best Poster Award** – Cardiology Spring
- 2023 — **FFC Research Grant** [coordinator P. Richard] €100,000
- 2022 — **Ministerial PhD Grant for DS 394**
- 2020 — **Laureate of the École de l'Inserm** Liliane Bettencourt



Louis Parker



TEAM

UMR 1146 – Cardiovascular Imaging (iCV), Biomedical Imaging Laboratory (LIB) – Nadjia Kachénoura



EDUCATION

I studied mechanical engineering at the University of Western Australia (UWA). I then specialised in biomechanics at Master's level. I subsequently worked in the Vascular Engineering Laboratory (VascLab), where I used my knowledge of computational fluid dynamics (CFD) to analyse blood circulation in aortic and iliac aneurysms. I continued my work in this laboratory, focusing on another condition affecting the aorta: aortic dissection. I then held a postdoctoral position at the Royal Institute of Technology (KTH) in Stockholm. Extracorporeal membrane oxygenation (ECMO), which involves extracting blood and oxygenating it outside the body, was increasingly used during the COVID-19 pandemic. We used CFD to analyse a whole series of potential configurations for a synthetic patient with a view to optimising treatment. During periods spent in Australia and Sweden, I learned that good imaging is a prerequisite for a good computational model. I was excited by the prospect of using 4D MRI to improve the accuracy of my models.



AWARDS/DISTINCTIONS

2025 — **Best Oral Communication Award** – IHU ICAN Scientific Day

2024 — **Marie Skłodowska-Curie Postdoctoral Fellowship** – European Commission

2018 — **Mimics Innovation Award**

2016 — **William and Marlene Schrader Scholarship** for biomedical engineering



RESEARCH PROJECT

The “HiDDyn-AF” (High-resolution Decryption of Left Atrial Haemodynamics in AF) project involves the development of an innovative left atrial blood flow model aimed at elucidating atrial fibrillation (AF) mechanisms. It combines computational fluid dynamics, 4D flow MRI, late-gadolinium enhancement MRI and computed tomography to analyse patients pre- and post-ablation. Unlike existing models, which often consider an atrium to be rigid, this model incorporates atrial movements throughout the cardiac cycle using 4D MRI data validated by flow measurements. The aim is to improve the characterisation of AF-related haemodynamic modifications and develop personalised risk stratification to improve patient management.



KEY PUBLICATIONS

Parker, L., Bollache, E., Soulez, S. et al. A multi-modal computational fluid dynamics model of left atrial fibrillation haemodynamics validated with 4D flow MRI. *Biomech Model Mechanobiol* 24, 139–152 (2025). <https://doi.org/10.1007/s10237-024-01901-y>

Hemodynamic and recirculation performance of dual lumen cannulas for venovenous extracorporeal membrane oxygenation, *Scientific Reports*, 2023. DOI: 10.1038/s41598-023-34655-1.

Cannulation configuration and recirculation in venovenous extracorporeal membrane oxygenation, *Scientific Reports*, 2022. DOI: 10.1038/s41598-022-20690-x.

Impact of altered vena cava flow rates on right atrium flow characteristics, *Journal of Applied Physiology*, 2022. DOI: 10.1152/jappphysiol.00649.

Proximal false lumen thrombosis is associated with low false lumen pressure and fewer complications in type B aortic dissection, *Journal of Vascular Surgery*, 2021. DOI: j.v.s.2021.10.035.

Morphology and hemodynamics in isolated common iliac artery aneurysms impact proximal aortic remodeling, arteriosclerosis, thrombosis and vascular biology, 2019. DOI: ATVB.AHA.119.312687.

Early-career researcher training

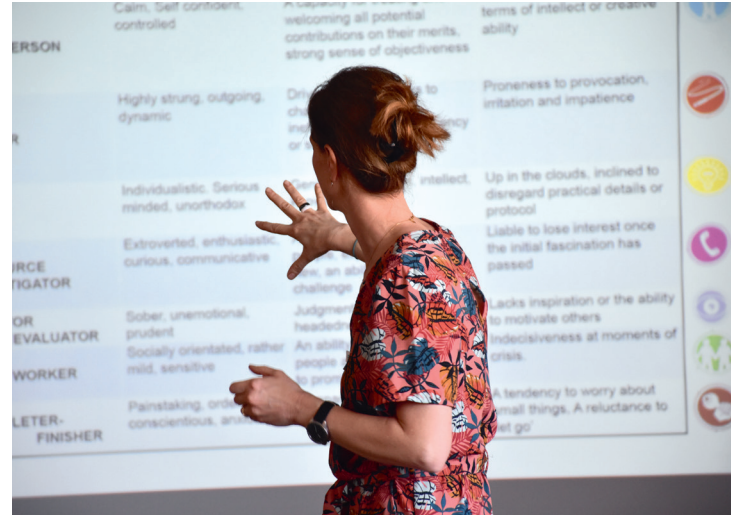
Training the next generation of cardiometabolic researchers

In addition to its research and innovation remit, IHU ICAN is committed to helping young researchers develop their scientific careers by providing them with an environment that encourages interdisciplinary discussion, international cooperation, and exploration of the entire cardiometabolic research ecosystem.

