ACTIVITY REPORT
2022

INSTITUT UNIVERSITAIRE
DU CANCER DE TOULOUSE
Oncopole

COLLECTIVE EXPERTISE TO **FIGHT AGAINST CANCER**

Foreword

The “Oncopole”, as patients and the general public know it, brings together on a single site more than 2,000 professionals committed to the fight against Cancer, divided between the Toulouse-Oncopole University Cancer Institute (IUCT-Oncopole) and the Toulouse Cancer Research Center (CRCT).

The Oncopole Claudius Regaud (Comprehensive Cancer Center) and the Toulouse University Hospital join forces as the IUCT-Oncopole, sharing their expertise and excellence in missions of care, research, and teaching.

Contents

The team of Medical Assistants.

Editorial

Inventing & hoping

Despite the health crisis still facing us at the beginning of the year, 2022 was marked by promising advances for patients and the enthusiasm of the Oncopole's teams.

Caring, teaching and conducting research to find tomorrow's innovations and improve patient care practices are our everyday missions in the fight against cancer. The Oncopole's expertise is collective. Its strength lies in the commitment and the active mobilization of all of its teams as evidenced by the distinctions won (p. 14) and the number and quality of our publications (see Key figures).

Precision medicine, personalized treatments, genomic sequencing, real-life data, improved diagnosis, concern for patients and their care pathways, etc... all of these subjects and more are illustrated in this report, once again highlighting that the initial project of the Oncopole —getting researchers and care providers to work together— is essential in accelerating cancer research.

Among the 2022 highlights, we are pleased to cite the first encouraging results of the personalized anti-cancer vaccine being developed at the Oncopole (p. 18), the results of the SAFIR02-BREAST clinical trial that shows —for the first time— the usefulness of genomic sequencing of metastatic breast cancers to guide patients towards personalized maintenance therapy (p. 20), as well as the discovery of a therapeutic combination that has become the new standard in treating acute myeloid leukemias (p. 24).

Our head and neck cancer teams excelled in inventiveness, carrying out a surgical feat in reconstructing a patient's nose through 3D printing (p. 11). Accompanying after-cancer care by promoting patient rehabilitation is also one of our priorities.

To achieve all of this, we need the confidence and backing of all of the Oncopole's partners. They support our public awareness-raising campaigns (p. 43) and our projects, including those that seem audacious. Our thanks to them.

Grounded in a shared commitment to help patients through research, this strategy makes it possible —beyond the exceptional scientific collaborations that greatly contribute to developing our activities— to bring together the worlds of aeronautics, artificial intelligence, and cancer. A few years ago, this would have been unimaginable, as would have been developing a personalized, respectful care pathway around disability and cancer. Caring, teaching, and researching will always be our main missions. Thanks to all of the teams for their inventiveness and their commitment; this is the key asset of our "Oncopole".

Enjoy your reading.

Prof. Jean-Pierre Delord
General Manager of the Oncopole Claudius Regaud
and Administrator of the GCS IUCT-Oncopole

Jean-François Lefebvre
General Manager of the Toulouse University Hospital
and President of the General Assembly
of the GCS IUCT-Oncopole

Prof. Gilles Favre
Director of the CRCT

Impact & achievements

Key figures 2022

LESS THAN

6

MONTHS

for a discovery by the CRCT to be translated into a clinical trial at the IUCT-Oncopole

707

PUBLICATIONS

55

PUBLICATIONS

with an impact factor **> 20**

+4% compared to 2020
+ 83% in 5 years

RESEARCH

177

RESEARCHERS

18

RESEARCH TEAMS

20

NATIONALITIES

among the different researchers

118

ENGINEERS, TECHNICIANS, AND ADMINISTRATIVE PERSONNEL

9

TECHNICAL RESEARCH PLATFORMS

1

LABORATORY OF EXCELLENCE:

TOUCAN

1

ERC GRANT

erc European Research Council
Established by the European Commission

CLINICAL TRIALS

340

CLINICAL TRIALS

opened for inclusions in 2022

40%

EARLY PHASE TRIALS

1,855

NEW PATIENTS

included in 2022
(**+6%** compared with 2021)

X2

as many clinical trials —a figure that has doubled since the creation of the IUCT-Oncopole **9 YEARS AGO**

16,5% of the active file of patients included in a clinical trial

INCLUSIONS

31%

SPONSORED BY THE IUCT-ONCOPOLE

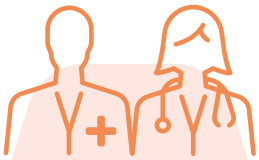
45%

SPONSORED BY ACADEMIA

24%

SPONSORED BY INDUSTRY

2,036 on-site staff



PATIENT CARE

The **1st**

HOSPITAL PHARMACY IN EUROPE
in terms of standard chemotherapy management and clinical research

308

BEDS
of which **103** day-hospital beds

765

CARE PROVIDERS

INCLUDING

191

PHYSICIANS

11,233

PATIENTS
(active hospitalization file)

38,108

PATIENTS TREATED
including **10,810** new patients

114,286

HOSPITAL STAYS
+2,4% compared with 2021

TEACHING

235

INTERNS

80

DOCTORAL STUDENTS

102

PARTICIPANTS
in continuing professional education offered by the IUCT-Oncopole

CANCER CARE ACTIVITIES

58,448
RADIOTHERAPY SESSIONS

3,171
Patients treated with
ORAL THERAPIES

33
Patients treated with
CAR-T CELLS

489
Patients treated by
SELECTIVE INTERNAL RADIATION THERAPY

125,000
CHEMOTHERAPY SOLUTIONS PREPARED
(both injectable and oral)

178
TRANSPLANTS PERFORMED
including **100** autologous
and **78** allogenic

173
Patients treated by
BRACHYTHERAPY

83,7%
OUTPATIENTS
in hospital departments

7,875
OPERATIONS
including **2,346** to place an implantable venous access port or a central venous catheter (CVC)

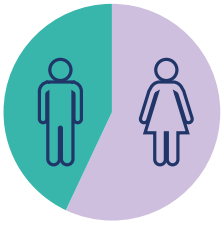
3,076 LBP (Labile blood products) transfusion sessions

4,714 anesthesia procedures (excluding local)

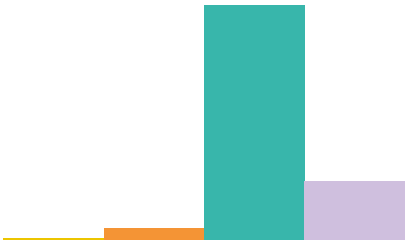
42 total body irradiation sessions

6,65 days mean length of stay for full hospitalization

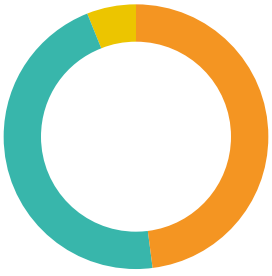
NEW PATIENTS



42% men
58% women



AGE GROUPS:
0-14 years: **0.4%**
15-25 years: **4.1%**
26-74 years: **74.5%**
75 years and more: **21%**



GEOGRAPHICAL ORIGIN:
Haute-Garonne: **47%**
Occitanie-Pyrénées (outside the Haute-Garonne): **47%**
France and international: **6%**

Highlights 2022

#INNOVATION

CANCER & ARTIFICIAL INTELLIGENCE:
BOLD PARTNERSHIPS WITH AIRBUS AND THE IRT

In 2022, the IUCT-Oncopole signed two mutually-beneficial partnerships to develop research projects with AIRBUS, the world leader in aeronautics, and the Saint Exupéry Technological Research Institute (IRT), a European expert in critical systems. The aim of these partnerships: develop trustworthy, responsible, safe, and explainable AI. The first publications are expected in 2023.

The IUCT-Oncopole, Airbus, IRT Saint Exupéry, and Toulouse Métropole teams at the AI For Health Summit 2022.

AIRBUS: Artificial Intelligence & data analysis

Signed in March 2022, the protocol agreement with AIRBUS aims to develop mutually-beneficial research projects around digital platforms to manage data and the latest AI technologies. The IUCT-Oncopole's ambition is to improve diagnosis and patient follow-up.

