



Innovation serving the fight
against cancer

Under the Aegis of



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THE NEXT 5 YEARS



EDITO

CLARA's 15th anniversary is a great opportunity to look back on the region's efforts in the fight against cancer since 2003. With unparalleled support from the French State and local authorities, the region's research teams are remarkable for the significant increase in their scientific output, with nearly 22,000 oncology publications over the past 15 years. Auvergne-Rhône-Alpes now accounts for 22% of France's cancer publications and the region has shone through its many successes in major national and European innovation programs.

Stepping up both the quantity and quality of its work, the region's innovation ecosystem dedicated to the fight against cancer has been successful at creating value. With more than 260 patents filed in 15 years and dozens of start-ups created, Auvergne-Rhône-Alpes has shown its commitment to encouraging science for the benefit of patients and to helping the region grow.

2018 is a year not only to review what CLARA has accomplished, but also to look towards the future thanks to a new 2018-2022 roadmap, drawn up with the INCa and all of the cancer research cluster's partners. CLARA continues to mobilize, because in order to keep advancing the fight against cancer, we must invest in the long term.

The CLARA Team



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Clermont-
Ferrand



Alain Puisieux
Representative
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Lyon



Marina
Rousseau-
Tsangaris
Invited
Member, Lyon



Eduardo Seleiro,
Representative
from IARC, Lyon

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2. Auvergne-Rhône-Alpes Region, represented by its President Laurent WAUQUIEZ - Represented by Yannick NEUDER, Vice-President for Higher Education, Research and Innovation / Vice-President of CLARA's Guidance and Supervisory Board
3. Lyon Metropole, represented by its President David KIMELFELD - Represented by Thierry PHILIP, Vice-President for the Environment, Health and Well Being in the City / Vice-President of CLARA's Steering and Supervisory Board
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5. Saint-Etienne Metropole, represented by its President Gaël PERDRIAU
6. Clermont-Ferrand Metropole, represented by its President Olivier BIANCHI, represented by Jean-Marc MORVAN, Vice-President for Universities, Research, Innovation and Local Attractiveness
7. Loire County, represented by its President Georges ZIEGLER

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9. Grenoble Alpes University Community, represented by its Président Lise DUMASY
10. Clermont Auvergne University, represented by its President Mathias BERNARD
11. INSERM Rhône-Alpes Auvergne represented by its Regional Representative Dominique PELLA
12. CEA Tech Grenoble, represented by its Managing Director Stéphane SIEBERT
13. International Agency for Research on Cancer, represented by its Director Christopher WILD

COLLEGE UNIVERSITY HOSPITAL CENTERS

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15. Grenoble Alpes University Hospital, represented by its Managing Director Jacqueline HUBERT

16. Saint-Etienne University Hospital, represented by its Managing Director Michaël GALY
17. Clermont-Ferrand University Hospital, represented by its Managing Director Didier HOELTGEN
18. Lyon CRLCC (Léon Bérard Cancer Center), represented by its Managing Director Jean-Yves BLAY
19. Clermont-Ferrand CRLCC (Jean Perrin Cancer Center), represented by its Managing Director Frédérique PENAULT-LLORCA

COLLEGE OF COMPANIES ACTIVE IN ONCOLOGY

20. Representative of industrial groups, Thierry HULOT, Managing Director, MERCK
21. Representative of SMEs, Emmanuel BLANC Chief Technical Officer, EDAP TMS

COLLEGE OF CHARITY FOUNDATIONS AND ASSOCIATIONS

22. ARC Foundation for Research on Cancer, represented by its President Michel PEBEREAU
23. The French League Against Cancer (LNCC), represented by its President Jacqueline GODET - Represented by Franck CHAUVIN, Vice-President

EX-OFFICIO MEMBERS

24. French National Cancer Institute, represented by its President Norbert IFRAH
25. Léa and Napoléon Bullukian Foundation, represented by its President Jean-Pierre CLAVERANNE, Vice President of CLARA's Guidance and Supervisory Board

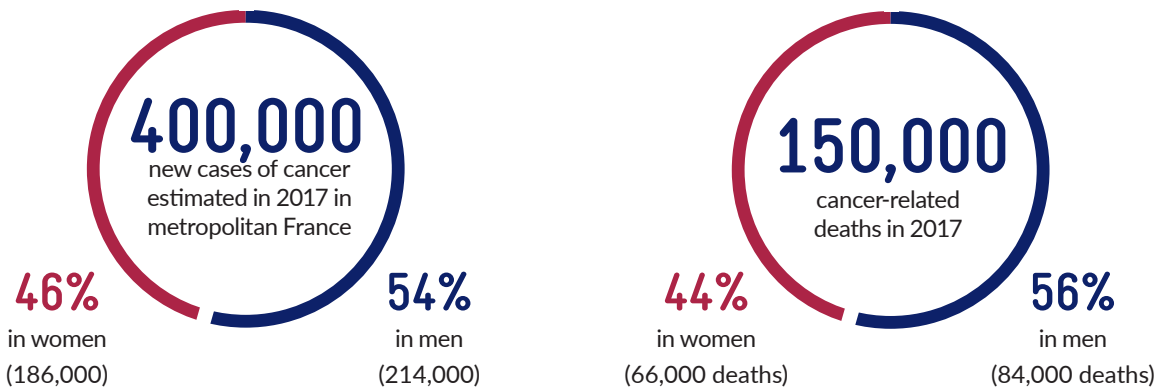
PERMANENT GUESTS

26. Auvergne-Rhône-Alpes Regional Health Agency (ARS), represented by its Managing Director Jean-Yves GRALL
27. LYONBIOPOLE innovation cluster, represented by its President Christophe CIZERON
28. MINALOGIC innovation cluster, represented by its President Philippe MAGARSHACK
29. Cancéropôle CLARA Chair of the Steering Committee, Véronique TRILLET-LENOIR
30. Cancéropôle CLARA CLARA Secretary General, Olivier EXERTIER



DATA ON INCIDENCE/MORTALITY IN FRANCE

Source: Projection of cancer incidence and mortality in metropolitan France in 2017.
Technical report. Saint-Maurice: France Public Health. Cepidc, Inserm



CAUSES OF DEATH DUE TO CANCER (BY ORDER OF FREQUENCY)

In men:
lung, colorectal and prostate
In women:
breast, lung and colorectal



OVER THE PERIOD 2005-2012,

the rate of cancer mortality in France decreased

-2,9% in men **-1,4%** in women



IN AUVERGNE- RHÔNE-ALPES,

mortality is estimated at over

19,000
people in 2014

DATA ON TREATMENT

At the end of 2015,

928 facilities

were authorized to treat cancer, including
98 in Auvergne-Rhône-Alpes.

 **1,200,000**
Number of cancer patients hospitalized in France

 **447,391**
Number of hospitalizations for cancer surgery

 **2,659,067** Number of chemotherapy sessions and stays

 **2,023,591**
Number of radiotherapy sessions (not including private sector)

15 years of action alongside cancer research stakeholders

Initiated and funded by public authorities in 2003, the Cancéropôle Lyon-Auvergne-Rhône-Alpes (CLARA) is part of France's national cancer plans. It aims to develop and enhance oncology research in Auvergne-Rhône-Alpes.

With 15 years of experience, CLARA brings together the region's academic, clinical and industrial players in order to build a regional, national and international strategy to fight cancer with a twofold objective: to quickly transfer research discoveries to patient care and to create economic value from this research.

In 15 years, CLARA has supported actions to open research to new disciplines, such as the social

sciences and humanities and public health, placing the patient at the heart of research. CLARA is committed to all players in cancer research with the aim of promoting cross-disciplinary collaboration; since 2005, it has supported projects through funding schemes tailored to their needs.

A leader in oncology research and transfer in Auvergne-Rhône-Alpes, CLARA is continuing its development in close relation with researchers, clinicians and entrepreneurs, and in synergy with the ecosystem of value-creation organizations (incubators and innovation clusters), universities, EPSTs and non-profits.