This vision once again took concrete form in 2025 with winter and summer camps organised for students and early-career researchers in partnership with the Cardiometabolic Health, Diabetes and Obesity Research Network (CMDO) at the Université de Sherbrooke in Quebec.



The winter camp, which ran between 31 January and 7 February 2025, provided a week's intensive training on major cardiometabolic health issues for early-career researchers from France and Quebec. This programme, organised by the CMDO, gave participants the chance to find out more about basic, clinical and epidemiological research approaches developed in Canada. In addition to scientific learning, this immersive experience provided valuable networking opportunities paving the



way for future collaborations and new prospects for academic and postdoctoral mobility.

A few months later, from 16 to 23 June 2025, IHU ICAN hosted the fourth edition of its summer camp on the Pitié-Salpêtrière campus. Researchers, clinicians, engineers and platform leaders shared their experiences with a new cohort of young scientists from France and Quebec. On the agenda were workshops on careers in research, opportunities to meet biomedical innovation players, visits to technological platforms, and themed sessions on cardiometabolic diseases, health data and new AI-based approaches.

Among the IHU ICAN research facilities opened up to participants were the ICAN Omics, ICAN BioCell and ICAN Imaging platforms and the Biological Resources Centre.

IHU ICAN uses these two complementary programmes as a means to promote international dialogue and access to outstanding scientific environments, building a research community capable of meeting future public health challenges.

2025 CMD Barometer

Awareness of cardiometabolic diseases in the French population still too low

In 2025, IHU ICAN presented its third IFOP survey on cardiometabolic diseases. This study reveals an alarming dichotomy between these diseases that represent a major public health challenge and limited public awareness of them.

The main cardiometabolic diseases are diabetes, obesity, cardiovascular diseases, dyslipidaemia and metabolic dysfunction-associated liver diseases. They are currently the leading preventable cause of cardiovascular diseases, themselves the second biggest cause of death in France.

The barometer's main finding is that **70% of French people state that they have never heard of cardiometabolic diseases** and only 6% claim to know exactly what they are. Even more alarming is the fact that only 14% of the individuals questioned spontaneously listed cardiometabolic diseases among the main causes of death in France.

The study also revealed that people's understanding of these conditions remains fragmented. While respondents were able to identify cardiovascular diseases relatively well, metabolic dysfunction-associated liver diseases were vastly underestimated, with only 3% of participants spontaneously associating steatotic liver disease with cardiometabolic diseases, though it affects almost 18.2% of the French adult population.

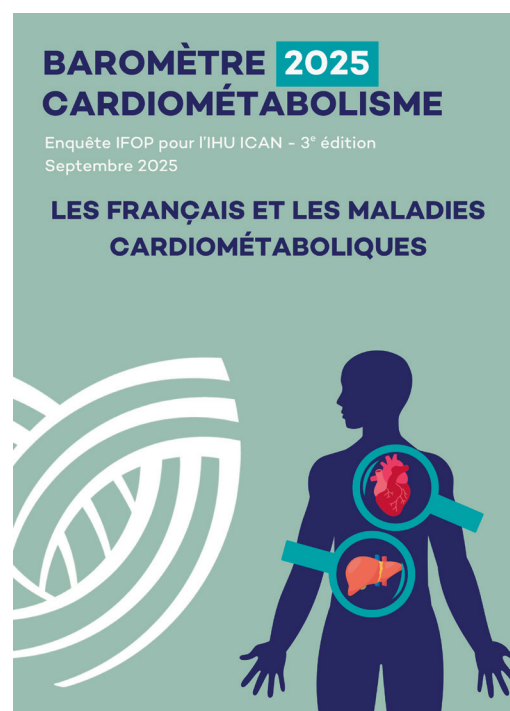
However, the barometer reflects growing awareness of the severity of these diseases, with 80% of French people viewing them as serious conditions potentially resulting in death and 72% expressing the belief that their incidence has been rising in recent years. Yet preconceptions persist, with 56% of

respondents still believing that it is now possible to cure these diseases and almost one in two French people describing them mainly as a matter of individual responsibility.

The study also highlights the importance of information and prevention. Over half the respondents (55%) claimed that they have never been informed about these diseases. However, informed individuals were more likely to adopt preventive behaviours, with 74% of them stating that they have modified their life habits versus just 48% among uninformed individuals.