> **"Treating cancer is a great cause with which Airbus wishes to associate by furthering the development of digital technologies becoming increasingly important in research and medical treatments as well as in aeronautics."**
>
> **Marc Hamy,**
> Director of Corporate Affairs, AIRBUS

Saint Exupéry IRT: AI, critical systems and aerospace

Within the scope of the collaboration formalized in May, Saint Exupéry IRT offers its extensive expertise in the AI of critical systems to the IUCT-Oncopole. The aim is to improve prevention, diagnosis, and cancer care, especially in predicting therapeutic efficacy.

#TOULOUSAINE OF THE YEAR

A WORLD FIRST: **NASAL RECONSTRUCTION BY 3D PRINTING**

Prof. Agnès Dupret-Bories and Dr. Benjamin Vairel, of the IUCT-Oncopole head and neck cancer team were able to provide, with the support of the Belgian company Cerhum, total nasal reconstruction from a prosthesis made of biomaterial.

In collaboration with the CIRIMAT research unit (CNRS/University of Toulouse III-Paul Sabatier/INP), the prosthesis used in reconstructing the nose was made from a porous biomaterial printed in 3D, based on photographs taken prior to the patient's cancer treatment.

After two months of "wet nursing" on the patient's forearm, the future prosthesis was then transplanted and revascularized. Following ten days hospitalization, the patient, who had lost her nose ten years earlier to cancer treatments, can now go out and about, resuming a near normal life. For this achievement, Prof. Agnès Dupret-Bories was chosen "Toulousaine of the year" in 2022 by readers of La Dépêche du Midi.

Biomaterials are the future in offering patients prostheses limiting the impact of cancer treatments and surgeries. We are also working on biomaterials loaded with chemotherapeutic molecules that may act as a "dressing" to avoid tumor recurrence."

Prof. Agnès Dupret-Bories,
IUCT-Oncople surgeon & CIRIMAT researcher

#EVENT

A REMARKABLE NUMBER OF PARTICIPANTS AT THE **ASH CONGRESS**

The 64th Congress of the **American Society of Hematology** took place in New Orleans in December. Among the 71 communications signed by members of the IUCT-Oncopole, Prof. Aurore Perrot's oral presentation reported on the EmmY cohort, a study including 73 centers of the French Myeloma Intergroup (FMI). The results are very encouraging: stem cell autologous transplants considerably increase survival of multiple myeloma patients under age 65. [Abstract 1910].

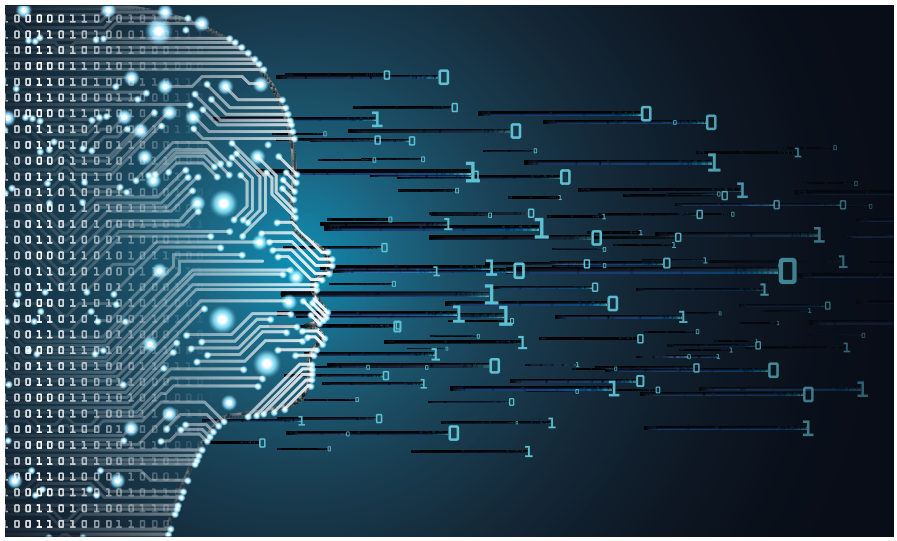
The hematology team at ASH 2022.

#DATA

THE IUCT-ONCOPOLE A STAKEHOLDER IN THE ONCOLAB PROJECT

Oncolab, a more than 10-million-euro project, aims to standardize access to health-related data from the IUCT-Oncopole and three other healthcare facilities to make these data easily available for research and innovation to all of the stakeholders in the ecosystem.

ARKHN x OWKIN

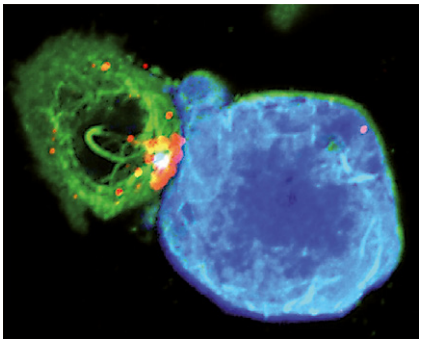


A public-private consortium

The Arkhn and Owkin companies, along with the National Institute for Research in Science and Digital Technologies —Inria—, have joined forces with four healthcare facilities within the framework of the Oncolab consortium: the Institut Curie, the Institut Bergonié, the Toulouse University Hospital and the IUCT-Oncopole. Arkhn's expertise lies in the accessibility of data. Thanks to federated learning, the Owkin unicorn company has specialized in identifying, through AI, new potential medications and in developing diagnostic tools. The methods used at Oncolab are based on state-of-the-art AI models developed by Inria's ALMAnaCH project team.

#FUNDAMENTAL RESEARCH

DIRECT OBSERVATION OF A T LYMPHOCYTE ATTACK



Interaction between a CTL (green cell, left) and a cancerous cell (blue, right). © S. Müller

T lymphocytes are at the heart of immunotherapy strategy. In 2022, Dr. Salvatore Valitutti and his ATTACK project team, winner of the prestigious European Research Council (ERC) Synergy Grant, succeeded in "filming" live the lymphocyte attack on melanoma cells.

Dr. Salvatore Valitutti's team used time-lapse microscopy on living cells to observe, with high spatio-temporal resolution, the events taking place in the lytic synapse between cytotoxic T lymphocytes (CTL) and melanoma cells.

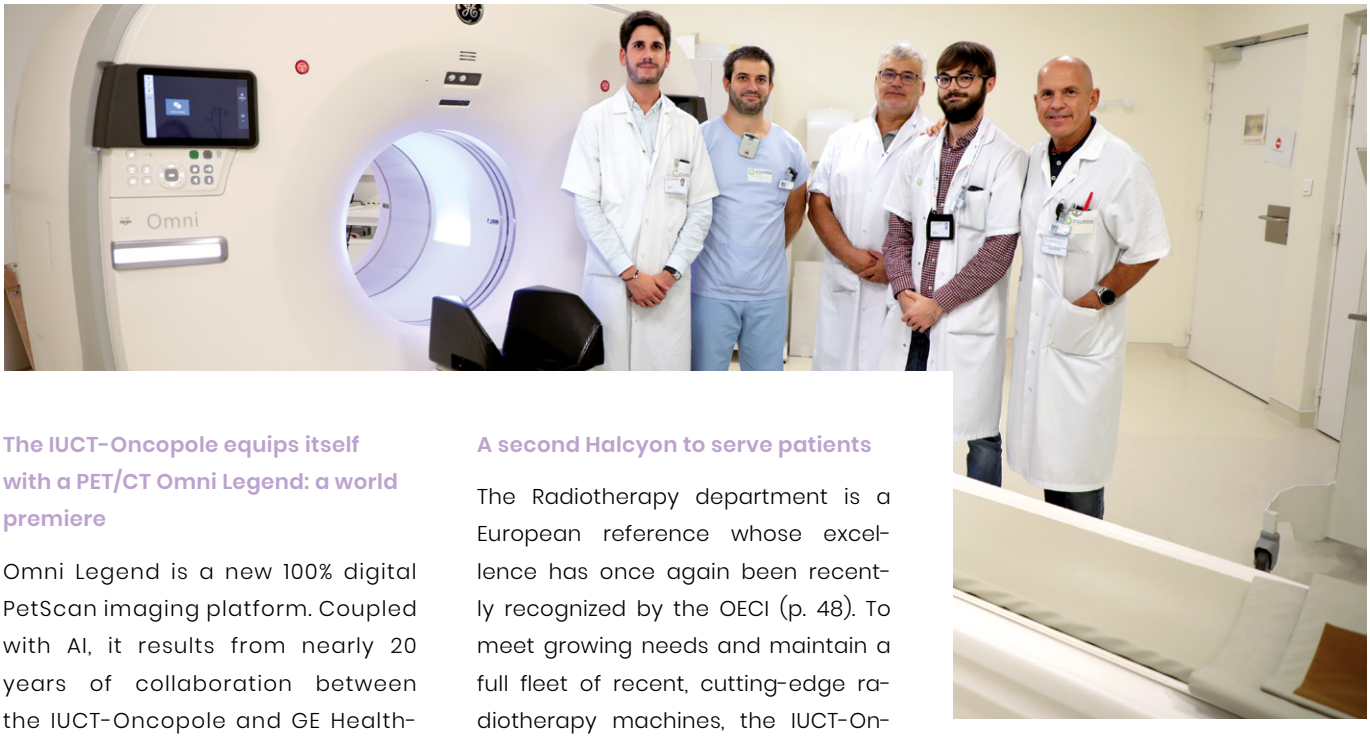
The researchers thus visualized a wave of calcium that spread into the tumor cell in a few milliseconds, triggering the release of lysosomes in the synapse to defend the target tumor cells from the CTL attack. They were also able to observe in vivo an unexpected configuration where the lysosome-rich melanoma cells responded to the lymphocyte T-enriched microenvironment, thus highlighting the potential pertinence of this molecular defense mechanism in the clinical context.