13

scientific
forums



10

business
conventions



49

economic
development
projects funded



16

structuring
projects



6

Franco-Chinese
symposia



50

mobility grants
for young
researchers



38

partner
companies



54

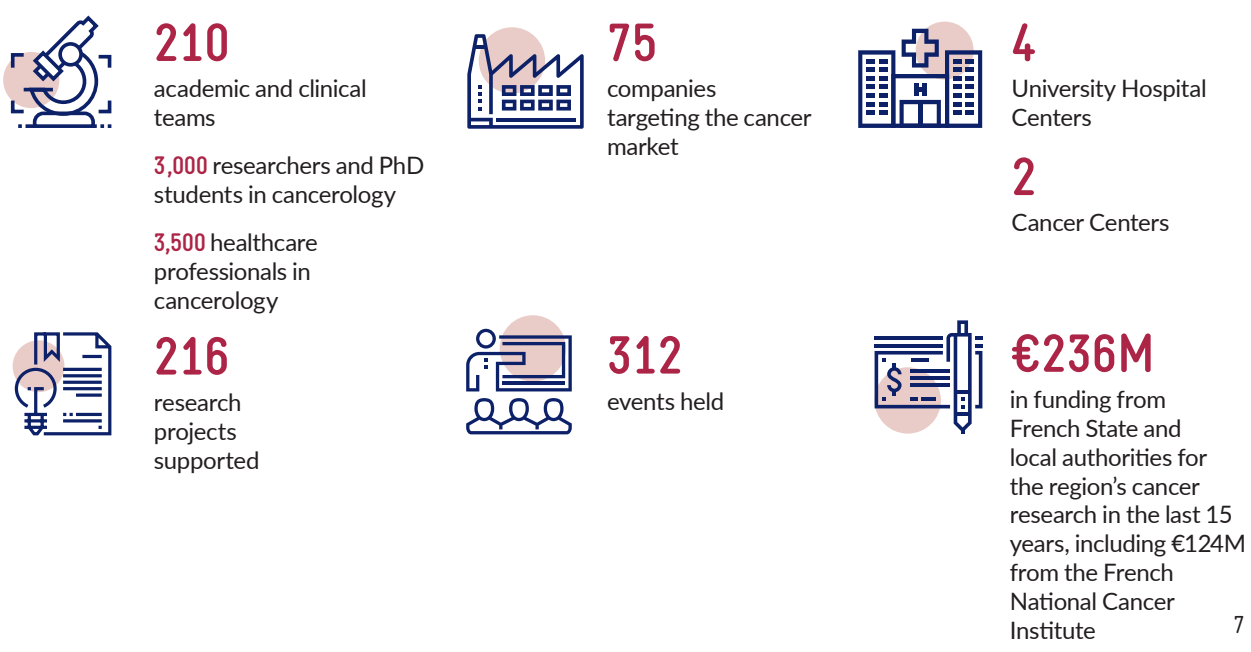
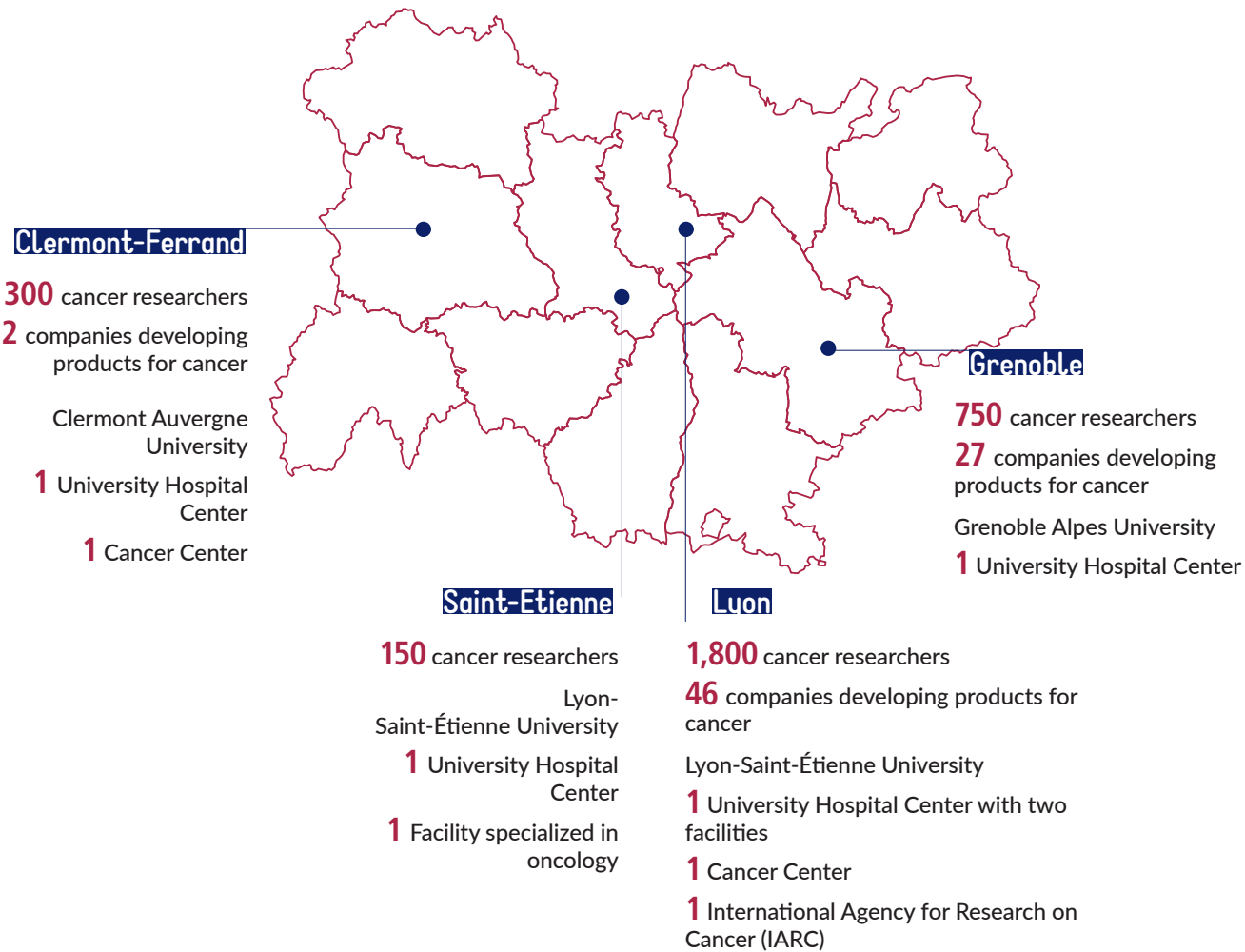
emerging
projects
funded



4

summer sessions
of the Regional
Oncology School

15 years of actions with a productive scientific network





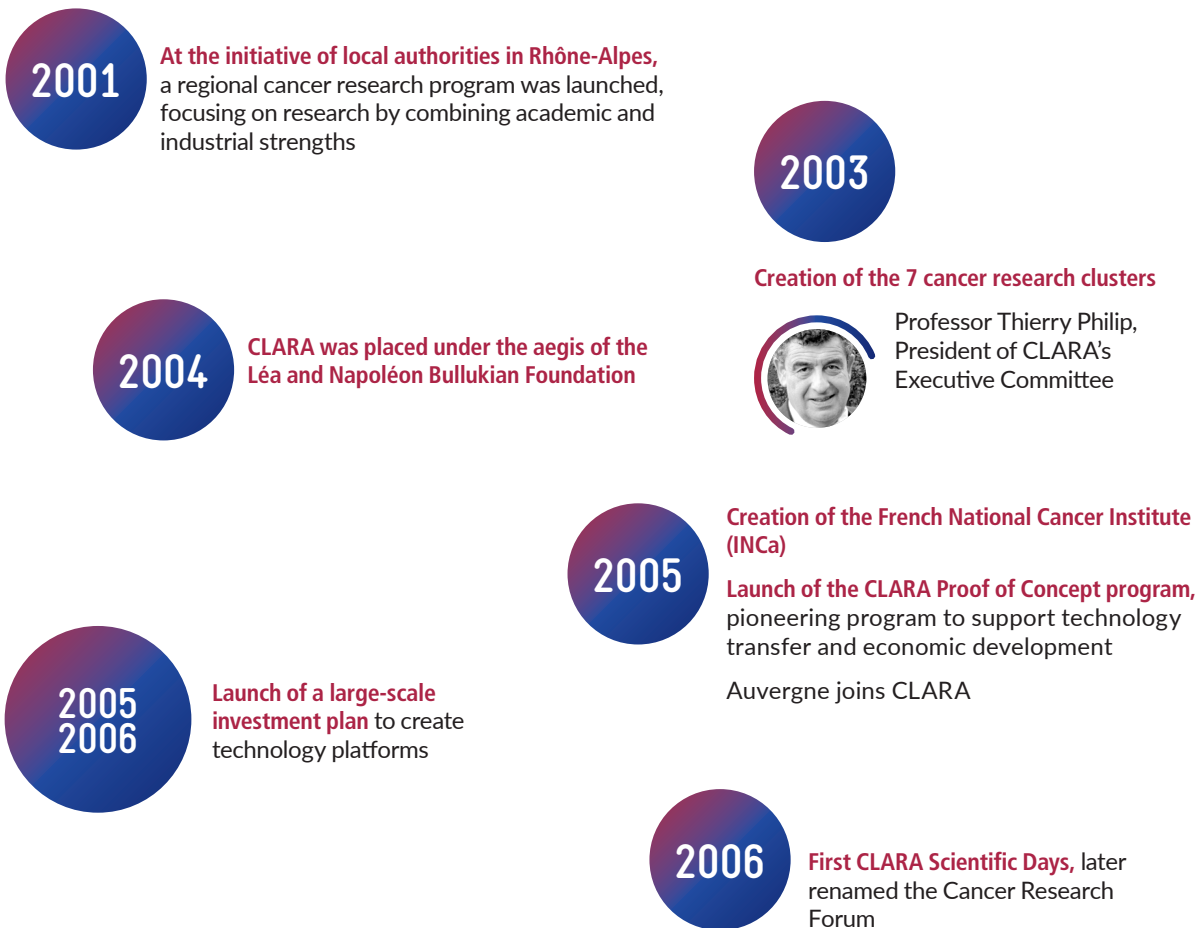
15 years of history

Since 2001, even before the first French National Cancer Plan created the cancer research clusters, local authorities in Rhône-Alpes worked to set up an ambitious program to fight cancer, bringing together the region's academic, clinical and industrial players to boost local economic development. Its aim was to attract industrial partners and create favorable conditions for better economic development, while ensuring the rapid transfer of knowledge produced by researchers so as to have new, more effective, safer treatments to benefit patients.

General overview



CLARA overview



2007

CLARA awarded INCa label
for 2007 – 2010

2008

First CLARA Industrial-Academic Meetings,
later renamed the Research2Business
Oncology Meeting (R2B)

2010

Launch of CLARA's first 2 structuring projects

Launch of the Chair of Excellence
Environment, Nutrition and Cancer in Lyon

2011

CLARA awarded INCa label
for 2011-2014

Launch of the OncoStarter program,
a pioneering program to support
emerging projects

First Franco-Chinese Symposium in
Shanghai and Launch of Partnership
with Shanghai JiaoTong University
(EJTS)

Creation of the Cancer Research
Center of Lyon

2013

Opening of the Hyg e Center,
a regional cancer prevention
platform

Launch of the Chair of Excellence in
Translational Research in Grenoble

Set up of a partnership with
Lyonbiop le

2015

CLARA awarded INCa label
for 2015-2017

Launch of the Regional
Oncology School and 1st
edition of its summer session:
the Oncoriales

Partnership with the Rh ne
committee of the League
Against Cancer on OncoStarter

Partnership with Auvergne-
Rh ne-Alpes GIRCI for clinical
research projects

2017

Partnership with the ARC Foundation

Launch of the ERC Booster program

Launch of the Health and Regions Research
Chair in Clermont-Ferrand



Professor V ronique Trillet-Lenoir, Chair of
CLARA's Steering Committee

Launch of the Presage Institute
(Comprehensive Health Prevention) in Saint-
 tienne

2018

CLARA awarded INCa label for 2018-2022

Partnerships with the Rh ne, Loire and Ard che committee
of the League Against Cancer on OncoStarter

Signing of a partnership with the Quebec Oncopole
cancer research cluster

SCIENTIFIC STRENGTHS

15 years of actions serving a regional scientific expertise

Since its creation, CLARA has deployed its actions based on the concept of scientific focus areas, which has helped to bring together research teams dispersed throughout the region and to set up collaborative projects.

The research environment is structured according to scientific approaches, making it relevant to organize its distribution across the region and to highlight its scientific strengths.

Carried out over many years, this strategy to consolidate and structure the network has helped to strengthen the potential for excellence and attractiveness, and to make the Auvergne-Rhône-Alpes region's scientific assets clearer for the international community. This strategy includes the Labex, RHU and Convergences labels, the emergence of networks of excellence in Lyon (e.g. the LYRic / LYriCAN integrated cancer research) and the Synergy Lyon Cancer research and care foundation.