Finally, French people clearly identify priorities for action, with 59% demanding more awareness-raising on lifestyle choices conducive to cardiometabolic health and 43% stating that healthcare professionals should receive more training.

The findings of this study are being fed directly into training, awareness-raising and engagement measures implemented by IHU ICAN for the public and healthcare professionals.



National Week for Cardiometabolic Diseases: a joint effort to raise public awareness

In April, IHU ICAN held its second **National Week for Cardiometabolic Diseases**, a national prevention and awareness-raising campaign aimed at improving knowledge of these conditions about which there is a continuing lack of public awareness.

Diabetes, obesity, dyslipidaemia, cardiovascular diseases and metabolic dysfunction-associated hepatic steatosis (MASH/MASLD) currently affect millions of people in France. Cardiometabolic diseases are the leading modifiable and preventable cause of cardiovascular diseases, which, along with strokes, account for approximately 200,000 deaths every year.

In response to this situation, IHU ICAN has rolled out a nationwide campaign of preventive measures, conferences, educational content and participatory initiatives. The campaign,

which ran over several weeks between 31 March and 20 April, adopted a multi-channel approach combining social media, online conferences, local and national radio, mini-podcasts, cardiometabolic health testing and awareness-raising videos.

Among the highlights of this edition were conferences attended by doctors, researchers, expert patients and associations that focused on major public health issues such as obesity, MASH, diabetes, familial hypercholesterolaemia and physical exercise. This combination of scientific expertise and patient experience was one of the strengths of the event.

Engagement from patient associations played a key role in the campaign. Thanks to their efforts, it was possible to formulate prevention messages relevant to patients' everyday lives and boost the societal impact of the initiative.

The campaign was also supported by **Santé publique France**, a key partner alongside AP-HP, Inserm and Sorbonne University.

This year also saw the **first "ICANgo" connected challenge**, a high-impact initiative aimed at encouraging physical activity and raising awareness of the benefits of exercise in the prevention of cardiometabolic diseases. It brought together researchers, doctors, partners and participants in a united effort to promote health.

IHU ICAN used this second edition as an opportunity to **pursue its goal of improving awareness to improve prevention and help make cardiometabolic diseases a universally recognised public health priority**.



GET THE FULL
PROGRAMME AND
CONFERENCE REPLAYS



Progress on the patient engagement strategy:

IHU ICAN's efforts to increase patient involvement in its work

In 2025, IHU ICAN reached a new milestone in its drive to get patients and patient associations more involved in its research, training and care activities. These efforts are part of preparations for the IHU's 2026-2030 strategic plan, under which patient engagement is set to play a key role in the institute's development.

IHU ICAN is seeking to develop a more participatory approach to project implementation focused on patients' lived experiences. The aim is to **ensure that patients become genuine partners in the IHU's projects** involving research, training and care pathways.

On 17 October, IHU ICAN held a meeting with partner patient associations to lay the foundations of a more structured, long-term collaboration.

Attendees included representatives of associations for cardiovascular diseases, obesity, diabetes and rare metabolic diseases. A number of joint priorities emerged from the meeting as well as the shared vision of **giving patient expertise a greater role in translational research projects and in improving cardiometabolic disease management.**

Key elements of the strategy promoted by IHU ICAN include the involvement of expert patients in setting up and evaluating research projects, the incorporation of quality of life and patient experience metrics in clinical studies, and the co-development of new care pathways and tailored educational tools.



IHU ICAN is also seeking to give training a more prominent role in this plan. Patient experience is set to be gradually factored into training delivered to healthcare professionals and early-career researchers, particularly through the involvement of expert patients in higher education provision on cardiometabolism.

This patient engagement strategy already draws on several existing collaborations, notably with the University for Patients. It marks a major development in our approach to research and innovation in health, with research designed not just for, but also with patients.



Raluca Pais

Hepatologist and Head of the Metabolic Dysfunction-Associated Steatohepatitis (MASH) Day Unit

“ In metabolic dysfunction-associated liver diseases like MASH, we are aware that patients' compliance, understanding of the disease, and experience of the care pathway play an essential role. By involving patients in research and the development of care pathways, it's possible to devise more tailored, practical and effective approaches. Patient engagement has become a vital lever for improving prevention, screening and care quality. ”



SPONSORSHIP AND FUNDRAISING



Sponsorship accelerating innovation

In 2025, IHU ICAN reached a key milestone in the development of its sponsorship policy initiated in 2021 to support research on cardiometabolic diseases. The IHU raised €1,075,991 thanks to increasing engagement among its sponsors. This proves that cardiometabolic conditions are gaining visibility in the health philanthropy landscape.

At a time when cardiometabolic diseases pose a major public health challenge, sponsorship provides a key lever for accelerating scientific innovation. Donations are notably used to fund pilot projects, proofs of concept, cutting-edge technological equipment and translational research that are difficult to support through traditional public funding.