Filali L., *et al.* - Sci Adv 2022

#PRECISION

NEW STATE-OF-THE-ART EQUIPMENT

Prof. Courbon's team and the PET/CT Omni Legend.



The IUCT-Oncopole equips itself with a PET/CT Omni Legend: a world premiere

Omni Legend is a new 100% digital PetScan imaging platform. Coupled with AI, it results from nearly 20 years of collaboration between the IUCT-Oncopole and GE HealthCare to advance precision medicine and improve cancer care for patients. The platform has become part of routine practice since the end of 2022. Detecting very small lesions is much more precise, and image acquisition time is twice as fast, thus significantly decreasing the amount of radiation used. For patients, it means less anxiety, irradiation and time spent inside the machine.

A second Halcyon to serve patients

The Radiotherapy department is a European reference whose excellence has once again been recently recognized by the OECI (p. 48). To meet growing needs and maintain a full fleet of recent, cutting-edge radiotherapy machines, the IUCT-Oncopole received a second Halcyon in 2022. Constant collaboration with the Medical physics department aims to identify the optimal device for each indication.

RSE

LAUNCH OF A **CLIMATE ACTION**

ONCOPOLE ACTION CLIMAT

In 2022, the IUCT-Oncopole launched an internal collective climate action **—"Oncopole Action Climat"—** to raise consciousness, at its own level and within its own ecosystem, and to mobilize staff in the face of the climate emergency. Three conferences were organized, along with three sessions of a collective intelligence-based "The Climate Collage" card game ("La Fresque du Climat"). Seven working groups were created to change practices: **waste, digital technology, biodiversity, energies, food, mobility, impacts on the value chain**.

Distinctions

Prizes and recognition were awarded to several members of our teams
A big bravo to each of them!

Unicancer Pain Group

Dr. Antoine Boden
general practitioner in the Mobile Pain Management/Palliative Care Team

Appointed co-head of this working group sharing reflections and practices among French Comprehensive Cancer Centersdes CLCC

US Oncoderматology Society

Dr. Vincent Sibaud
oncodermatologist

Appointed to the Chair of the International Committee

World Health Organization

Dr. Sébastien Lamy
epidemiologist and co-head of the Population Health Research and Analysis Group (GAP)

Appointed invited researcher to the International Agency for Research on Cancer (IARC)

Academy of Sciences

Dr. Jean-Emmanuel Sarry
head of the METAML team

Guy Lazorthes prize

FONROGA Foundation

Agnese Cristini, SIGNATHER team
1st prize for "Young researchers"

Cindy Pinto, Pauline Enfnedaque, Emmanuella Abbey, Cédric Fabre et Alban Ricard
Second year master's research grants

L'Oréal Foundation for Women in Science

Loélia Babin
R'n Blood team

Prize for Young Talents

Digestive Epithelial Cells Study Club (CECED)

Alexia Brunel
MICROPANC team
Claude Rozé prize

Amgen Fund France

Dr. Christel Devaud
T2i team
Innovations prize

American Association for Cancer Research (AACR)

Dr. Anna Salvioni
T2i team
Astra Zeneca Research Fellowship

La Dépêche du Midi

Prof. Agnès Dupret-Bories
surgeon and researcher
Toulousaine of the year

#FOCUS

EUROPEAN RECOGNITION

In 2022, the Organisation of European Cancer Institutes (OECI) awarded the first-ever label for a cancer network to the Toulouse teams of the IUCT-Oncopole and the Toulouse University Hospital sites of Purpan and Rangueil/Larrey. The provision of full, innovative public service cancer care, spread among the three sites with no duplication, was thus commended.

Moreover, in a special edition of its magazine published in June 2022, the OECI showcased the IUCT-Oncopole Radiotherapy department, giving it top rating among 15 select European cancer centers — a European distinction for these teams recognized for integrating their clinical and translational research into care and their collaboration with researchers from the two Inserm teams (RADOPT at the CRCT and ToNIC at Purpan).

#8-TIME WINNER

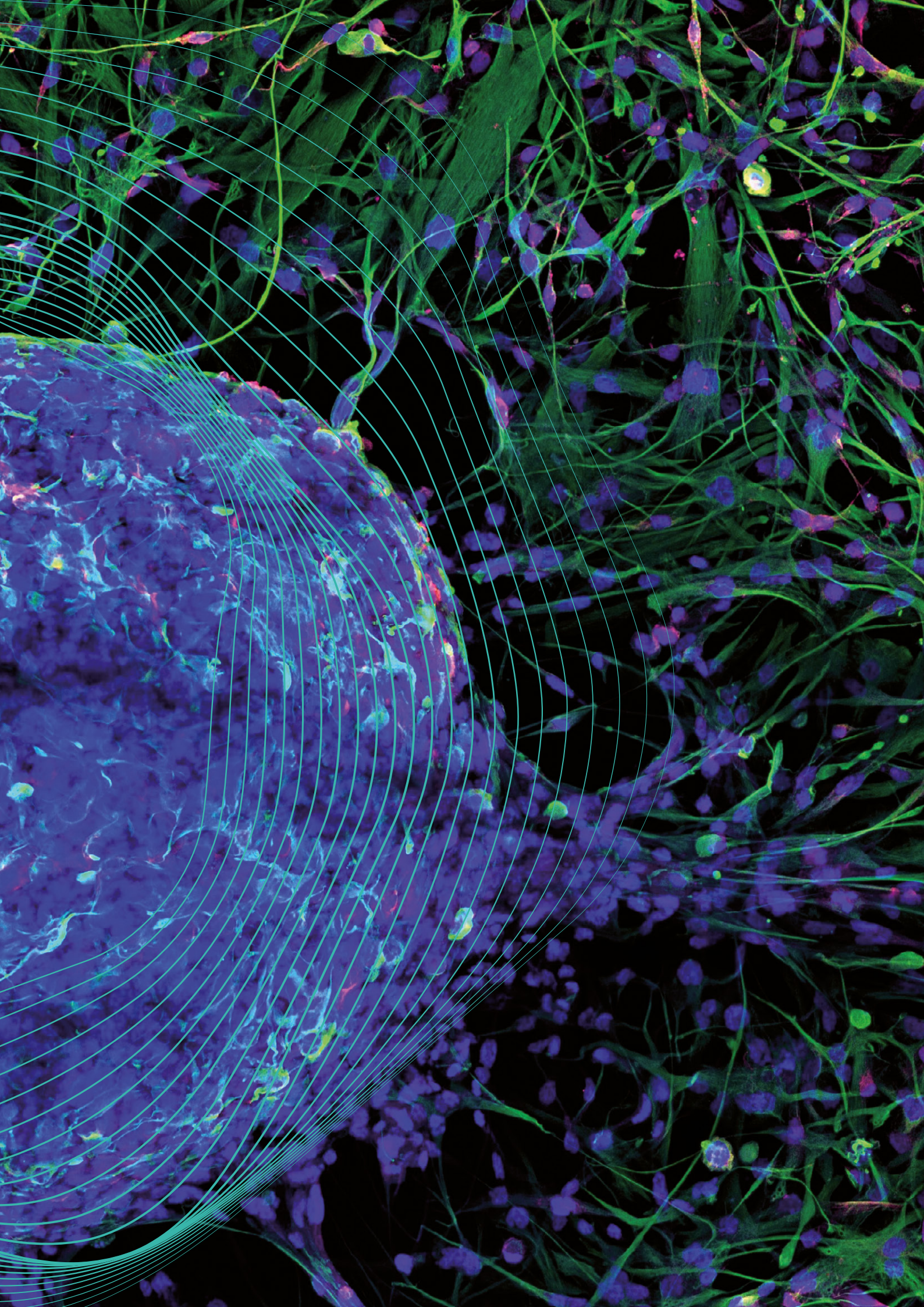
WEB SERIES "**EMILY'S PATH**", INCLUDING:

COM-ENT

Jury's favorite prize ("Coup de cœur") in 2022

RComSanté

Gold medal, category of Digital Communication



PART I

Finding tomorrow's treatments

Entitled "**Cerebral galaxy**", this microscopy photo taken by Caroline Delmas (RADOPT team) and Laëtitia Delgas (CRCT Technology Cluster) won the CNRS 2022 **"Proof through pictures" prize ("La preuve par l'image")**. It shows stem cells from a human glioblastoma grouped together as a neurosphere.

Finding tomorrow's treatments

Early phase trials

Fast track to innovation

A National Cancer Institute (INCa)-certified Early Phases Center (CLIP2), the IUCT-Oncopole strives daily to implement early phase clinical trials to hasten rapid access to the latest discoveries and innovations to treat the largest possible number of blood cancers. One trial out of two at the IUCT-Oncopole is early phase.

ANTI-CANCER VACCINE: FIRST RESULTS ENCOURAGING

The IUCT-Oncopole was the first European site to administer a personalized vaccine to avoid recurrence in patients with non-virus-induced head and neck cancers. Developed by the Transgene biotech company, this therapeutic vaccine is personalized from the peculiarities of tumors detected by AI. The TG4050 technology is being tested in an early phase international clinical trial piloted by Prof. Jean-Pierre Delord targeting head and neck and ovarian cancers

The trial's ambition is for the vaccine to initiate a lymphocyte response in the lymph nodes so that the former can penetrate the tumor cells and destroy them. The first results, two years after injection, are very encouraging and were presented at the 2023 ASCO conference. A phase 2 trial will be launched in 2023 to check the efficacy of the therapeutic strategy.

137

CLINICAL TRIALS
early phase clinical TRIALS opened for inclusions in 2022 of which **82** phase I/II and **56** phase II

Briefly

Early phase clinical trials (or, phase I/II trials) aim to evaluate the safe use of innovative medications not yet commercially available along with their tolerability, and to obtain the first elements of their anti-tumor activity.

Dr. Carlos Gomez-Roca,
oncologist specialized in early-phase trials

A PROMISING COMBINATION OF IMMUNOTHERAPIES FOR ADVANCED SOLID TUMORS

The presence of tumor-associated macrophages generally signals a poor prognosis in patients with solid tumors and is identified as a factor of resistance to immunotherapy treatments.

Dr. Carlos Gomez-Roca coordinated an international phase 1b study to assess the value of a combination of monoclonal antibodies: emactuzumab —an anti-CSFR-1 antibody targeting tumor-associated macrophages— and atezolizumab —an anti-PD-L1 antibody. Results have shown their safe use, and a notable response rate was observed for non-small-cell lung cancer first treated by immune check-point inhibitors.

Gomez-Roca, C. *et al.* J Immunother Cancer, 2022

Finding tomorrow's treatments

Breast cancer

Prevention and precision medicine thanks to sequencing

Genomics (the study of genes) is now an integral part of the fight against cancer. It offers the prospect of identifying people at risk of developing cancer as early as possible, but also of proposing genuine precision medicine with, for all patients, a treatment adapted to the characteristics of their tumor.

MATADOR: A PROJECT FOR MALE BREAST CANCER

Breast cancer in men is a rare disease whose physiopathology is little known. Supported by the national Ligue contre le cancer, the "MATADOR project – Male breAsT cAncer preDisposition factOR" led by Dr. Christine Toulas, aims to identify new predictive factors for this disease. A collaborative project, it involves the Oncogenetics laboratory and the EQUITY (UMR1295 - CERPOP) teams, along with REVA (the Toulouse Institute for Computer Research - IRIT).

Dr. Christine Toulas

500

new male breast cancers are diagnosed every year in France. Unlike female breast cancer, it is not subject to organized screening; its diagnosis is often late, making prognosis more difficult.

CUSTOMIZING METASTATIC CANCER CARE

The SAFIR02-BREAST clinical trial, promoted by UNICANCER, coordinated by Gustave Roussy and supported by the Fondation ARC, is the first study showing the usefulness of genomic sequencing of breast cancers to guide patients towards personalized maintenance therapy, after chemotherapy, based on the ESMO ESCAT classification. Moreover, this clinical trial made it possible to point out 15 to 20 new molecular anomalies associated with breast cancer progression or with resistance to medications.

The IUCT-Oncopole team of the SAFIR02-BREAST project.

The Oncopole team made a key contribution to this clinical trial by including 140 out of 1,462 patients and randomizing 29 out of 238 patients (Prof. Florence Dalenc, investigating physician), as well as by preparing the methodology and the biostatistics analyses (Thomas Filleron, co-first author of the publication, and Amélie Lusque). Results were published in 2022 in the prestigious review Nature.

Andre F. *et al.* , Nature, 2022

1,462

PATIENTS
included in the SAFIR02-BREAST clinical trial

including
140
from the IUCT-Oncopole

Finding tomorrow's treatments

Lymphoma

Improving care, from optimizing diagnosis to understanding resistances

The DIAL platform will provide a robust tool to improve precise classification of lymphomas. This platform will also serve as a central pathology review platform for clinical trials. A genuine technological and medical breakthrough."

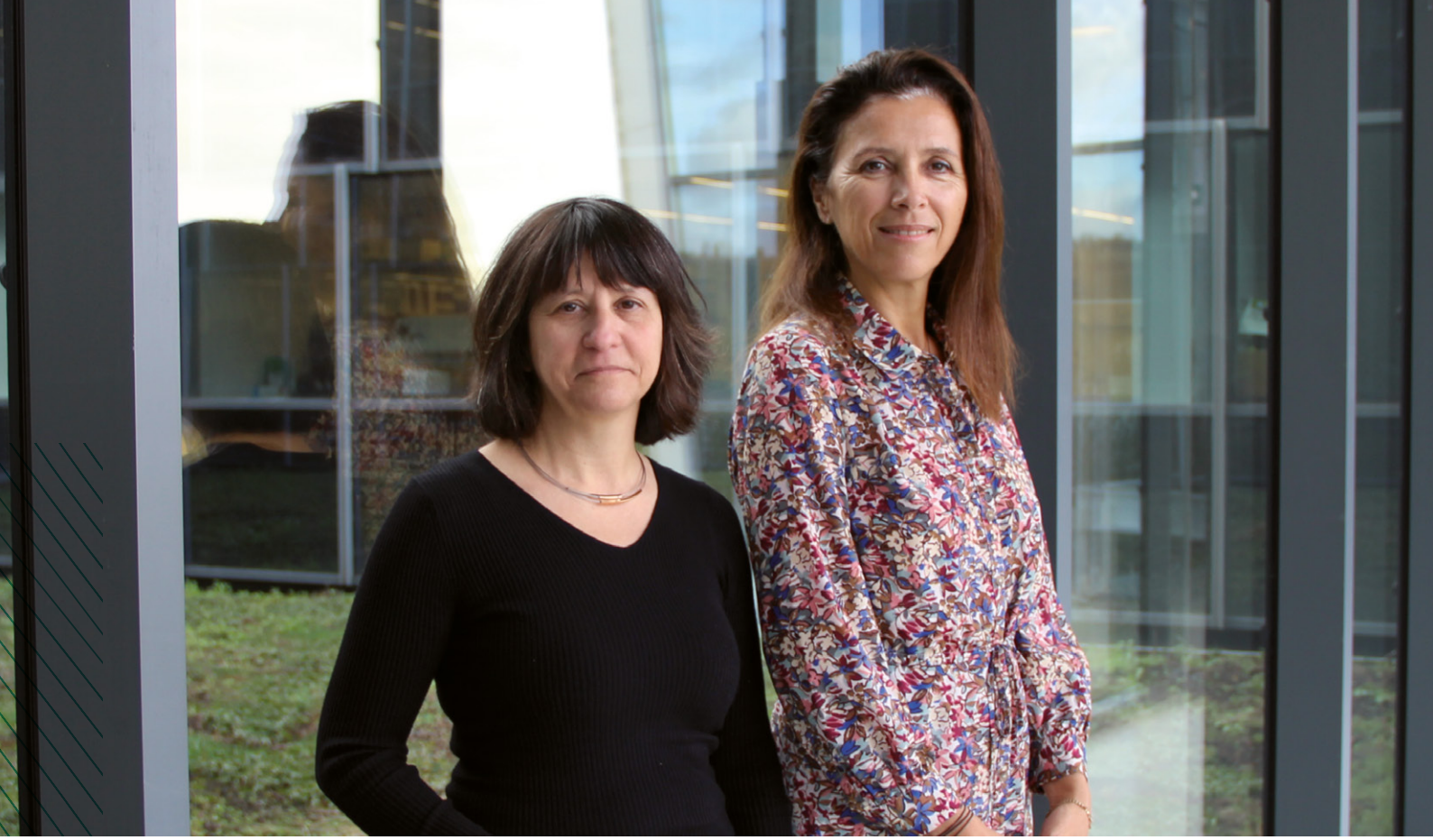
Prof. Pierre Brousset,
head of the pathology department
and DIAL project leader