2006

5 axes:

- Epidémiology
- Biotherapy
- Functional genomics
- Pharmacogenomics
- Imaging

2011

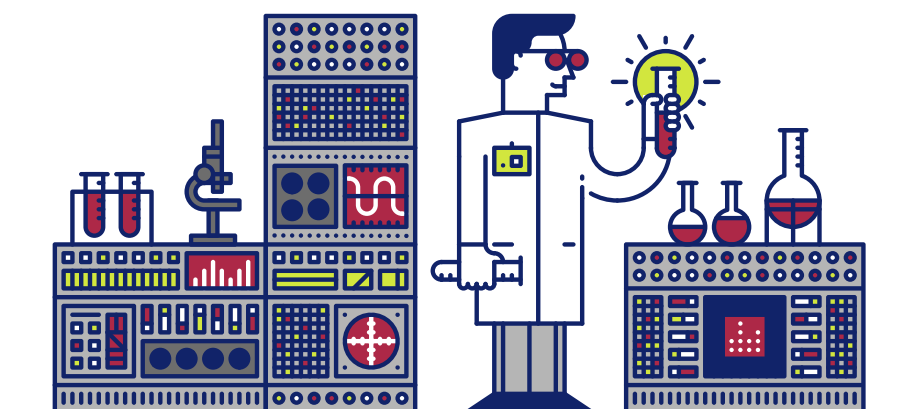
6 axes:

- Tumor progression and resistance
- Infections and immunity
- Nanomedicine and health technologies
- Bioinformatics and modeling
- Prevention, individuals and society
- Environment, nutrition and epidemiology

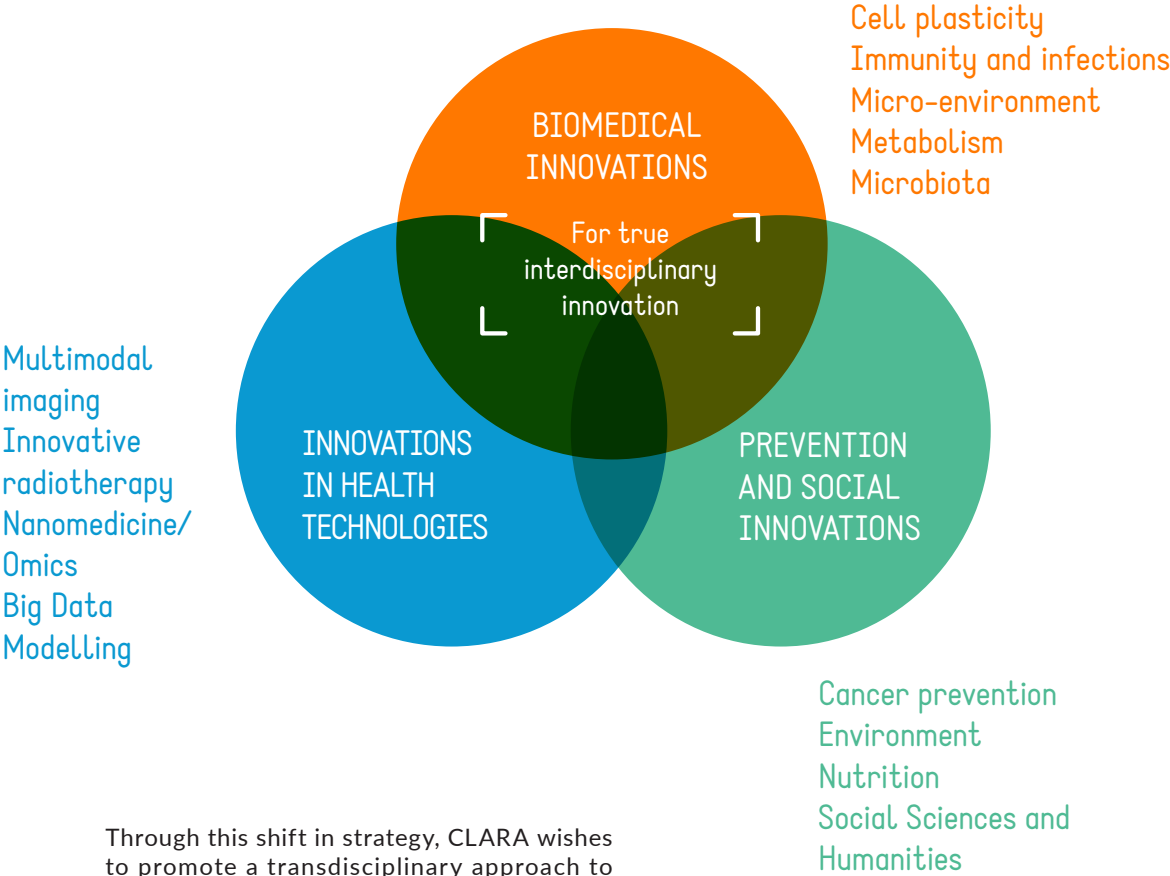
2015

Addition of a new axis:

- Bioinformatics, biostatistics and modeling



In 2018, CLARA now wants to move beyond a sector-based, discipline-based vision of scientific research by axis. This shift has led to a new strategy to facilitate cross-fertilization by replacing the theme-based vision with a vision in three areas that characterize the region's expertise:



Through this shift in strategy, CLARA wishes to promote a transdisciplinary approach to scientific expertise in order to explore untapped research fields and identify new fundamental opportunities to innovate in the fight against cancer.

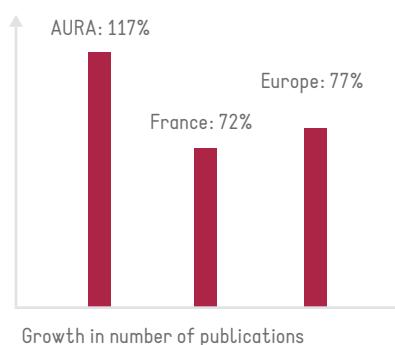
BIBLIOMETRICS

15 years of existence allowing to inventory scientific production in Auvergne-Rhône-Alpes

Since the creation of France's cancer research clusters, the cancer research landscape has changed significantly. The structuring of the research clusters has helped to better organize the scientific forces and to synergize research efforts. The effects on scientific productivity and the renown of regional teams worldwide are illustrated by the bibliometric indicators for the period 2000-2016.

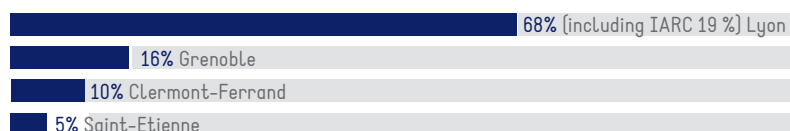
Period analyzed: 2000-2016
Publications: 21,805
Patents: 263

A dynamic ecosystem



At the same time, the number of contributors/co-authors has increased threefold.

Scientific production distributed over 4 university hospital centers



Recognition throughout France and Europe

In 2016, scientific production in the Auvergne-Rhône-Alpes region accounted for:

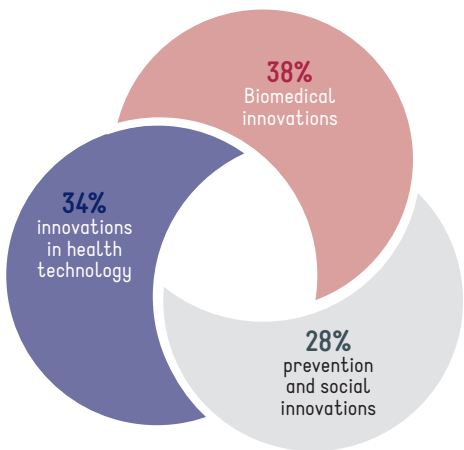


Publications
with increasing
impact

X 10

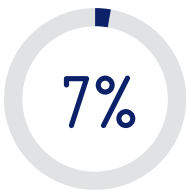
of the number of yearly publications
in journals with an SJR* impact factor
higher than 10

*SJR: Scimago Journal Rank



Share of publications
by area of innovation,
representative of the
region's expertise

An increase in
intraregional
collaborations:



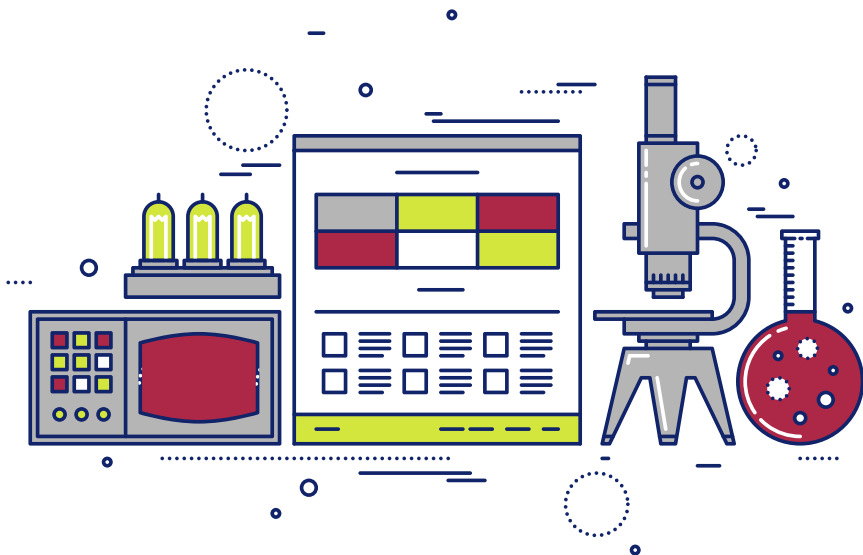
of publications are the
result of collaboration
between several
research institutes in
the region



Since 2000,

x5

of the number of
publications bringing
together several of the
region's research centers





15 years of support for the network

Since its creation, CLARA has focused on developing support systems that meet the network's needs as closely as possible.

Seven areas of action have been identified that best match all of CLARA's missions. Some of these areas of action have led to the creation of support mechanisms that enable the cluster to provide a wide range of financial, logistical and methodological support.



*Date of creation of the call for projects

PROOF OF CONCEPT

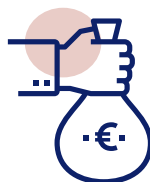
The CLARA Proof of Concept program, created in 2005 with the aim of funding R&D projects that promote knowledge and technology transfer between academic and industrial partners in the field of cancer, was piloted at the national level. This program has generated a national movement to involve cancer research clusters in supporting technology transfer, by integrating a mission to promote research into all of the clusters' roadmaps.

ONCOSTARTER

Furthermore, the OncoStarter program, organized as a call for projects starting in 2011, has helped innovative, original projects that bring together one or more young teams within the region to become more mature. In addition to financial assistance, it offers selected teams personalized support to enhance the quality of their project. Since 2015, the common specifications for cancer research clusters include a program to support the emergence of new projects.



Since 2003,
over 2,000
research projects
involving Auvergne-
Rhône-Alpes teams have
won regional, national
and international calls
for projects, accounting
for investment of over
+ €1,400M
including + €940M
in public funding.



CLARA has supported:
221 projects,
i.e. 11% of all projects in
the AURA region, with
€26M in investment.



15 years of support for high-potential projects

Strong leverage has been made possible by combining funding mechanisms specific to the CLARA cancer research cluster with regional, national and international funding programs.

Translational research project on prostate cancer

CLARA has helped to organize cancer research at the Clermont site by aggregating multidisciplinary local expertise in fundamental and translational research on prostate cancer.

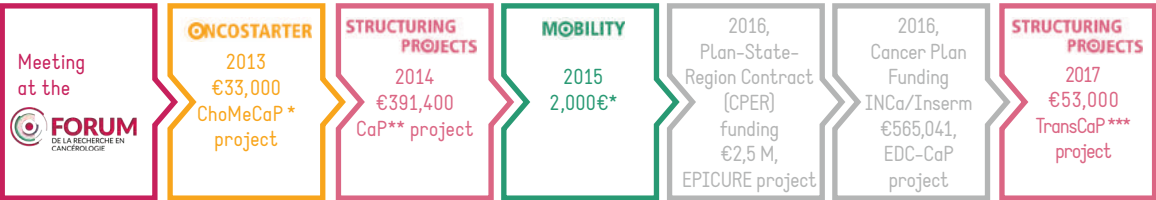
The NuReP team, part of the the GReD laboratory, has taken advantage of CLARA's support to build and coordinate an ambitious translational research program on prostate cancer. Founded during a meeting at CLARA's yearly forum, the project has expanded thanks to support from CLARA and, over time, has won several national calls for projects.

The NuRep team has recently shown that LXR receptors are major players in metabolic control within tumor cells and that their activation prevents the metastatic progression of adenocarcinoma of the prostate.