In 2025, the IHU also drew on a wider circle of support, with new

sponsors accounting for 60% of sums raised. Research foundations and corporate foundations were the leading source of philanthropic funding at 52% of funds raised, ahead of direct donor companies (23%) and individuals (25%). This trend proves that IHU ICAN has made a sound strategic decision by focusing its sponsorship policy on the private sector.

Since 2021, sponsors have provided funding for major scientific projects covering a wide range of fields including imaging, rare cardiometabolic diseases, heart transplants, and metabolic dysfunction-associated liver diseases. Our sponsorship activities make a direct contribution to the emergence of high-impact innovations for patients, including the ICONIC imaging atlas (France's first such atlas) supported by MSD Avenir, the

PEGASE project (first worldwide) on heart transplants supported by BOUYGUES, and work on preventing sudden cardiac death in hypertrophic cardiomyopathy, supported by TRIOMPHE DU CŒUR and the SICAME endowment fund.



“At the heart of research”: an immersive look behind the scenes at ICAN

On 2 July 2025, IHU ICAN held its annual meeting with sponsors with an immersive tour entitled “At the heart of research”. Those present were treated to a behind-the-scenes look at the IHU's technological and research platforms: clinical investigation, biobanking, lipidomics, metabolomics, iPS cells, cardiovascular imaging and data science.

Over the course of this special visit, participants gained insights on the whole process behind clinical research projects, from biological sampling to data analysis and the development of medical innovations.



The meeting ended with a presentation by Prof. Stéphane Hatem outlining IHU ICAN's strategic priorities and an opportunity for discussion between researchers, doctors and sponsors.



A relationship with sponsors **based on outstanding service and trust**

In 2025, IHU ICAN conducted its first sponsor satisfaction survey to assess the quality of the relationship with its sponsors and identify possible areas for improvement. This process confirmed that general levels of satisfaction are very high and that close links with scientific teams are valued.

According to the results of the survey, **100% of respondents are either satisfied or very satisfied with their relationship with IHU ICAN**. The quality of service offered to sponsors emerged as a

strength, with **86% of respondents stating that they were very satisfied with the service provided to them as sponsors and 71% describing teams' responsiveness as “very satisfactory”**.

In particular, the sponsors questioned mentioned “**regular and efficient communications**”, “**the teams' responsive and proactive approach**”, and the quality of events organised, including immersive visits to technological platforms and scientific meetings.

Meetings with sponsors organised by the institute play an important role in this relationship of trust, with **100% of participants stating that such events contribute positively to their relationship with IHU ICAN** by improving their understanding of research activities.

This survey marks **a key step in efforts to structure IHU ICAN's sponsorship policy** with a firm commitment to forging lasting, transparent partnerships based on sharing concrete details of the impact of research on patients and society.



The Crédit Mutuel Alliance Fédérale Foundation's joint commitment with ICAN

In 2025, the Crédit Mutuel Alliance Fédérale Foundation provided major backing for the EDC-MASLD project investigating the impact of endocrine disruptors in metabolism dysfunction-associated liver disease. A total of €259,000 was pledged to this four-year partnership, notably funding a dedicated MRI imaging module for investigations of the liver.

The EDC-MASLD project, led by IHU ICAN teams, seeks to elucidate how environmental endocrine disruptors influence the development and progression of MASLD/MASH. It draws on a European cohort of over 9,000 patients and combines clinical, biological and advanced imaging data.

“ The Crédit Mutuel Alliance Fédérale Foundation supports numerous projects investigating the impact of environment on health. This is one of its key sponsorship priorities. It is currently estimated that over 20% of chronic diseases are linked to environmental factors. Although medical research is a major public health priority, there is no doubt that it is severely underfunded. France has always been a global leader in scientific research, with prestigious institutions playing a central role in its internationally recognised excellence. It is our responsibility to rally alongside the scientific community by supporting work like the project led by IHU ICAN teams on elucidating the impact of endocrine disruptors in metabolic dysfunction-associated liver disease. New technologies enable

non-invasive diagnostics that improve patient comfort. Funding for cutting-edge equipment is an investment in the future of healthcare and one of the most effective ways of speeding up progress. ”