IMPROVING DIAGNOSIS

DIAL —Diagnostic Assistance of Lymphoma— is based on the complementary expertise of seven academic research teams from French centers (including the IUCT-Oncopole and the CRCT), the TOUCAN LabEx, the CALYM Carnot Institute and the industrial partner Roche. Targeting diffuse large cell B lymphomas and peripheral T cell lymphomas, it aims to develop a diagnostic support platform based on machine learning algorithms.

Profs. Camille Laurent and Pierre Brousset drew up a national inventory of lymph nodes, collected either by cone needle biopsy (CNB) or by surgical resection, to compare the diagnostic performances of lymphoma in routine pathology practice. 32,285 cases of the Lymphopath network were thus reviewed. CNB proved to be less successful than surgical resection, thus underscoring the need for systematic expert revision of suspected lymphoma.

Syrykh, C. *et al.* Blood 2022



Dr. Fabienne Maggetto & Dr. Laurence Lamant

1 M€

FOR THE DIAL PROJECT (CALYM CARNOT INSTITUTE)

414 k€

FOR THE CIRCOMA PROJECT (INCA/DGOS)

UNDERSTANDING TO OVERCOME RESISTANCE

The aim of the CIRComa translational project led by Dr. Laurence Lamant (IUCT-Oncopole Pathology department) and Dr. Fabienne Meggetto (CRCT R'n Blood team) is to identify the role of circulating RNAs in the pathogenesis and therapeutic resistance of large cell anaplastic lymphoma associated with the ALK oncogenic tyrosine kinase.

CAR-T cells have been revolutionizing lymphoma care over the last few years. Nevertheless, the treatment's efficacy is rarely sustainable. Prof. Camille Laurent and Dr. Charlotte Syrykh have identified genetic remodeling as one of the possible explanations for this resistance to treatment. They have also identified mutations acquired in the PI3K and KRAS signaling pathways that could be targeted by complementary therapies to overcome resistances to CAR-T cell treatment.

Laurent *et al.* Am J Surg Pathol 2022

Acute myeloid leukemia

Discovery of a therapeutic combination established as new standard treatment

Survival of acute myeloid leukemia patients with a mutation of the IDH1 gene not eligible for intensive chemotherapy has been, up until now, very short. Prof. Christian Récher, along with Dr. Stéphane Botton of Gustave Roussy, coordinated the phase III international study AGILE aiming to evaluate the association of a chemotherapy —azacytidine— with a new targeted therapy —ivosidenib (a selective inhibitor of mutant IDH1).

Patients having received the combination respond much more and for a longer time; they also better tolerate treatment. Ultimately, overall survival is much improved — unprecedented in this hard-to-treat population."

Prof. Christian Récher,
hematologist and head
of the hematology committee

Study results, published in the New England Journal of Medicine, show that this therapeutic combination triples patients' survival. More effective, this dual therapy is also better tolerated and reduces the risk of infections. A promising combination that defines the new standard of treatment for these patients. Results also indicate that the risk of recurrence or death decreases by 67% with the new asacitidine-ivosidenib combination.

38% of patients were in complete remission after 24 weeks of treatment, compared to 11% for the control group. Overall median survival is tripled, quality of life improves, and incidence of infections decreases.

Montesinos *et al.* N Engl J Med 2022

GUSTAVE ROUSSY
CANCER CAMPUS
GRAND PARIS

The NEW ENGLAND JOURNAL of MEDICINE

Finding tomorrow's treatments

Oncogynecology

Research acclaimed by renowned editorial boards

In quick succession in the summer of 2022, two articles written by the oncogynecology team caught the eye of the international editorial boards of Gynecologic Oncology and the International Journal of Gynecological Cancer, highlighting the excellence of the research. Complementary podcasts were also developed.

IN JULY

A first article was selected as "Editor's Choice" by Gynecologic Oncology with, as a bonus, an editorial signed by Dr. Jill Steng and Dr. Robert E. Bristow (University of California, Irvine), along with a podcast by Prof. Alejandra Martínez and Dr. Jill Steng ("Complications after cytoreductive surgery and its impact on survival: where do we go from here?"). This research evaluated the impact on survival of major postoperative complications in patients with advanced ovarian cancer following cytoreductive surgery.

Angeles *et al.* Gynecol Oncol. 2022

Dr. Sarah Betrian, oncologist, & **Prof. Alejandra Martínez,** surgeon, authors of the articles highlighted during the summer of 2022

Prof. Alejandra Martínez chaired the Journal Club of the ***European Society of Gynaecological Oncology*** in August, presenting the team's research published in the ***International Journal of Gynecological Cancer***.

IN AUGUST

A second article was selected as leading publication of the month and "Editor's Choice", this time in the International Journal of Gynecological Cancer. The research evaluated the impact of the chemotherapy response score in function of the number of cycles of neoadjuvant chemotherapy on both progression-free survival and overall survival in patients with advanced epithelial ovarian cancer ineligible for primary reduction surgery.

Betrian S *et al.* Int J Gynecol Cancer 2022

Finding tomorrow's treatments

Colorectal cancer

The CINSARC signature exceeds international standards

A molecular (or genomic) signature evaluates the expression of certain genes involved in the development and proliferation of a tumor from a sample. These signatures can be powerful prognostic or predictive biomarkers.

Dr. Frédéric Chibon

Since the outcome of stage II - III colorectal cancer varies greatly, treatment choice is currently based on the international the TNM* classification. However, studies show that certain stage III patients have a better prognosis than certain stage II patients.

Discovered by Dr. Frédéric Chibon, leader of the CRCT ONCOSARC team, CINSARC is an expression-based transcriptional signature from 67 genes involved in controlling mitosis and chromosomic integrity. First identified for sarcoma, this molecular signature has shown its prognostic efficacity in many types of cancers.

In research published in collaboration with the IUCT-Oncopole pathology department and the Toulouse University Hospital gastrointestinal oncology department, the ONCOSARC team has shown that CINARC significantly divides patients into two distinct groups, thus surpassing international standard classifications.

* International classification of cancer stages: T for the size and extent of the tumor, N for the number of nearby cancerous lymph nodes, M for metastases).

Brunac, A-C. et al, Mod Pathol, 2022

Finding tomorrow's treatments

Radiotherapy

Preventing sequelae & exploring new avenues

Radiotherapy is a treatment consisting in exposing a tumor's cancerous cells to radiation to destroy them. While radiation itself is not painful, it can cause side effects, sometimes even weeks or years later. Our teams seek to better understand these undesirable effects to better prevent them. Three new therapeutic approaches are currently being explored.

HYPOFRACTIONATED RADIOTHERAPY: FOR ELDERLY PATIENTS AS WELL?

Hypofractionated radiotherapy improves patients' comfort by reducing the number of sessions needed. Dr. Justine Attal won PHRC-I (INCa-DGOS) funding for HYPOSARC, a phase II clinical trial evaluating the benefit of pre- or postoperative hypofractionated radiotherapy on wound healing in elderly or fragile patients with a limb or trunk soft tissue sarcoma. The first patients will be included in the 2023 trial.