“CLARA has been a springboard to obtain this funding, and its programs have helped to create a true launching pad for our research at the GReD laboratory,” says Dr. Silvère Baron, co-director of the NuReP «Nuclear Receptors

and Prostate Diseases” team in the GReD-Reproduction and Development Genetics Laboratory (Clermont-Ferrand). “One particular example is the CaP project, which we co-coordinate, supported by CLARA and local authorities with nearly €400,000 in funding. The CaP project has made it possible to approach the challenges of treating, preventing and diagnosing this cancer in an integrated way, bringing together nine multidisciplinary teams.”



*CLARA (INCa)

**Clermont Auvergne Metropole, Auvergne-Rhône-Alpes Region, Puy-de-Dôme General Council

***Clermont Auvergne Metropolis

Cancer Immunotherapy Project

Immunotherapy offers an unprecedented therapeutic strategy in oncology. By inter-connecting CLARA's funding programs, a long-term public-private collaboration has been established between the research team of Dr. Muriel Le Romancer (Léon Bérard Cancer Center - CLB), Dr. Sandrine Wittmann of the Immunomonitoring and Immunotherapy Innovation Platform (CLB), Professor Charles Dumontet of Lyon Civil Hospitals and a company, Covalab, headed by Dr. Saïd El Alaoui, as part of an original immunotherapy program for breast cancer.

This program aims to develop a therapeutic antibody, coupled with a chemotherapy compound (also called immunoconjugate or ADC), to treat breast cancer, including its most aggressive form, called «triple negative» cancer.

The research program started in 2015 thanks to the funding of two projects: the ISOCAN project, confirming ERα36 as a therapeutic target in breast cancer, and the CovIsoLink project, confirming Covalab's patented technology for generating therapeutic antibodies combined with a drug. The positive results of these two projects have led to two new complementary collaborative projects, enabling their clinical transfer (PRT-K project) and industrial transfer (isoADC project), at the same time obtaining funding for the highly competitive Translational Cancer Research Program (PRTC).



"After the first CovIsoLink PdC project, which aimed to confirm enzymatic drug grafting technology on antibodies, this new «IsoADC» project is the next logical step in developing a first proprietary ADC," said Dr. Saïd El Alaoui,

Managing Director of Covalab. "This is a major step for Covalab in developing its therapeutic activity, which requires constant innovation and combined efforts from everyone for the benefit of patients. My partners join me in thanking CLARA and Greater Lyon for their support and trust in carrying out this project."

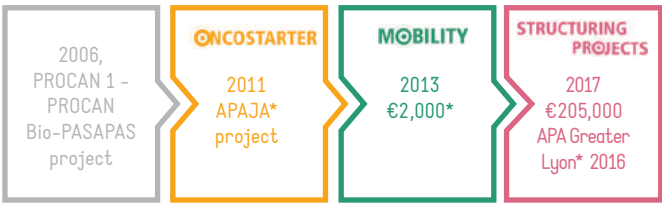
Tertiary prevention of cancers through adapted physical activity

By including a scientific focus on nutrition and cancer since 2006, research in the field of physical activity has followed a path that perfectly illustrates CLARA's added value, from the emergence of the project to the implementation of a major core research program, mobilizing players in the region.

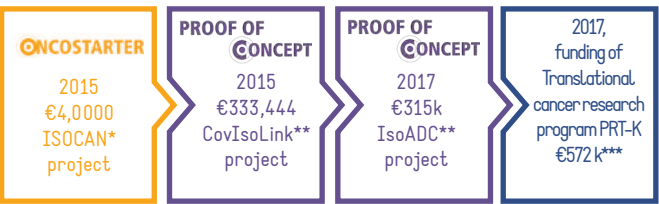


"CLARA's support made it possible to launch an initial study on the contribution of physical activity in combination with adjuvant therapy in 2010. Led by the Léon Bérard Cancer Center, Bio-PASAPAS was a forerunner at the national level by combining biological markers. The project was strengthened thanks to support from emerging projects and collaborative work," says Marina Touillaud, of the Léon Bérard Cancer Center's Environmental Cancer Department.

"The value these projects have taken on is today reflected in large-scale programs," continues Olivier Tredan, an oncologist at the Léon Bérard Cancer Center. "In particular, in 2016 Greater Lyon awarded the "CLARA Structuring Projects" label to the Adapted Physical Activity program, supported by Lyon Metropolis, which is an important step in consistently promoting the benefits of physical activity as part of the care pathway."



*CLARA (INCa)
** Greater Lyon



*CLARA (INCa)
**Lyon Metropolis
***INCa

SCIENTIFIC ANIMATION

15 years of events serving the cancer research community

For 15 years, the CLARA cancer research cluster has been promoting and building bridges between scientific disciplines. The organization of events is a fundamental part of its role as the leader of cancer research in Auvergne-Rhône-Alpes.

The Cancer Research Forum: sharing progress and encouraging collaboration



A key annual event, the Auvergne-Rhône-Alpes Cancer Research Forum is a true showcase for the region's cancer research community, highlighting the dynamism of its scientific teams. A place to discuss major issues in cancer research, the Forum promotes closer collaboration between scientific disciplines and fosters the emergence of new collaborative programs.

Since it was created in 2006, the Forum has brought together more than 5,500 participants. Some 550 speakers have taken part, from young researchers presenting their research results to a Nobel laureate in Medicine (Harald Zur Hausen).



13 editions

since 2006



550

speakers

5,500

participants



1,500

posters



Supporting scientific animation

SCIENTIFIC ANIMATION

Aware of the importance of disseminating knowledge

within the scientific community for the training of researchers and clinicians, CLARA supports and actively assists in organizing scientific events in Auvergne-Rhône-Alpes, from regional symposiums to international congresses. These scientific conferences help to promote the region's scientific excellence and foster the emergence of new collaborative projects.



86

events supported since 2011

€60,000

in financial support



Promoting the dissemination of information to the general public

Over the years, CLARA has strengthened its commitment, alongside local associations and stakeholders, to promoting information on advances in cancer research to the general public.



28

general public events to disseminate cancer research results have been held since 2003

Nearly

3,600

people have taken part in these public events

Giving the floor to the network

CLARA FYI's

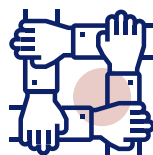
Since 2015, CLARA has organized information and awareness meetings for the cancer research community: the CLARA FYIs. These sessions give research funding agencies the floor to provide you with a "sneak-preview" of the schedule for their calls for projects or invite experts to speak on topics of current interest.

Encouraging privileged collaborations

CLARA WORKSHOPS

Setting up working groups is a concrete means of action to build bonds with the region's

research centers, foster collaborative projects, specify strategic issues in a given research topic and identify actions of critical importance to be taken. In 15 years, CLARA has run nearly 60 working groups, which have led to dedicated scientific events open to the community, project proposals in national calls for projects, structuring programs awarded the CLARA label and more.



60

working groups led by CLARA in 15 years

Strengthening the links between SSH, public health, epidemiology and the environment

CLARA TRANSVERSALES

With 3 sessions per year since 2017, the CLARA Transversales help to improve

the knowledge of researchers in neighboring disciplinary fields who do not always have the opportunity to work together. They testify to the rise of the social sciences and humanities in CLARA's activities and to greater networking with epidemiology and the environment.

EMERGENCE



15 years serving emerging research projects

Created in 2011, the OncoStarter program aims to support emerging, original, innovative oncology projects that bring together one or more teams in the CLARA region, for a period of 12 to 18 months. This program's main objective is to increase their chances of success in larger regional, national or European calls for projects in order to ensure solid prospects for scientific, clinical and / or economic value-creation.



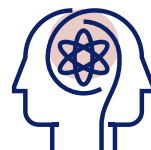
10

calls for projects launched



192

applications submitted



54

projects funded and followed up, including 10 in Social Sciences, Humanities, and Public Health



€2,2M

in funding granted by the French National Cancer Institute



€42k

average budget per project

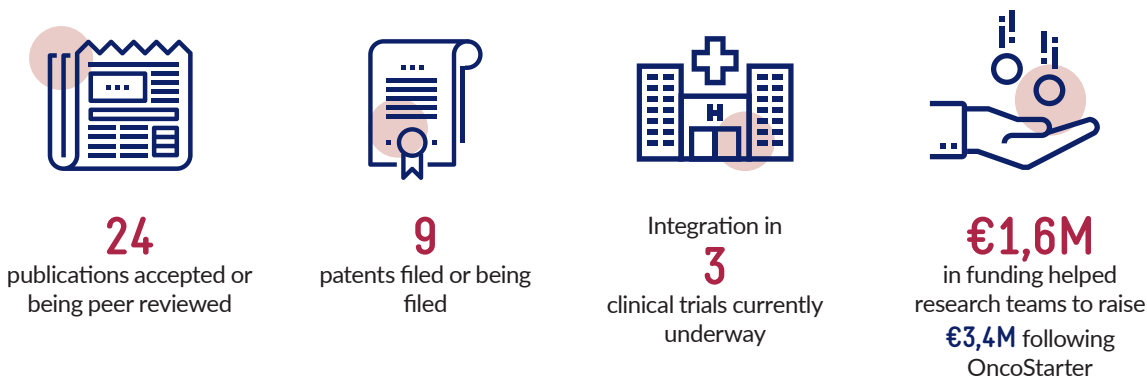


€60k

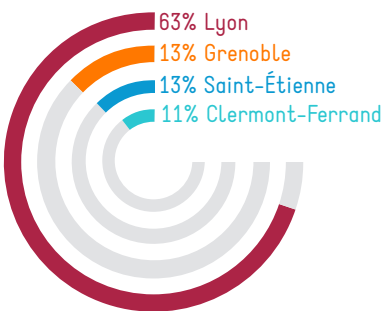
in funding by the Rhône committee of the League Against Cancer to support two projects

In 2016, 37 projects were followed up on

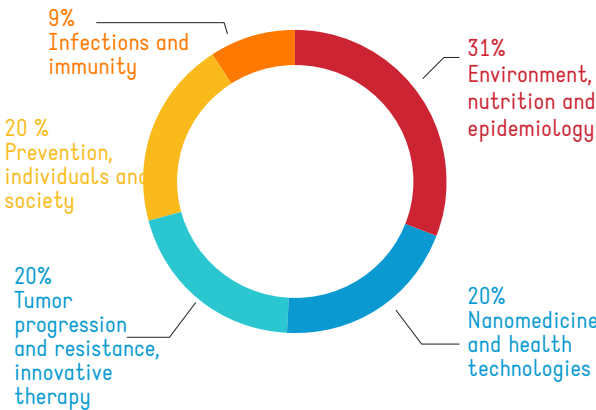
Key figures



TERRITORIAL BREAKDOWN OF PROJECTS SUPPORTED



BREAKDOWN OF PROJECTS BY FOCUS AREA



EMERGENCE

Examples of supported projects

ADEPRO project

“The aim of the ADEPRO project (AAP OncoStarter 2012, €39k) was to offer a cross-cultural information and decision-making tool for men in France, Switzerland and Canada. With their doctor’s support, this tool would enable them to make a decision regarding prostate cancer screening. We demonstrated the acceptability and the feasibility of the tool adapted to the 3 French-language contexts.