Daniel Baal
Chairman of Crédit Mutuel
Alliance Fédérale

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HR AND FINANCIAL REPORT

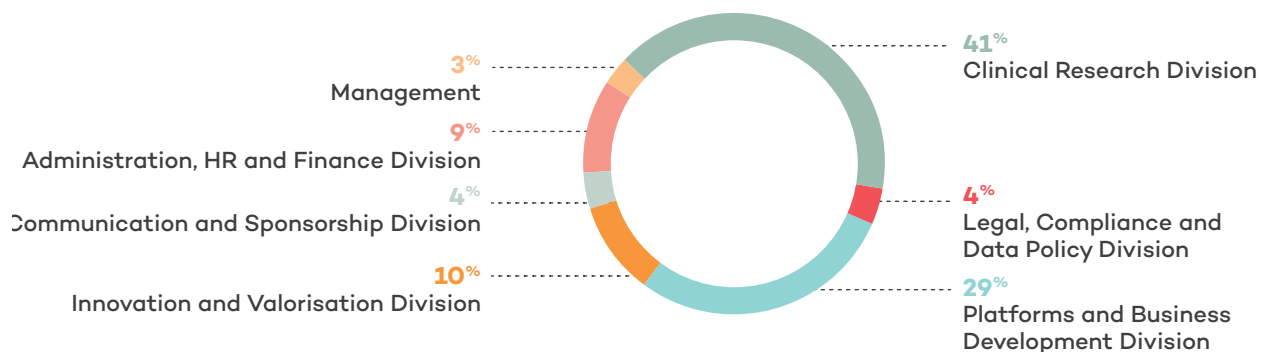


The people behind IHU ICAN

The HR Report is a snapshot of the staff situation in the IHU at 31 December 2025. The figures in the report offer an overview of employee demographics.

The past year saw some positive developments in terms of **security, HR management and skills development**. The measures taken have reinforced safety in the workplace and supported large-scale recruitment, a prerequisite for growth.

WORKFORCE
PER DIVISION IN 2025

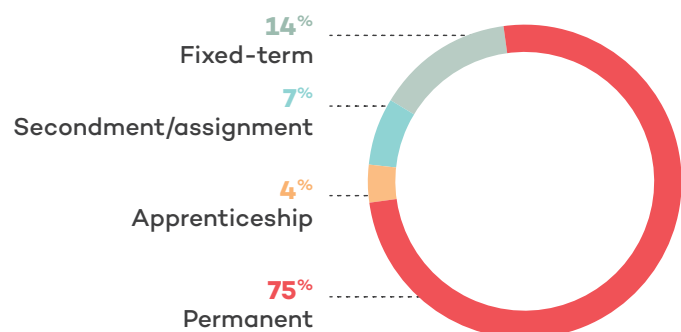


In 2025, staff were mostly recruited for the research platform and biology platforms.

Measures taken in relation to recruitment:

- Optimising the recruitment process.
- Enhancing the induction process with more presentations and training sessions.

BREAKDOWN
BY CONTRACT TYPE



82% OF IHU ICAN'S HUMAN RESOURCES

work in divisions with a direct link to research projects



TOTAL WORKFORCE
76 STAFF

78%
WOMEN



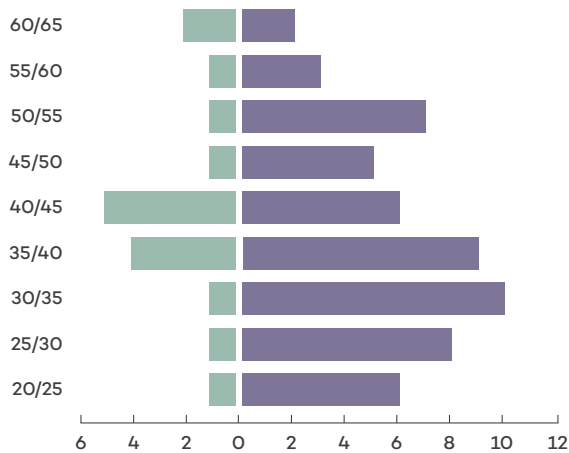
22%
MEN

GENDER EQUALITY INDICATOR*

82/100

(*) based on four indicators: wage gap, gap in individual pay rises by gender, % of women employees receiving a rise in the year after returning from maternity leave, number of employees in the less-represented gender (men) among the 10 highest salaries

BREAKDOWN OF WOMEN/MEN BY AGE GROUP



WORKING CONDITIONS, QUALITY OF LIFE AND WORKING RELATIONSHIPS

In 2025, consistent focus was placed on working conditions and the quality of working relationships. Four workshops, relating to well-being, the environment and nutrition, were held over the year:

- An awareness-raising workshop on nutrition and health in the workplace
- A workshop entitled “Let’s grow our future”
- A workshop on physical exercise and the prevention of musculoskeletal disorders
- An “Obesity Fresk” workshop



Stéphanie Lapous

Head of the Administration, HR and Finance Division

“ Given IHU ICAN’s growth and the increasing scope of its research projects, we need to develop our practices and support our teams with this process. Investment in skills development, support for managers and encouragement of cooperation between employees are all vital ways in which we can collectively shape the future of IHU ICAN. ”

FOCUS ON TRAINING

The IHU continued to implement its skills development policy.