EVALUATE SEQUELAE FROM CHILDHOOD RADIOTHERAPY

IMPALA is a study led by Prof. Anne Laprie, launched in 2020 in collaboration with the Inserm ToNIC (Toulouse NeuroImaging Center) team. The first results were presented at the annual meetings of the Paediatric Radiation Oncology Society (PROS) and the International Society of Pediatric Oncology (ISPO) in 2022. Data from 60 patients made it possible to point out very radiotherapeutic-specific modifications of memory, both by tests and multimodal imaging. Aside from the hippocampus, the caudate nucleus also seems to be involved. A publication is forthcoming.

EXPLORE THE TUMOR TREATMENT FIELDS (TTF) APPROACH

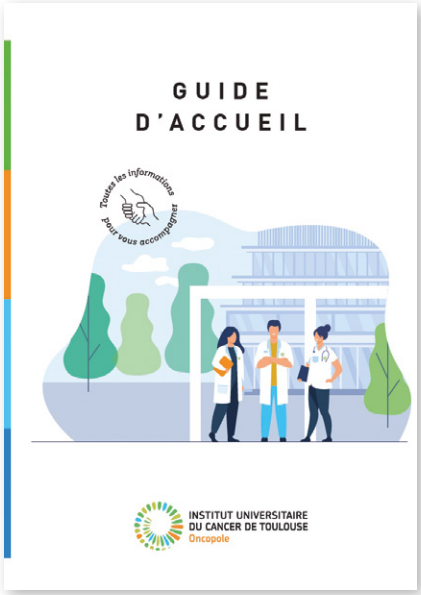
At the instigation of Prof. Elizabeth Moyal, and in collaboration with the Medical physics department and the CRCT RADOPT team, the Radiotherapy department is studying common resistance mechanisms to both radiotherapy and electric fields (TTF) to identify new targets to inhibit and thus increase the efficacy of associating these two treatments. A candidate protein has been identified and a patent application made in partnership with Novocure. Moreover, the IUCT-Oncopole has the world's highest number of inclusions in the TRIDENT clinical trial evaluating the benefit of adding TTF to radiotherapy and maintaining it throughout the standard care protocol (STUPP).

PART II

Innovating for better care

Innovating for better care

Welcoming & caring



In a year still marked by the Covid-19 pandemic, the medical and healthcare teams at the IUCT-Oncopole were able to maintain extremely high standards in caring for patients on site in the best possible conditions throughout 2022, balancing safety and humanity. New projects emerged thanks to mobilized teams.

A NEW PATIENT HANDBOOK

Since March 2022, a new patient handbook has been available. Totally redrafted, it results from collaboration between professional care providers, two patients' representatives and Communications teams. Its format was redesigned, and the contents streamlined, to make it more practical, holding documents as well.

4 PROJECTS TO IMPROVE PATIENTS' WELCOME AND COMFORT

A jury composed of IUCT-Oncopole healthcare professionals, patients' representatives, and patients themselves selected four projects to improve patients' welcome and comfort. All were funded by a governmental incentive to improve quality (IFAQ* 2022) for a total of 30,000 euros.

1. **"Virtual windows", led by the oncology day-hospital teams.** Reproducing a realistic panorama, these "windows" will brighten up rooms with no external openings for patients' and care providers' comfort.
2. **"Art'therapy", led by the hematology day-hospital teams.** Thanks to visual arts, patients can engage with life, reinvest in a life project, regain self-confidence. Over time, this project aims to be developed in other services.
3. **A "Short Story Dispenser", led by Dr. Nathalie Caunes-Hilary.** Short stories are printed, on demand and at random, on eco-certified paper at a self-access terminal. Various reading times and themes are offered for all readers of all ages.
4. **"Vulnerabilis in praise of the vulnerable", led by Luce Domingo-Levy, Jonathan Grondin, Mandy Simoes.** An against-the-grain podcast exploring topics with experts (anthropologists, physicians…) and patients. Each 30-minute episode deals with a subject for patients, families and friends, and healthcare professionals.

* Financial Incentive for Quality.

THE LOL PROJECT: 2 SUCCESSFUL STAGES

David Ken uses all his talents to capture patients' and professionals' spontaneous laughter on quality snapshots. Following a première in 2019, the photographer and his LOL Project team came to the IUCT-Oncopole to lead photo workshops in two units: first in the protected stem cell transplant ward, then in oncodermatology consultations. As a bonus, each of the services was given a fresco of photos of their LOL project.

Inauguration of the fresco in the oncodermatology consultation service.

A NEW SEASON FOR THE "EMILY'S PATH" WEB SERIES

Difficult to not pursue the adventure of "Emily's path", a web series created a year ago. For Pink October, three new episodes were produced with the same main characters —Emily, the heroine, and her best friend Peggy— and in the same spirit that made the first season so successful —a gentle, light tone, but with pedagogical asides facing the camera to explain medical aspects. Following the post-cancer theme, this year's episodes address diagnosis and announcing the disease. They also look into preconceived ideas on participating in clinical trials, pertinent questions, and the strict rule concerning patient consent.

Watch it in full on the IUCT-Oncopole Youtube channel:
www.youtube.com/@IUCToncopole

- **+ 60k views**
- **2 seasons**
- **7 episodes**
- **8-time prize winner** (see Distinctions p. 15)
- Produced jointly by **patients** & **healthcare teams**

Innovating for better care

Handicap & Cancer: listening, adapting & accompanying

A new scale for this unique program

48
PATIENTS
with disabilities treated in 2022

50
easy-to-read and easy-to-understand
DOCUMENTS

16
PROFESSIONALS TRAINED

The result of collaboration between the IUCT-Oncopole and the ASEI Association (for widespread accompaniment of people with disabilities), the "**Handicap and Cancer**" program successfully carried out its experimental phase to now pursue its development across the country.

Setting up a dedicated care pathway is the first vocation of Handicap and Cancer. With a single telephone number for making appointments and a nurse coordinator, it anticipates patients' needs and adapts examinations and procedures ahead of time. Eighty-three people have been able to take advantage of this carefully thought-out pathway.

Another major part of the program is professional development. A second inter-professional training session was provided for French healthcare and medico-social professionals.

Finally, the "**Handicap and Cancer**" team sought to promote this new and pioneering program in France to professionals and supervisory authorities. The project was presented at a colloquium organized by the Secretary of State for persons with disabilities on the theme of improving access to healthcare during the 13th Congress of the French Society of Surgical Oncology (see p. 39), as well as at the 1st "Rencontres Handisco" (program facilitating access to routine care) in Toulouse. The aim: sharing knowledge and drawing partner establishments into the program.

Handicap et Cancer

asei

INSTITUT NATIONAL DU CANCER

Innovating for better care

A major real-life study

VAMOS: Living with a myeloma in Occitanie-Ouest (Vivre Avec un Myélome en Occitanie-OueSt)

- Include **1,600** patients over **5** years
- Follow-up until **2032**

This real-life study concerns all patients throughout Occitanie-Ouest newly diagnosed with multiple myeloma and beginning first-line treatment.

Prof. Aurore Perrot,
hematologist

Care for multiple myeloma involves major challenges in terms of supportive care and quality of life. Indeed, initial bone disease affecting more than half of patients can result in painful sequelae affecting quality of life. Patients, for the most part, are already elderly when diagnosed and may be affected by other pathologies. Moreover, disease symptoms and evolution vary in function of initial diagnosis, age and comorbidities, as well as patients' sociodemographic characteristics.

For Prof. Aurore Perrot, hematologist specialized in myeloma and coordinator of VAMOS, "real-life analysis of patient care pathway, considering the effects of treatments along with follow-up procedures and supportive care accompaniment seems pertinent to us to improve patient care and their quality of life. This is the main objective of VAMOS."
Created in 2022, VAMOS relies on the Onco-Occitanie Myeloma Tumor Board meetings, regional hospitals, and the French association of Multiple myeloma patients (AF3M).