These test phases, essential from a methodological standpoint, were carried out thanks to the OncoStarter program, which is particularly well adapted to this stage of the research. These tests also allowed us to consider implementing and evaluating the approach in each of the countries in close collaboration with representatives of general practitioners, who are increasingly interested in prevention issues.»

Nora Moumjid, University Lecturer, UCBL, Health Economist, Assistant Coordinator, Focus Area 2 HESPER



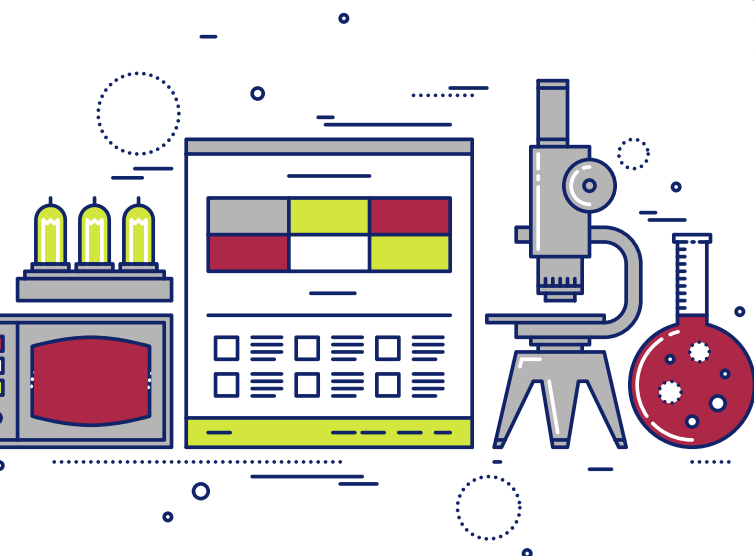
CASTA Project

Breast Cancer in Obesity: Potential In Vitro Interactions between Anticancer Therapies and Adipocyte Secretions, Clermont-Ferrand (2009-2012).

“The CASTA project (OncoStarter 2011 call for projects, €39k) aims to evaluate the relevance of adapting therapy in overweight patients. Thus, our team focused on describing the impact of adipocytes (adipose tissue cells specialized in storing fat) and their secreted molecules on response to hormone therapy based on patients’ weight. Original in vitro 2D and 3D cell culture models of women with normal weight or overweight helped to answer the questions we were asking ourselves. The OncoStarter program has been very beneficial for our team. It truly (and very quickly) helped us to develop new models, build new collaborative projects and continue our work through a more ambitious INCa project.”

“Indeed, the year following the OncoStarter program support, CASTA served as a basis for a collaborative project between 3 teams from Clermont-Ferrand, Lyon and Toulouse, a laureate of the INCa PLBIO national call for projects (€455k). This project, called “MammAdipo”, coordinated by Lyon-based clinician Professor Charles Dumontet, aims to more broadly assess the role of adipose tissue in resistance to various treatments (hormone therapy, chemotherapy and immunotherapy) proposed in breast cancer.”

Florence Caldefie-Chezet, University Professor, PharmD. Head of ECREIN UMR INRA-UCA 1019 team - Human Nutrition Unit, Micro-Cellular Environment, Immunomodulation and Nutrition. Head of the SVFp Medicinal Plant and Fungi Sciences Laboratory



ImmunoADK Project

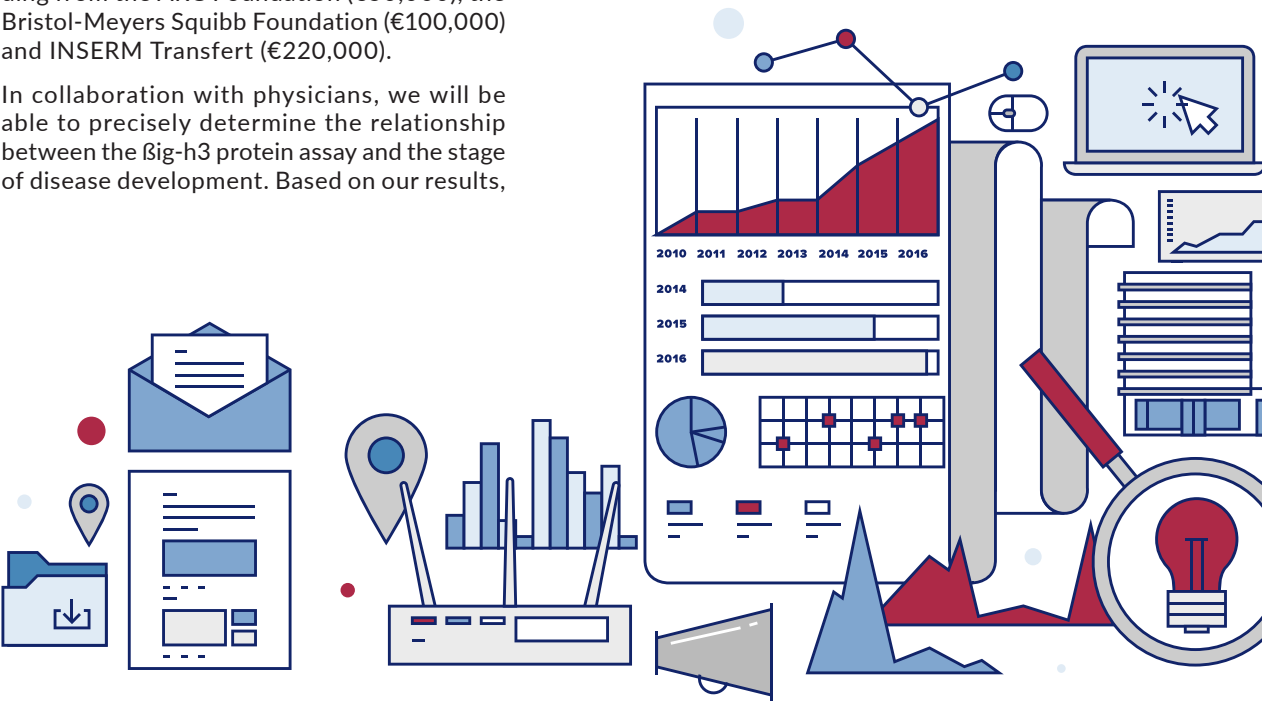
Study on the immunosuppressive role of TGFβi in pancreatic adenocarcinoma (ADK) - Lyon (2015-2016).

«Pancreatic adenocarcinoma is the most common form of pancreatic cancer in France, with more than 11,000 new cases each year. Thanks to the support of the OncoStarter program (OncoStarter 2015 call for projects, €40k, in partnership with the Rhône committee of the League Against Cancer), our work has highlighted the expression of a protein named βig-h3, as a marker of the appearance, progression and aggressiveness of this type of pancreatic cancer. Neutralization of this protein inhibits tumor growth. Indeed, when this tumor develops, it is quickly surrounded by supporting tissues, blood vessels and proteins, including the βig-h3 protein. These tissues form a sort of bulwark that places the tumor out of reach of an effective immune response and treatment. Thanks to the OncoStarter program, we were able to apply for a patent and initiate other funding from the ARC Foundation (€50,000), the Bristol-Meyers Squibb Foundation (€100,000) and INSERM Transfert (€220,000).

In collaboration with physicians, we will be able to precisely determine the relationship between the βig-h3 protein assay and the stage of disease development. Based on our results,

we hope to be able to offer this assay in the early diagnosis of pancreatic adenocarcinoma and its relapses, or even, eventually, offer treatments targeting this protein.”

Anca Hennino, Inserm researcher - CRCL Cancer Cell Plasticity Department / Signaling, Metabolism and Tumor Progression Team





STRUCTURING PROJECTS

15 years of actions to galvanize the region's scientific community

Founded with the aim of organizing and consolidating the region's cancer research at the site or local level, CLARA is working to strengthen the regional ecosystem through the «Structuring Projects» program.

Since 2009,



16 programs labeled "CLARA Structuring Projects"



€5,3M in funding granted by local authorities and private partners

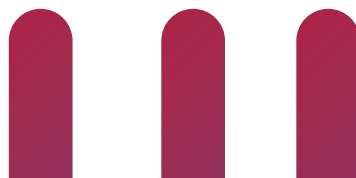


64 teams involved in these research programs



+€11M obtained following the initial support

In 15 years, CLARA has gained solid experience in engineering core projects, which help to galvanize the region's scientific community, to set up multidisciplinary collaborative projects and to link the research and care centers in various areas of Auvergne-Rhône-Alpes. Over the years, these structuring programs have demonstrated their strong impact on strengthening the region's oncology research, as well as the value they create.





World Sarcoma Network

The World Sarcoma Network (WSN), supported by CLARA, meets the need for international organization on the topic of sarcomas and has become a «magnet» for industry and finance. Under the leadership of Professor Jean-Yves Blay (Léon Bérard Cancer Center, Lyon), the WSN was launched in 2009 to create an environment conducive to developing and managing clinical trials on rare subtypes of sarcomas.

This project has enabled the Léon Bérard Cancer Center to become the coordinator of the European Reference Network on Rare Adult Solid Cancers (ERN-EURACAN), a network that was officially launched in Lyon in April 2017.

European Lymphoma Institute (ELI)

Founded in April 2010, The European Lymphoma Institute (ELI) is the result of an innovative approach that led to the creation of Europe's first lymphoma discussion, collaboration and coordination network. This Europe-wide collaborative project will help to improve knowledge, share success stories and provide all patients with equally effective care.

Construction of the ELI building near the South Lyon Hospital Center (CHLS) was planned as early as 2009. ELI, the Lymphoma Study Association (LYSA) and the Lymphoma Academic Research Organization (LYSARC) decided to partner with the European Center for Nutrition and Health (CENS) for the construction of a building to house the research teams in these fields.



Twelve European experts in the field of lymphoma research met to found the ELI Institute, led by Professor Bertrand Coiffier and Cécile Montreuil, Director, on June 30, 2010.

FASTRACS: Helping breast cancer survivors return to work

The FASTRACS project aims to develop, implement and evaluate an intervention to assist breast cancer survivors in returning to work, staying employed and maintaining a good quality of life in the workplace.

“One of the strengths and original features of this project is that it relies on a particular methodology (intervention mapping) involving all parties concerned by the problem,” explains Dr. Jean-Baptiste Fassier, Occupational Physician and researcher at the UMRESTTE laboratory at Claude Bernard Lyon 1 University. “Thus, institutions (such as the Regional Health Agency, Lyon Metropolis, CLARA and DIRECCTE), associations (Europa Donna and the French League against Cancer), companies, patients and doctors, actively participate in research. Following the needs assessment, we published a literature review to identify the most appropriate theoretical frameworks in the social sciences and humanities (in social psychology, health psychology, industrial and organizational psychology, sociology, etc.), which enabled formulation of an operational model for innovative intervention that encourages breaking down the barriers between health, social and professional care following breast cancer.”

“Joining the FASTRACS project was an easy decision because of Lyon's investment in prevention,” says Dr. Muriel Passi-Pêtre, Director of Housing and Education Solidarity Promotion, part of the Health and Social Development Division at Lyon Metropolis. “The focus on returning to work or staying employed is interesting because it echoes the problems we encounter in a more general way, such as work-life balance, the question of how we see invisible disabilities in our entourage, and the coordination of various players in the care, medical, and social spheres. What is really innovative is that this process is carried out jointly with patients, companies, healthcare providers and social support network. That's what really appealed to me!”