- 92% of employees received at least one training session.
- 872 hours of training were delivered.
- Training spend rate: €58,000 or 1.5% of payroll expenses.
- Development of occupational health and safety as a core topic with the introduction of new compulsory online training sessions (NEO platform - collaboration with Inserm): Prevention, Radiation Protection, Biological Risk, Chemical Risk, Fire Risk.

WORKS AGREEMENTS IN 2005

- New agreement on the length and organisation of working hours at the IHU negotiated and signed in March 2025.
- New agreement on gender equality in the workplace, quality of life at work and working conditions negotiated and signed in October 2025.

QUALITY MANAGEMENT

- In May 2025, IHU ICAN successfully renewed its ISO 9001 certification following its first surveillance audit. This achievement is proof of its robust quality management system and engagement with a continuous improvement process for the benefit of research, innovation and its partners.



Stéphane Barritault

General Secretary of IHU ICAN

“ ISO 9001 certification is proof that our IHU meets high standards for quality management, covering governance and all our activities including research project set-up, research service provision by our technological platforms, regulatory and legal support, and management services. It recognises the diligent work of all the IHU’s teams. ”



Financial report

SUPPORTING IHU ICAN'S GROWTH IN A NEW FUNDING LANDSCAPE

In 2025, the foundation saw a decrease in its operating income compared to 2024 (-22% or -€1.8 M). This was mainly due to:

- The end of PIA-IHU funding with no further state endowments, while the remaining balance had already been fully spent up in the 2024 financial year (-€2 M compared to the 2024 financial year).
- Income from grants down €1.3 M (-37%). This situation was due to a specific project for which payment of a tranche of funding was postponed to 2026 (€1.7 M).
- A fall in service and sales revenues due to two factors: high demand on one of the platforms for projects (-€0.150) and there was an increase in deferred revenue for clinical trials in progress (-€0.290 M), which will be included in income for the coming financial years.

However, the institute also showed several signs of growth:

- An increase in sponsorship income of +€0.575 M (+172%),
- €1.81 M of project-dedicated funds was used in 2025, which was up from the €0.85 M used in 2024 (+113%), reflecting intensive implementation of IHU projects.

- Significantly higher use of subsidies and sponsorship income in 2025 compared to 2024, factoring in write-backs and project-dedicated funds carried forward (€3.3 M in 2025 vs. €2.3 M in 2024, up 45%).

Excluding project-dedicated funds carried forward, operating expenses were up 8% in line with the increase in the number of projects in progress.

The main expense items were salaries and social contributions (48% of expenses), purchases and external charges (21%) and project-dedicated funds carried forward (14%).

It should be noted that the fall in the “project-dedicated funds carried forward” expense item compared to the 2024 financial year (-€1.5) was directly related to the reduction in allocated grants and funding paid in 2025.

The fall in expenses between the 2024 and 2025 financial years (-11% once project-dedicated funds carried forward are taken into account) did not offset the discontinuation of PIA-IHU funding. The income statement for the 2025 financial year shows a deficit of €1.128 M.

BALANCE SHEET

The balance sheet is a summary of ICAN's assets in terms of jobs and resources on the account closure date of 31/12/2025.

The balance sheet total at 31 December 2025 was €12,661,591.

At 31 December 2025, the IHU's assets and liabilities were as follows:

ASSETS	LIABILITIES
1. Fixed assets: €1,606,205	3. Association funds: €2,032,316 (Foundation endowment, profit/loss for the financial year, carry-forward and investment subsidy)
2. Current assets: €11,055,386 (accounts receivable, available funds, deferred expenditure)	4. Provisions and dedicated funds: €5,563,442 (provisions for contingencies, dedicated funds related to other resources)
	5. Accounts payable: €5,065,833 (trade payables, tax and social contributions payable, other amounts payable, deferred revenue)

NOTE 1: CURRENT ASSETS

Receivables	€6,208,539
Including:	
Social security and other welfare bodies	€34,856
VAT	€208,631
Clients	€1,210,378
Grants receivable	€3,741,390
Miscellaneous	€38,831
Available funds	€4,799,774
Including term deposits	€3,524,981
Prepaid expenses	€47,073

NOTE 2: ASSOCIATION FUNDS

Association funds total €2,032,316 and are composed of:	
The initial endowment from the founders	€1,000,000
Cumulated consumable ANR grants	€46,171,490
Cumulated grants recognised in the income statement	-€46,171,490
Other reserves	€2,160,932
Profit/loss for the financial year	-€1,128,615

NOTE 3: PROVISIONS AND DEDICATED FUNDS

At 31 December 2025, **provisions represented €506,210 and dedicated funds €5,057,232**, corresponding to carry-forward of operating income accounted for in the year it was paid, but for which the corresponding expenditure had not been incurred at 2025 year-end. These are mainly projects funded by private foundations and grants obtained through project proposals (ANR, BPI, EU).