OBJECTIFS

- **Evaluate responses** to each treatment line
- **Evaluate** progression-free survival and overall **survival**
- **Evaluate** patients' **quality of life**
- **Estimate the occurrence of second cancers** and debilitating neuropathies
- **Identify sociodemographic, clinical and biological factors** predicting both survival and quality of life

Innovating for better care

Supportive Care

Three new projects reinforce and provide ever more supportive care for cancer

From the renewed partnership with the Stade Toulousain Rugby club, through cognitive remediation proposed to patients, to a project funded in onco-sexology, patient rehabilitation projects are at the heart of our priorities.

The IUCT-Oncopole and the Stade Toulousain renewed their "Sport and cancer" partnership for 2022-2025. This collaboration enables IUCT-Oncopole patients to benefit several time a week from sports therapy sessions at the club's Ernest-Wallon stadium. The sessions are prescribed by IUCT-Oncopole physicians and are provided by CAMI Sport & Cancer professionals.

Cognitive remediation now widens the range of supportive care at the IUCT-Oncopole. In partnership with the onCOGITE association, a cognitive remediation workshop led by neuropsychologist Agnès Ruscassié began in April 2022, taking place on-site every Wednesday. This workshop accompanies patients experiencing cognitive impairment linked to certain treatments (hormonotherapy or immunotherapy), affecting memory, attention, and concentration.

PARTENAIRES

The "**Acceptability and benefit of an onco-sexology pathway in laryngectomees and their partners**" project, led by sexologist nurse Josiane Ménard, is one of nine prize-winners of the APIRES 2022 call for projects by GIRCI SOHO. Funding has been provided for two years.

Strengthening links with the city

Two innovative collaborations to improve care pathway coordination

Home hospitalization (HAD) is developing alongside coordinated care with patients' family doctor.

Home hospitalization makes it possible to provide specialized and essential medical and paramedical care for patients at home over a given period. This form of hospitalization, a link between city and hospital, is gaining momentum at the IUCT-Oncopole. A partnership with the HAD network of the Clinique Pasteur signed in April 2022 makes such care more available in the wider Toulouse area. Coordinated by Dr. Cécile Pagès, it targets melanoma, kidney or bladder cancer patients treated by immunotherapy. Similar conventions with specialized structures are also being set up in hematology.

Prof. Marie-Eve Rougé-Bugat, general practitioner and referent city/hospital coordinator, obtained funding for her feasibility study "DAMeGe-Réintégrer" in the complex care pathway of cancer patients including a systematic, global-care perspective consultation with the general practitioner further to the cancer diagnosis announcement. The study is being carried out in collaboration with the La Providence university/multi-professional health center in Toulouse, along with the biostatistics and administrative management teams of the IUCT-Oncopole.

Dr. Cécile Pagès,
oncodermatologist

Prof. Marie-Eve Rougé-Bugat,
referent city/hospital coordinator

PART III

Disseminating knowledge

Disseminating knowledge

Sharing, training, teaching

1ST COHORT OF THE CARE GRADUATE SCHOOL OF RESEARCH

The Toulouse Graduate School (Master-PhD) of Cancer Ageing and REjuvenation (CARE) is a unique international transdisciplinary program dedicated to research in cancer, aging and bioengineering. CARE is built on the outstanding activity of the TOUCAN LabEx, the geriatric reference center Gérontopole and the IUCT-Oncopole, as well as on international academic and industrial partnerships. Bruno Ségui, co-head of the CRCT MELASPHINX team, is the deputy director of the "school" whose first graduates completed their program in 2022.

RENEWAL OF ESGO ACCREDITATION

Led by Prof. Alejandra Martínez and Drs. Gwénaël Ferron and Laurence Gladieff, the European training program offered at the IUCT-Oncopole was reaccredited for 2022 for two training positions by the European Society of Gynaecologial Oncology (ESGO) for five years. The teaching integrates the latest diagnostic and therapeutic advances, focusing particularly on surgical techniques. Finally, thanks to the partnership with the CRCT, the physician fellows participate in research projects geared to high-level publications.

1ST POSTGRADUATE COURSE IN SURFACE GUIDED RADIATION THERAPY (SGRT)

Dr. Luc Simon and Aurélie Tournier (Medical physics department), for the first time in 2022, designed and organized this postgraduate course for physicists, radiotherapists, and radiologic technologists. Forty professionals made up the first cohort. In view of its success, a second session will be offered in 2023.

SCIENTIFIC EVENTS… ONCE AGAIN

Several events were organized by various teams in 2022, notably:

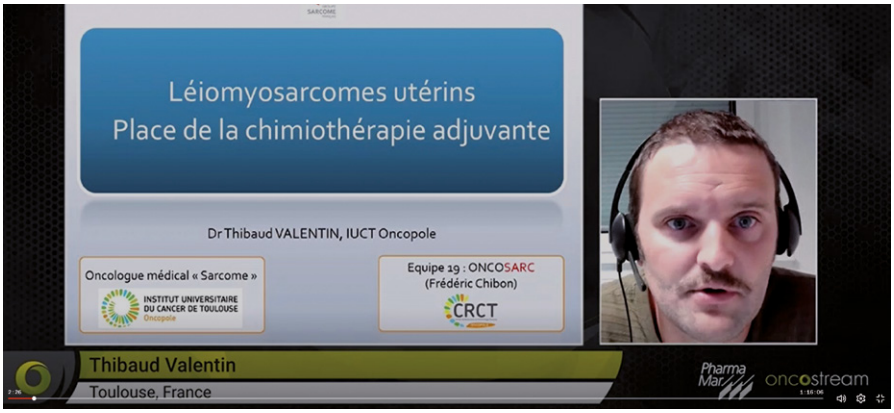
- 2nd national colloquium "Human factors in Healthcare"
- 13th congress of the French Society of Surgical Oncology – SFCO
- One-day seminar on medical and paramedical news in neuro-oncology
- 18th annual study days of the French Sarcoma Group-Study Group in Bone Tumors of the French Society for Orthopedic and Traumatological Surgery
- 6th congress on "Palliative care or early phase therapeutic trials, the place for ethical reflection in cancerology"

CONTRIBUTION TO A BOOK ON PAIN MANAGEMENT

Dr. Antoine Boden (specialized in Supportive care), Jean-Claude Farenc (speech therapist), along with anesthetists Drs. Régis Fuzier and Philippe Izard, authored the chapter on care pathways for head and neck cancer patients for the book published by the National Federation of Speech Therapists in June 2022, dedicated to pain management and speech therapy.

WEBINARS FOR INFORMING AND OFF-SITE TRAINING

Several webinars were organized by teams in 2022, notably one organized by the Supportive Care department in collaboration with the Onco-Occitanie Network, intitled "Palliative care in oncology: definitions and preconceived ideas". The Sarcoma committee also organized a webinar on rare sarcomas of the uterus.




PEUGEOT
GREEN CITY IMMOBILIER
AKKA

PART IV

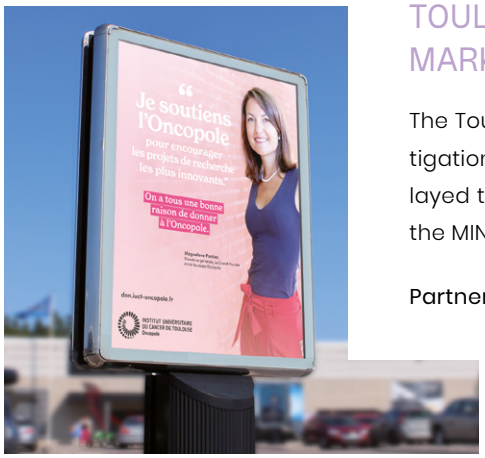
Mobilizing to fight better

Dr. Pierre Bories, a patient and her son posing with the Stade Toulousain mascot at a home match.

Mobilizing to fight better

Partnerships & Funding

Launched two years ago, the IUCT-Oncopole's partnership-based approach continues in Toulouse and across Occitanie among economic actors, associations, and funding and charitable organizations.



TOULOUSE OCCITANIE WHOLESALE FOOD MARKET (MIN)

The Toulouse "MIN" responded to our fundraising campaign for Pink October. At the instigation of its Directress, Maguelone Pontier —our charity godmother—, the call was relayed to her teams and partners for a month: posters, fundraising events organized by the MIN.

Partnership signed in July 2022.

TISSÉO TRAVELERS

The Toulouse public transport network also took part in the campaign for Pink October fundraising. Its president, Nicolas Misiak, appeared in the campaign display, and all of the agents in the field wore an "Oncopole October Rose" ribbon for a month. Tisséo Travelers further advertised the campaign on its subway screens, in buses or in the cable cars. Finally, the network provided access to the cable-car facility for the producers of "Emily's path".