REGIONAL NETWORKING

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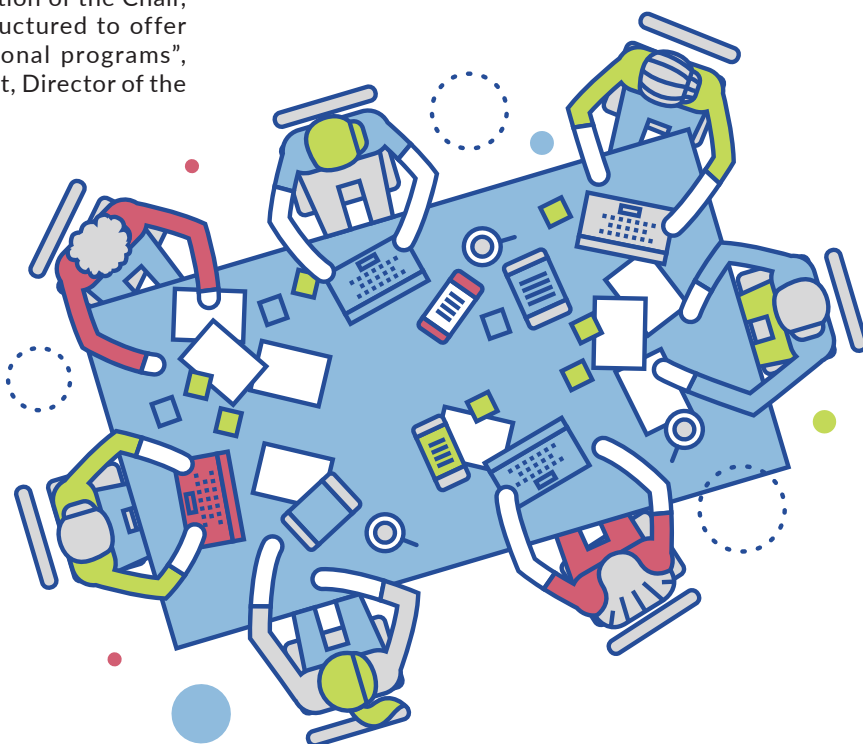
The Chair of Excellence in Translational Research in Grenoble

Led by Professor Pierre Hainaut between 2013 and 2016, the Chair of Excellence in Translational Research has given new impetus to innovation and scientific influence in the field of life sciences and its applications in the fight against cancer in the Grenoble area.

"Several years after its launch, the «Chair of Excellence» is now fully operational and is advancing autonomously, driven by a deep restructuring of cancer research, motivation, bringing together key players around new projects, significant scientific results and - last but not least - by obtaining competitive research budgets. This is not the success of just one person or a single research topic. It is the result of the action of an entire community which, through the contribution of the Chair, has been organized and structured to offer new national and international programs", says Professor Pierre Hainaut, Director of the

Institute for Advanced Biosciences (Research Center UGA / Inserm 1 209 / CNRS 5 309) and Head of the Molecular Pathology of Cancers and Biomarkers team.

"The Chair of Excellence aims to firmly anchor Grenoble in this sphere as a source of original excellence that generates new ideas, taking advantage of the unique density and multidisciplinary diversity of Grenoble's scientific and technological platform, one of Europe's most dynamic R&D communities."



The Hyg e Center: a one-of-a-kind prevention research platform in France

As both an exhibition venue and a specialized research center for intervention research, the Hyg e Center, a CLARA platform, was opened in 2014.

“The fruit of a 10-year mobilization of local authorities (Auvergne-Rh ne-Alpes Region, Loire County and Saint- tienne M tropole), the Lucien Neuwirth Cancer Institute and the French government, the Hyg e Center is the latest of the 17 CLARA platforms”, says Professor Franck Chauvin, Professor of Public Health, Founder and Director of the Hyg e Center, President of the High Council of Public Health and Vice-President of the French National League Against Cancer. “Located near Saint-Etienne (in Saint-Priest-en-Jarez), the Center makes the Auvergne-Rh ne-Alpes region even more dynamic in the fight against cancer by enriching the area with an original facility that brings together a research team, a prevention center and a unit

for patients and their entourage in a care facility dedicated to oncology. Since the implementation of the first Cancer Plan in 2003, there has been a major awareness that cancer is not inevitable and that prevention is a means of acting effectively. Thus, the Hyg e Center is, along with its partners, committed to placing this great region at the forefront of cancer prevention.”



17 platforms, accounting for  56M, have been supported by CLARA, including 11 that have been awarded labels (IBiSA and INCa) or are now involved in national or international networks.

Thanks to the mobilization of CLARA and its members, facilities with the latest technology have been set up in the region to offer the right tools to perform cutting-edge research.

The support of the local authorities, the State (CPER) and FEDER has enabled these platforms to emerge. This impetus has allowed these facilities to obtain labels recognizing their expertise (IBiSA, INCa), to be part of national investment programs such as France Life Imaging (GAIA, IRMAGE, OPTIMAL), Profiproteomics (EDyP Services) or France Genomic Medicine (a molecular genetics platform that is part of the Grenoble Alpes University Hospital Center), or to join European networks such as ENOLL (The European Network of Living Labs) (for Hyg e) or the European Infrastructure of Open Screening Platforms for Chemical Biology (for CMBA).



PROOF OF CONCEPT

15 years of actions to generate economic development from cancer research

Purpose of the program

Building on the success of the CLARA Proof of Concept program, today CLARA offers a comprehensive program that meets five objectives:

EDUCATE AND TRAIN
researchers about industrial transfer and development

DETECT new projects and foster collaborations

FUND public-private partnership projects

COACH
project coordinators

NETWORK with pharmaceutical companies and investors

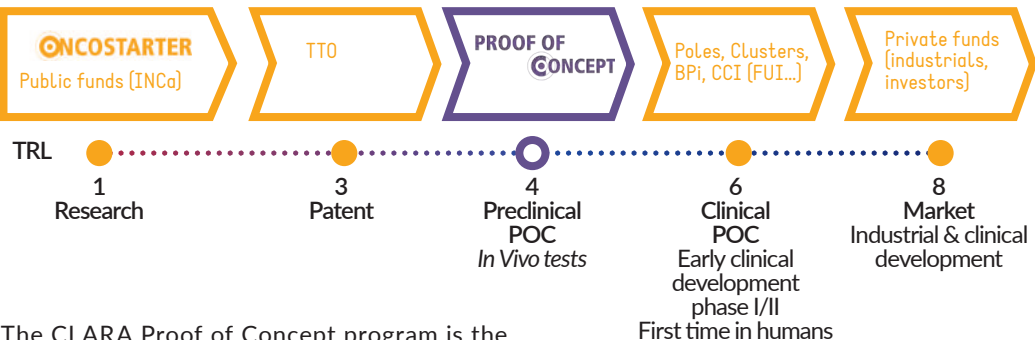


One of the major characteristics of CLARA since it was founded in 2001 has been creating value from research and, in particular, from the proof of concept phase.

This step is essential for transferring a discovery made in the laboratory to the patient's bed. It gives credibility to investors and manufacturers,

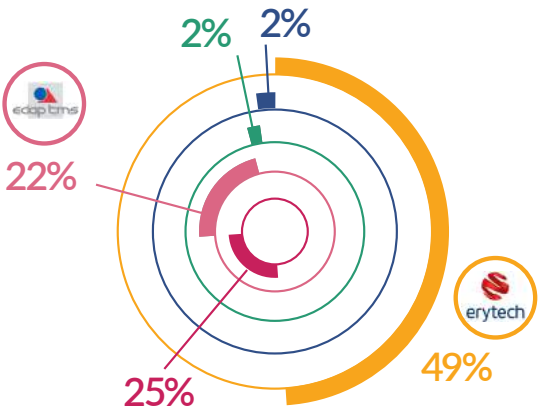
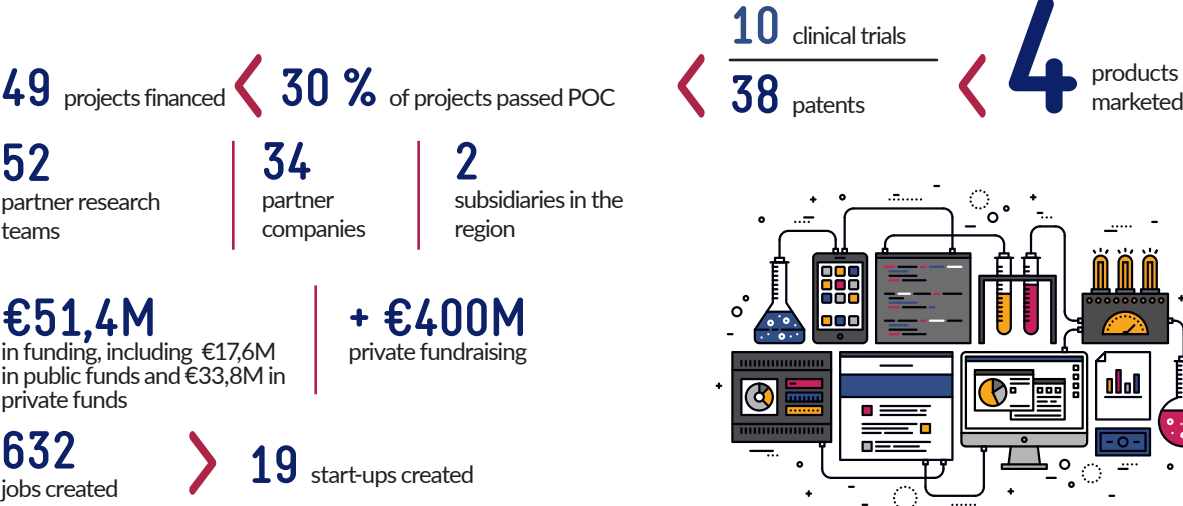
but it is risky and therefore difficult to fund. With this in mind, CLARA set up the CLARA Proof of Concept program in 2005, thanks to the support of local authorities in the region.

The Proof of Concept: a key step in developing a health product



The CLARA Proof of Concept program is the only one of its kind in France and allows the funding of a public-private collaboration between a research group and a company in the region, in order to prove the concept of a new product that meets a medical need in oncology and contributes to local economic development.

Key figures



Breakdown of projects by theme

In only 12 years, the Proof of Concept program has demonstrated its effectiveness with iconic success stories such as Advanced Accelerator Applications (AAA), EDAP, TMS, ERYTECH Pharma, Nanobiotix and Innate Pharma.

- Medicine for human use
- Diagnostic tests and assays
- Medical devices
- R&D tools
- Quality of life for patients



ERYTECH Pharma, founded in 2004, was supported in its early days by the CLARA Proof of Concept program in two projects, ERY5-FU and GR-SIL01.

In collaboration with academic teams from the Léon Bérard Cancer Center and CRCL, ERYTECH Pharma was able to test and develop its proprietary technology based on the encapsulation of therapeutic active ingredients in red blood cells. ERYTECH Pharma is currently completing Phase III in patients with Acute Lymphoblastic Leukemia (ALL) and, as of 2017, had raised more than €320 million in funding.



Since 2006, CLARA has supported collaborations between **EDAP TMS** and the LabTau laboratory as part of two projects, HIFU and PANTTUS.