NOTE 4: ACCOUNTS PAYABLE

The total accounts payable of €5,065,833 is composed of:	
A loan taken out from a credit institution	€1,885,811
Trade payables and related accounts	€1,285,199
Tax and social contributions payable	€710,253
Other amounts payable	€120,676
Deferred revenue	€1,063,894

Deferred revenue includes “investigator” accounts, which enable doctors and researchers in the IHU community to directly fund research projects or supplement other funding received. The loan taken out from a credit institution refers to a state-guaranteed loan for a total of €3 M in June 2022, converted in June 2023 with a six-year amortisation period and a 12-month capital grace period.

INCOME STATEMENT

The income statement sets out the IHU's financial performance for the year 2025. It indicates income that generates wealth for the IHU and expenses that reduce wealth but enable ICAN to operate.

The Foundation's income statement is as follows:

Income	€6,700,659
Expenses (including staff expenses: €3,769,973)	€7,829,274
Income for the 2025 financial year	-€1,128,615

2025 INCOME

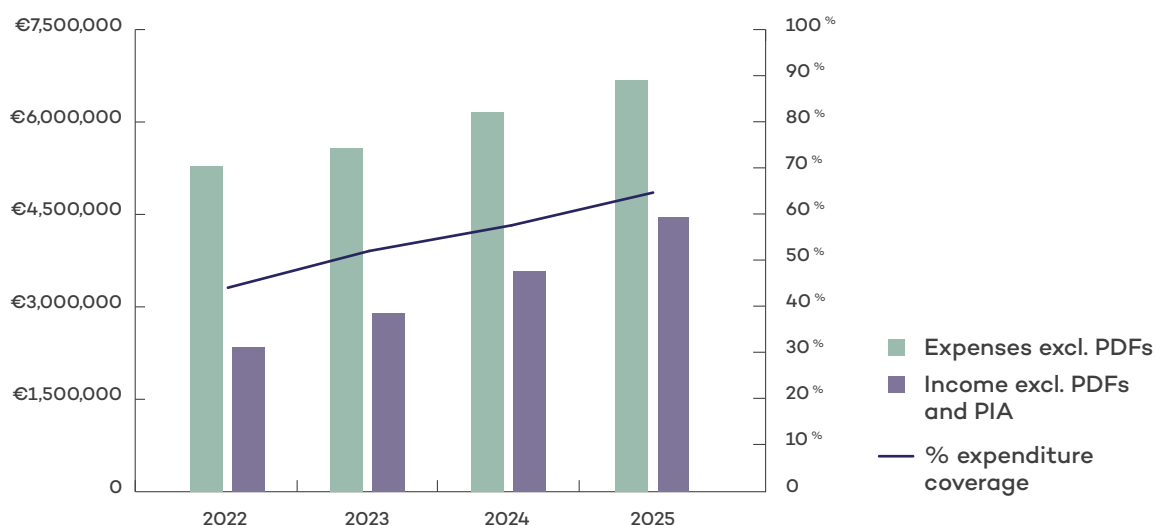
Operating income	€6,533,981
including carry-forward of unused resources from previous years (project-dedicated funds)	€1,805,895
Financial income (interest from investments)	€166,679

2025 EXPENDITURE

Operating expenses	€7,794,940
including project-dedicated funds carried forward (*)	€1,110,845
Financial expenses	€34,334

(*) Income (grants, public donations, financial contributions, etc.) from projects is accounted for as income in the year of payment, but the unused share of these resources is allocated to project-dedicated funds, offset by a provision for expenses for the financial year (project-dedicated funds carried forward). Although the accounting system shows them as expenses, these project-dedicated funds reflect a dynamic project landscape.