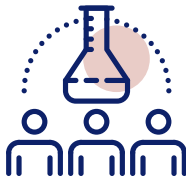
This support has enabled the development of a prototype for focused ultrasound treatment of liver metastases used today at the Léon Bérard Cancer Center in clinical trials. Since it was founded, EDAP TMS has raised €58 million.

ECONOMIC DEVELOPMENT AND TRANSFER

CLARA INNOVATION BREAKFASTS



22
sessions



580
researchers, clinicians and
entrepreneurs brought
together during these
sessions



Topics related to regulatory
aspects, CE marking of medical
devices, nanotechnologies, project
management tools, patent watch
tools and more...

In 2008, CLARA set up

an event that catalyzes new collaborative projects between researchers and companies. These meetings were originally known as the “Industrial-Academic Meetings (RIA)” and, since 2015, as the “Research2Business Oncology Meeting (R2B)”.



1 400
participants



233
projects
identified



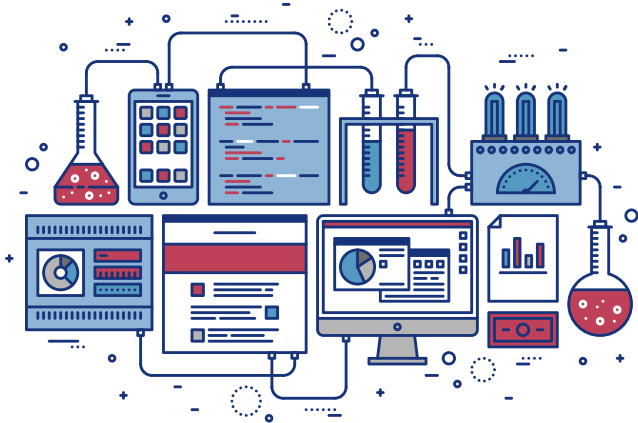
1,500
collaborative
meetings



15
trophies
awarded

In order to create a continuum, CLARA has developed regional strategic partnerships to organize support programs upstream and downstream of the CLARA value-creation program.

Since 2013, CLARA has been a partner of Lyonbiopôle in order to facilitate the transition from the Proof of Concept program to the Inter-Ministry Fund (FUI) program. Since 2015, CLARA has also set up a partnership with the three Technology Transfer Offices (SATTs) in the region (Grand Centre, LINKSIUM and PULSALYS) to accelerate the transition from patent to proof of concept.





15 years of collaborative actions for maximum success

Since it was founded, CLARA has run a partnership strategy based on a diverse network of stakeholders, including major industrial partners for research.

With the support of CLARA, the Merck laboratory, the Léon Bérard Cancer Center and Lyon Civil Hospitals (HCL),

the Chair of Excellence in Environment, Nutrition and Cancer, awarded to Professor Béatrice Fervers in 2010, has enabled and opened up another field of research within CLARA, focused on occupational and environmental exposure.

From 2010 to 2016, this Chair's objective was to identify the occupational exposure of patients preceding their diagnosis, in order to better meet the informational needs of patients and their entourage regarding the links between occupational and environmental exposure and the risk of cancer. Support from Merck aided the Professional Cancers Program, led in collaboration with Professor Barbara Charbotel of the Lyon Civil Hospitals Occupational Diseases Consultation Center (CCPP), and set up a dedicated consultation. This partnership in the field of occupational cancers is now being tested in 5 other cities in France.

"The Chair has undeniably been an incentive, first of all in terms of the consultation for occupational cancers, the first of its kind in France, which in 2014 won the Unicancer innovation award," explains Professor Béatrice Fervers, Director of the Department of Cancer and Environment at the Léon Bérard Cancer Center. "There has also been greater organization and the impetus of several projects on occupational and environmental exposure in various cancers, as well as funding obtained as part of calls for national research projects."

«For Merck, this Chair is truly a continuation of our commitment to improving cancer care and providing better information on how the environment impacts the occurrence of cancer," says Thierry Hulot, Managing Director of Merck Biopharma France. "CLARA's role in identifying and coordinating the network

is an essential step in building public-private partnerships that best support patients from their diagnosis to their treatment and thus help to improve their quality of life."

CLARA, Bioderma and Lyon Civil Hospitals

began a partnership in 2016 offering new solutions in the management of cutaneous side effects. The aim was to develop cosmetic dermatology research in oncology to offer innovative products to patients treated for cancer and thus improve their quality of life. One component of this partnership was to propose a call for expressions of interest in order to identify a Social Sciences and Humanities research project focused on managing cutaneous side effects (as part of the organization of care and the doctor-patient relationship) and patients' experience of them. Other collaborative projects to develop successful research in this area are under consideration.

Janssen brings its expertise

to benefit participants in the Oncoriales, the Summer Session of the Regional Oncology School. "Janssen had the opportunity to work more closely with CLARA teams when considering how to train nurses on oncology," explains Michèle Weber, Director of Health Economic Intelligence at Janssen-Cilag. "In 2017, we set up a partnership as part of the Oncoriales to organize a round table entitled «Transformation of the Nursing Profession» that focused on three themes: «The Home: a New Place for Cancer Care?», «The City and the Hospital» and «Career Development in Nursing». The co-building and co-facilitating of this workshop at the Oncoriales is proof of the trusting relationship between partners."

CLINICAL RESEARCH



15 years of actions to promote clinical research

CLARA's actions to support clinical research are aimed at facilitating access to the region's resources, while promoting partnerships between doctors and researchers, in order to help set up ambitious, high-quality clinical trials at the region's four main university hospital centers. Some of the 98 health facilities in the region are authorized to practice oncology and are federated by the Regional Cancer Network.

2006

1st CLARA support for PARCC-ARA

2010



David Pérol,
Head of
PARCC-ARA

2015

1st edition of the Auvergne-Rhône-Alpes PHRC-I in partnership with CLARA

Co-funding of the INOXA – peritoneal cancer project (winner of the Auvergne-Rhône-Alpes PHRC-I 2015), coordinated by Dr. Benoît You, Lyon Civil Hospitals (€120,000 from CLARA).

2016

co-funding of the BreastImmun02 breast cancer project (winner of the Auvergne-Rhône-Alpes PHRC-I 2016), coordinated by Dr. Heudel, Léon Bérard Cancer Center (€78,000 from CLARA).

Support for the start of the ADOPT-PRESTAGE project, coordinated by Dr. Elisabeth Castel-Kremer, Lyon Civil Hospitals (€10,200)

2017

co-funding of the OLAGLI Glioblastome project (winner of the Auvergne-Rhône-Alpes PHRC-I 2017), coordinated by Dr. Ducray of Lyon Civil Hospitals (€100,000 from CLARA)

Signing of the CLARA-PARCC-ARA – GIRCI Partnership Agreement



Appointment of
Professor Delphine
Maucort-Boulch as head
of PARCC-ARA



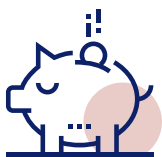


3

editions of the
Auvergne-Rhône-
Alpes PHRC-I
supported

4

projects co-funded
and monitored



€300k

in funding allocated



2

strong partnerships



1,400

clinical trials
in oncology
underway in
Auvergne-Rhône-
Alpes

7,500

patients enrolled
every year

Focus on PARCC-ARA

Started by Professor Franck Chauvin, PARCC-ARA originated from a call for bids by the French National League Against Cancer in 2004. The primary aim of this project was to bring together the expertise of the various players in clinical research on oncology in the Auvergne-Rhône-Alpes region. It is now supported by the CLARA cancer cluster and is made up of a committee of 13 experts from 4 university hospitals, 2 Cancer Centers and the ICLN.

Its activity:

- Methodological, biostatistical, medical and economic support for letters of intent and application files for the Auvergne-Rhône-Alpes PHRC-I program coordinated by the Auvergne-Rhône-Alpes GIRCI and the DGOS, as well as for the National Cancer Institute's Cancer PHRC program.
- Support for the implementation and evaluation of clinical research projects within the CLARA cancer research cluster.

PHRC-I 2015, IPOXA Project

The IPOXA study, coordinated by Professor Benoît You of HCL, aims to improve the administration of chemotherapy for patients with peritoneal tumors. It has recently obtained the required authorizations from the French National Drug Safety Agency (ANSM) and the Patient Protection Committee (CPP) for the operational set-up and opening of enrolment to patients at the South Lyon Hospital Center. The other participating centers – the Grenoble, Saint-Étienne and Clermont-Ferrand University Hospital Centers, the Léon Bérard Cancer Center and the Lucien Neuwirth Oncology Institute – will open shortly.





15 years of actions to promote skills development

CLARA's actions aim to promote professional development and interactions between young researchers and care providers from a variety of disciplinary backgrounds. To develop the interdisciplinary research of tomorrow, we must build a common culture and share knowledge today.

Regional School of Cancerology

Initiated in July 2015, the Auvergne-Rhône-Alpes Regional School of Cancerology, led by CLARA and supported by universities in the region, aims to educate and support training that meets current needs in oncology. This «off-site» school aims to combine top-level training, research excellence, innovative care and support for the regional economy through strengthened relations with biotech and med-tech companies.



The Oncoriales, the summer session of the Regional Oncology School, is the first concrete action in this initiative. In only three years, this event has brought together many of the region's players (students, scholars, researchers, doctors, entrepreneurs and non-profits) who have been able to share their visions on advances in oncology and discuss prospects in terms of the skills required and additional needs for the future as regards training curricula or tools.

Educational Committee

It is composed of 14 members, including teachers, researchers, health professionals, patients, representatives of the International Agency for Research on Cancer and the ARC Foundation, as well as young researchers. It aims to specify the main orientations of the Regional Oncology School and to implement actions in cooperation with universities and research centers.

Oncolab' Association



Supported by CLARA with funding from the ARC Foundation, the Oncolab' association aims to promote employability and scientific dialogue between young researchers and care providers working in the field of oncology in the region.

ARC Foundation for Research on Cancer



In 2017, the ARC Foundation and CLARA signed a partnership agreement. This alliance strengthens synergies and reflects a strong desire to make young researchers a top priority.

Since 2015



4 summer sessions



nearly
300
participants



36
speakers (scientists or patients)

MOBILITY

Young researchers' mobility

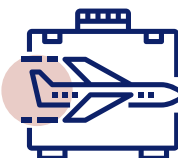
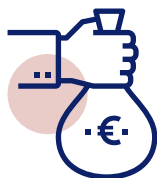
The mobility of young researchers is a means to acquire new techniques and know-how, an impetus to create and enhance collaborative projects. With this in mind, since 2011, CLARA has developed the Mobility program for young cancer researchers located in the Auvergne-Rhône-Alpes region. In 2018, the program is opening up to second-year Master's students wishing to attend a scientific congress, as well as to medical students writing a scientific thesis.



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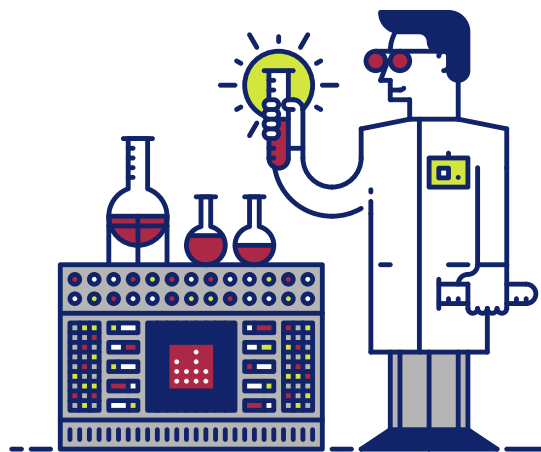
prizes awarded to young researchers, acknowledging the quality of their research work

Nearly
€90k
in funding granted



68%

of mobility experiences involve working in a team abroad



"I was awarded a Mobility grant from CLARA for a three-month internship at Fujifilm Visualsonics Inc. in Toronto, Canada, from July to October 2017," says Jonathan Lavaud, a Ph.D. student from the OPTIMAL Platform at the Institute for Advance Biosciences in Grenoble. "This experience abroad allowed me to work on an innovative R&D project to propose a new «whole body» approach to acoustic photo imaging.

This work was presented at several conferences during the World Molecular Imaging Conference in Philadelphia in September 2017 and at the Visualsonics User Meeting in Amsterdam in October 2017. It also resulted in the recording of a Webinar in September 2017. Beyond the scientific interest, this experience was an opportunity for me to discover research within an international company with the challenges of communication, management and marketing in an entirely English-speaking environment, which allowed me to practice my English on a daily basis.

In short, this adventure was rewarding for my personal and professional development by broadening my career opportunities once I have my Ph.D. I would like to thank CLARA very much for allowing me to benefit from this wonderful experience."





International collaborations to promote the region's cancer research worldwide

Over the last 15 years, the region's research teams have distinguished themselves internationally and built an extensive network with research centers around the world.

Scientific partnerships have been developed with 148 countries.
61% of publications are in collaboration with international teams.



Number of co-publications and the main countries with which Auvergne-Rhône-Alpes teams have collaborated since 2000.

SINCE 2003



76 projects

European projects involving the region's teams, which have led to...



€271M

in funding from the European Commission

The ERC Booster Program

ERC BOOSTER

In 2017, CLARA set up a program to support project applications to the European Research Council (ERC). The ERC Booster program aims to help researchers from the region obtain ERC grants and maximize the chances of success through specialized support.

In 15 years, CLARA

has mobilized to build relationships with international partners and encourage scientific dialogue and the set-up of new projects.

Israel: Weizmann Institute (2007)

Germany: Deutsches Krebsforschungszentrum DKFZ (2009)

Spain: Catalonia Bioengineering Institute IBEC (2010)

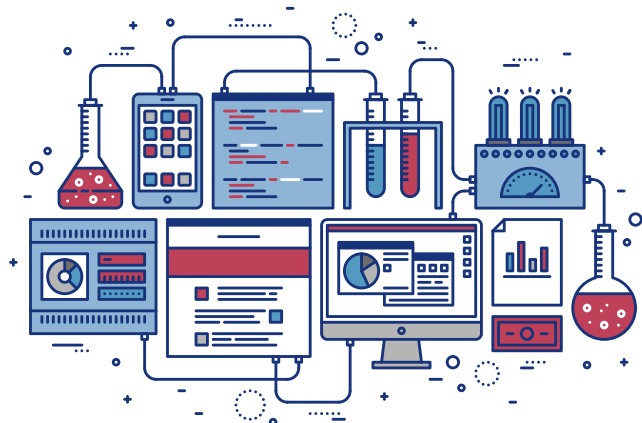
Spain: BioNanoMed and Oncocat (2010)

Bielorussia: Gomel State Medical University (2016)

China: Shanghai Cancer Institute, Jiao Tong University (2011-2018)

United States: French-American Doctoral Exchange (2017)

Canada: Oncopole and Genome Quebec (2017)



Focus on the partnership with Shanghai



Started in 2011, CLARA's cooperation with Shanghai has resulted in five Franco-Chinese symposia organized alternately in Shanghai and in the Auvergne-Rhône-Alpes region. At every edition, these scientific seminars have brought together some forty participants. In 2013, a scientific cooperation agreement was signed by the Shanghai Cancer Institute and the Lyon Cancer Research Center. In addition, as part of the French-language medical branch of Shanghai Jiaotong University (UJTS), some fifteen Chinese Master's students have been hosted at CLARA-region laboratories.



Focus on Quebec



As part of the Jacques Cartier Conversations 2017, a delegation from the CLARA region traveled to Quebec to strengthen existing collaborative projects in three areas: the organization of cancer care, genomics and cancer biology. Projects of joint interest were identified in conjunction with research laboratories and universities with complementary expertise. Since then, CLARA and the Quebec Oncopôle cluster have been actively cooperating to capitalize on oncology research as a means to boost economic development in both regions.

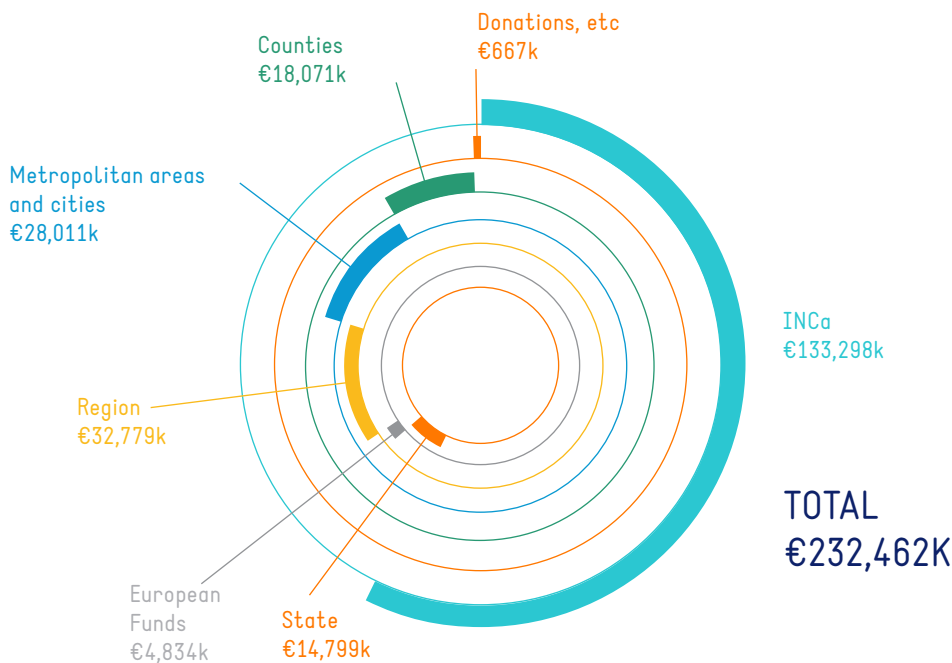


Signature of the partnership with the Quebec Oncopôle in 2018

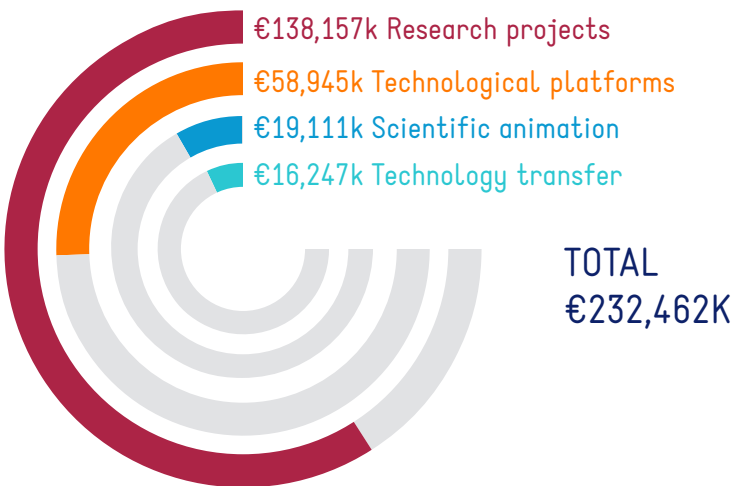
15 years of close collaborations with funding providers

Major financial support from local authorities, the French National Cancer Institute and European Funds.

Origin of the funds allocated in the Auvergne-Rhône-Alpes region for research against cancer 2003-2017 in €K



Use of funds allocated in the Auvergne-Rhône-Alpes region for cancer research 2003-2017 in €K



THE NEXT 5 YEARS

CLARA 4.0

As part of INCa's renewal of cancer cluster labels in 2018-2022,

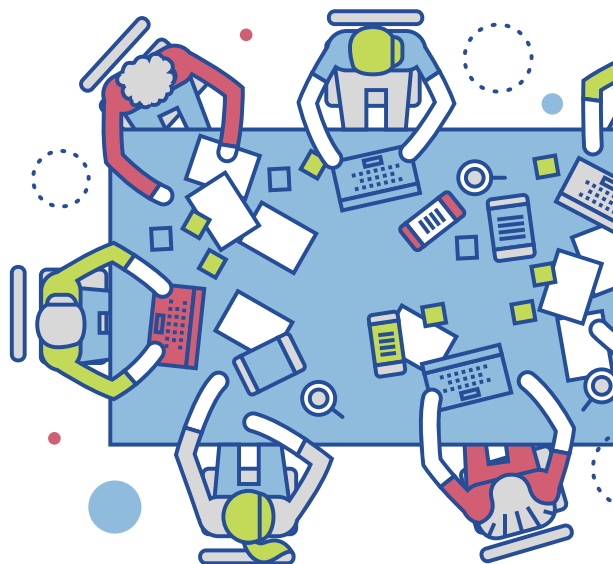
the Cancéropôle Lyon Auvergne-Rhône-Alpes (CLARA) is proposing an ambitious new action plan for the next five years.

To do so, the region's scientific strategy in oncology will leverage its areas of excellence in cancer biology, medical technologies, prevention and social innovations. By linking the expertise in our region, we will have everything it takes to meet challenges such as immunotherapy applied to cancer, the rise of genomics, big data in health, environmental risks and cancer prevention.

CLARA's action plan for 2018-2022 aims to consolidate the range of services in line with the needs of researchers, companies, doctors and patients in the fight against cancer. Strengthened by its networking abilities, CLARA will focus on cross-fertilization between different areas of knowledge, in order to better address the increasing complexity of cancer research by combining contributions from various scientific disciplines.

From fundamental research to clinical research, to organization and technology transfer, CLARA will work towards better incorporating the value chain. Helping projects grow through the OncoStarter program, encouraging young researchers' mobility and developing skills via the Regional Oncology School will enable us to build the research of tomorrow. Support for structuring projects and Chairs of Excellence will be renewed.

Creating various forms of value from research results will be one of CLARA's top-priority



actions for the coming years. Creation of economic value will result in new collaborative projects between the region's research centers and companies, supported by the CLARA Proof of Concept technology transfer program. The popularization of scientific findings will help to disseminate advances in cancer research to the population at large. The clinical value of research will ensure better patient access to innovation throughout the care journey.

In order to boost awareness and recognition of Auvergne-Rhône-Alpes, CLARA's communication will highlight the region's expertise and successes. The region's attractiveness and international renown will be consolidated thanks to our strategic partnerships in China (Shanghai) and North America (Quebec), as well as by increasing participation in European programs.

Through all of these actions and the creation of value from the region's expertise in oncology, CLARA 4.0 will focus on generating ever more innovations to better prevent cancer, improve care and manage life after cancer.

INNOVATION SERVING THE FIGHT AGAINST CANCER



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