VARIATION IN THE EXPENDITURE COVERAGE RATIO EXCLUDING PROJECT-DEDICATED FUNDS AND PIA



FINANCIAL STATEMENT BY INCOME SOURCE AND EXPENSE TYPE

A - INCOME AND EXPENDITURE BY INCOME SOURCE AND EXPENSE TYPE	2025 FINANCIAL YEAR	
	TOTAL	Of which public donations*
INCOME BY SOURCE		
1 - INCOME FROM PUBLIC FUNDRAISING		
1.1 Subscriptions without consideration		
1.2 Donations, legacies and sponsorship		
- Hand-to-hand gifts	254,370	254,370
- Legacies, gifts and life insurance		
- Sponsorship	624,815	624,815
1.3 Other income from public fundraising		
2 - INCOME FROM SOURCES OTHER THAN PUBLIC FUNDRAISING		
2.1 Subscriptions with consideration		
2.2 Corporate sponsorship		
2.3 Financial contributions without consideration	197,348	
2.4 Other income from sources other than public fundraising	1,409,880	
3 - GRANTS AND OTHER CONTRIBUTIONS FROM PUBLIC AUTHORITIES	2,294,790	
4 - WRITE-BACK OF PROVISIONS AND DEPRECIATION	113,560	
5 - USE OF PREVIOUS PROJECT-DEDICATED FUNDS	1,805,895	196,806
TOTAL	6,700,659	1,075,991
EXPENSES BY TYPE		
1 - CORE ACTIVITIES		
1.1 Carried out in France		
- Actions carried out by the organisation	5,027,168	422,721
- Payments to a central organisation or other organisations operating in France		
1.2 Carried out abroad		
- Actions carried out by the organisation		
- Payments to a central organisation or other organisations operating in France		
2 - FUNDRAISING EXPENSES		
2.1 Public fundraising expenses	95,043	95,043
2.2 Other fundraising expenses	21,334	
3 - OPERATING EXPENSES	1,233,074	
4 - WRITE-BACK OF PROVISIONS AND DEPRECIATION	341,810	
5 - TAX ON PROFITS		
6 - PROJECT-DEDICATED FUNDS CARRIED FORWARD	1,110,845	558,226
TOTAL	7,829,274	1,075,991
SURPLUS OR DEFICIT	- 1,128,615	-

B - VOLUNTARY CONTRIBUTIONS IN KIND	2025 FINANCIAL YEAR	
	2025 TOTAL	Of which 2025 public donations*
INCOME BY SOURCE		
1 - VOLUNTARY CONTRIBUTIONS FROM THE PUBLIC		
Volunteering		
In-kind services		
In-kind donations		
2 - VOLUNTARY CONTRIBUTIONS OTHER THAN THOSE FROM THE PUBLIC	78,057	
3 - IN-KIND CONTRIBUTIONS FROM PUBLIC AUTHORITIES		
In-kind services		
In-kind donations		
TOTAL	78,057	-
EXPENSES BY TYPE		
1 - VOLUNTARY CONTRIBUTIONS TO CORE MISSIONS		
1.1 Carried out in France		
1.2 Carried out abroad		
2 - VOLUNTARY CONTRIBUTIONS TO FUNDRAISING		
3 - VOLUNTARY CONTRIBUTIONS TO OPERATIONS		
TOTAL	78,057	-
SURPLUS OR DEFICIT	0	-

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IHU ICAN is a scientific cooperation foundation registered as a public interest organisation and has been authorised to receive donations and issue official receipts for tax purposes since 2011.

If you have any questions, please contact:
Francine Trocme - Head of the Communication and Sponsorship Division
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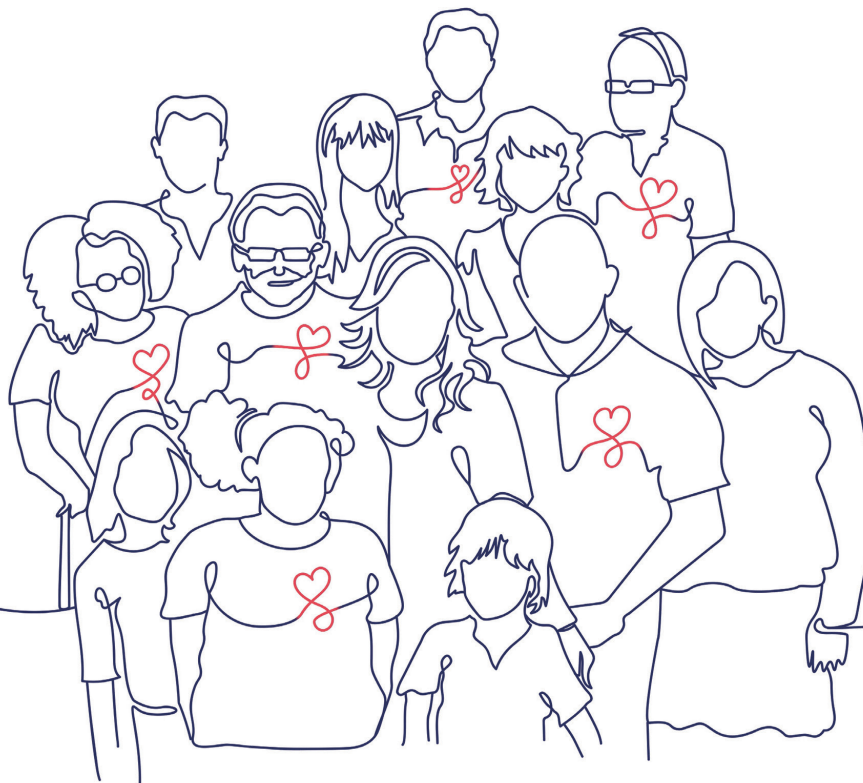
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