Maxime Médard, famous player with the Stade Toulousain Rugby club, agreed to be the charity campaign's godfather.

Partnership signed in September 2022.

Thank you!

They accompany, support, equip our projects, research teams and healthcare services.

Inserm - CNRS - Université Toulouse III Paul Sabatier - UNICANCER - Institut National Du Cancer - ANR - Université Fédérale Toulouse Midi-Pyrénées - Région Occitanie – Investissements d'Avenir - Cancéropôle Grand Sud-Ouest - Établissement Français du Sang - Union Européenne

Fondation pour la recherche médicale - Fondation ARC pour la recherche contre le cancer - Ligue nationale contre le cancer - Ligue contre le cancer 31 - Institut Carnot Opale - Chaire Pierre Fabre - Fondation de France - Fondation RITC - Fondation Bettencourt Schueller - Laurette Fugain - GIRCI SOHO - Fondation Amgen

Awareness-raising campaigns

TURQUOISE SEPTEMBER

The IUCT-Oncopole teams rallied together to raise awareness among the general public, patients, and families about the fight against gynecological cancers. Four highlights:

- The Turquoise Challenge: the first edition of an artistic competition calling for the color turquoise. Works were exhibited for several days in the reception hall before a jury picked a favorite. A great success turning the Turquoise Challenge into a regular event at the Oncopole.
- A webinar was organized for French patients and professionals by the National group of investigators of ovarian and breast cancers (GINECO), along with the patients' IMAGYN association. More than 900 people participated.
- The first Turquoise edition of the "Hike for a Mom" took place on September 25 to collect donations for the gynecology committee.
- The IMAGYN association held an information stand for two days for patients and accompanying persons in the reception hall.

BLOOD CANCER AWARENESS MONTH

September is also the month to raise public awareness of blood cancers. The hematology teams and the patients' associations were on the job:

- A five-episode video series, directed by Prof. Loïc Ysebaert, providing an update on blood cancers was broadcast on our platforms and networks.
- A "Blood cancers, our lives" exhibit was held in the main hall. Information panels with QR codes linked to podcasts of patients', families and friends', and physicians' stories. The exhibit was co-conceived by Abbvie and three patients' associations: Ellye, AF3M, Laurette Fugain.
- An information conference on leukemias and lymphomas was organized in the IUCT-Oncopole amphitheater by Ellye. Prof. Loïc Ysebaert and Drs. Lucie Obéric, Fabien Depas and Caroline Protin participated.
- The LOL project fresco was inaugurated in the protected ward of the hematology service (see p. 31).
- The AF3M national information day on myelomas was again held at the IUCT-Oncopole this year.

A 360° PINK OCTOBER CAMPAIGN

This year for Pink October, the IUCT-Oncopole launched a global campaign to raise awareness of the fight against breast cancers to promote personalized medicine and advances in research.

A fundraising campaign was launched in Toulouse. Two catchphrases establishing the Oncopole as a nearby state-of-the-art research site ("To help research go further, it's right next door" and "Pink October, pink city, same fight") were displayed in October both on the back of and inside Tisséo city buses, as well as elsewhere in the transport network. Social networks also relayed the campaign. More than 50,000 euros were thus raised for the breast cancer committee.
Many thanks to Maguelone Pontier, charity godmother for the second time, and Nicolas Misiak, president of Tisséo Travelers, and to Maxime Médard, our charity godfather, for their commitment to us.

After two years interruption due to Covid, Pink October day at the Oncopole made a brilliant comeback.

This special day makes it possible for patients to look after themselves. More than 150 women took part in 12 well-being workshops and adapted physical activity sessions offered during the day. Conferences were also available on participating in clinical trials, personalizing care pathways, after-cancer (fear of recurrence, return to work, nutrition and dietary recommendations).

TOBACCO-FREE MONTH

The IUCT-Oncopole has been a smoke-free environment since 2019. On the occasion of the national Tobacco-free month campaign, the dedicated tobacco addiction nursing staff from the Consultations department hosted seven awareness-raising stands on stopping smoking for health professionals, patients, and visitors. Breath tests were offered, and substitution kits were presented.

MOVEMBER

The month of November is also that of Movember, a month to raise awareness of prostate and testicular cancers, but also to raise funds for research against male cancers. The IUCT-Oncopole teams joined the initiative by creating an educational frieze with snapshots from the photobooth set up for a day. The frieze is exhibited in the Consultations service and in the day-hospital.

Generosity & charity

The support of private individuals, associations, municipalities, and companies allows us to initiate research projects more quickly and to continuously improve patients' comfort.
All of the Oncopole teams would like to express their warmest thanks to all of our donors for their generosity.

In 2022, the IUCT-Oncopole received more than 719,482 euros, including 118,594€ as bequests.

16,5 %
OF BEQUESTS

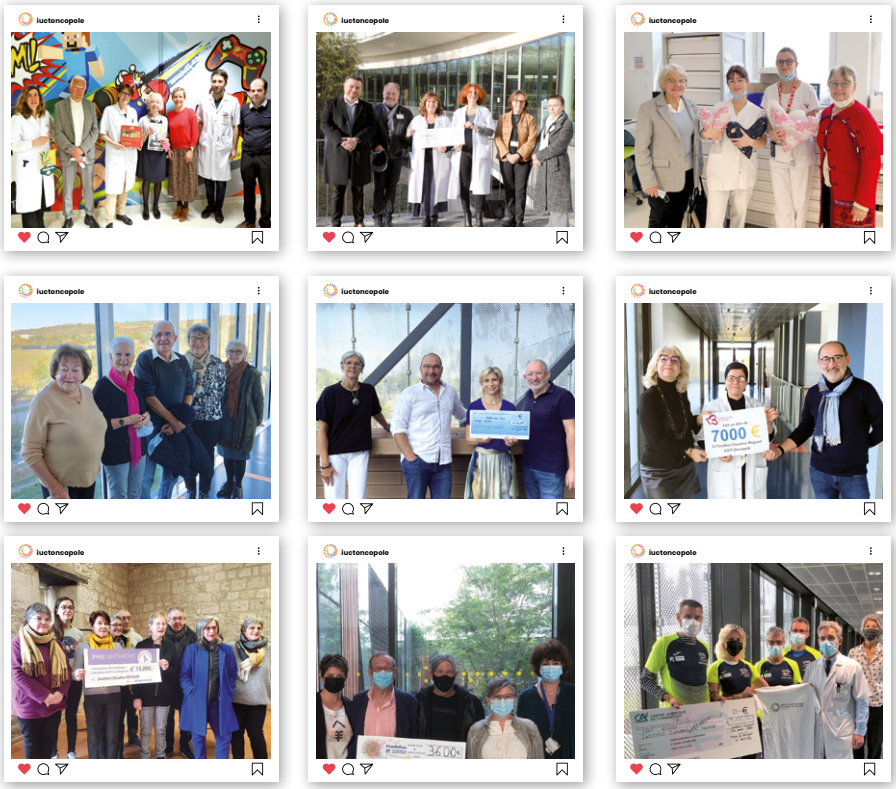
83,5 %
OF DONATIONS

THANK YOU!

TOULOUSE SUD ROTARY CLUB
ARTC-31
SEILH CCAS
LE CLO DE L'ARIZE
LES GROLLES-TROTTEURS DU MINERVOIS
MARATHON DE LAURIE
PHIL'ANTHROPE
LA GYM VOLONTAIRE LA CAPULETTE
RANDO POUR UNE MAMAN

MANY THANKS AS WELL TO...

Arts Et Poteries Giroussens - Entente Cordiale Gaillacoise - Les Amis de l'Oncopole - Rotary Club de Colomiers - Association La Sein Go Rose - AVA Association Vivre Avec - Asso Gymnastique Volontaire J'y Vais - Eveil et Loisir de Laure-Minervois - Benoit Un sourire pour la vie - Atout Cœur pour l'Oncopole - La Vie Entre les Mains - Lions Narbonne Club Philia - Le Comité des Amis d'Emmaüs - Le CCMP de Blagnac - Comité D'animation de Sos - Mairie de Balma - Mairie de Galliax - Mairie de Mérenvieille - Mairie de Martres-de-Rivière - Commune Le Falga - Association Tous Concernes Albias.



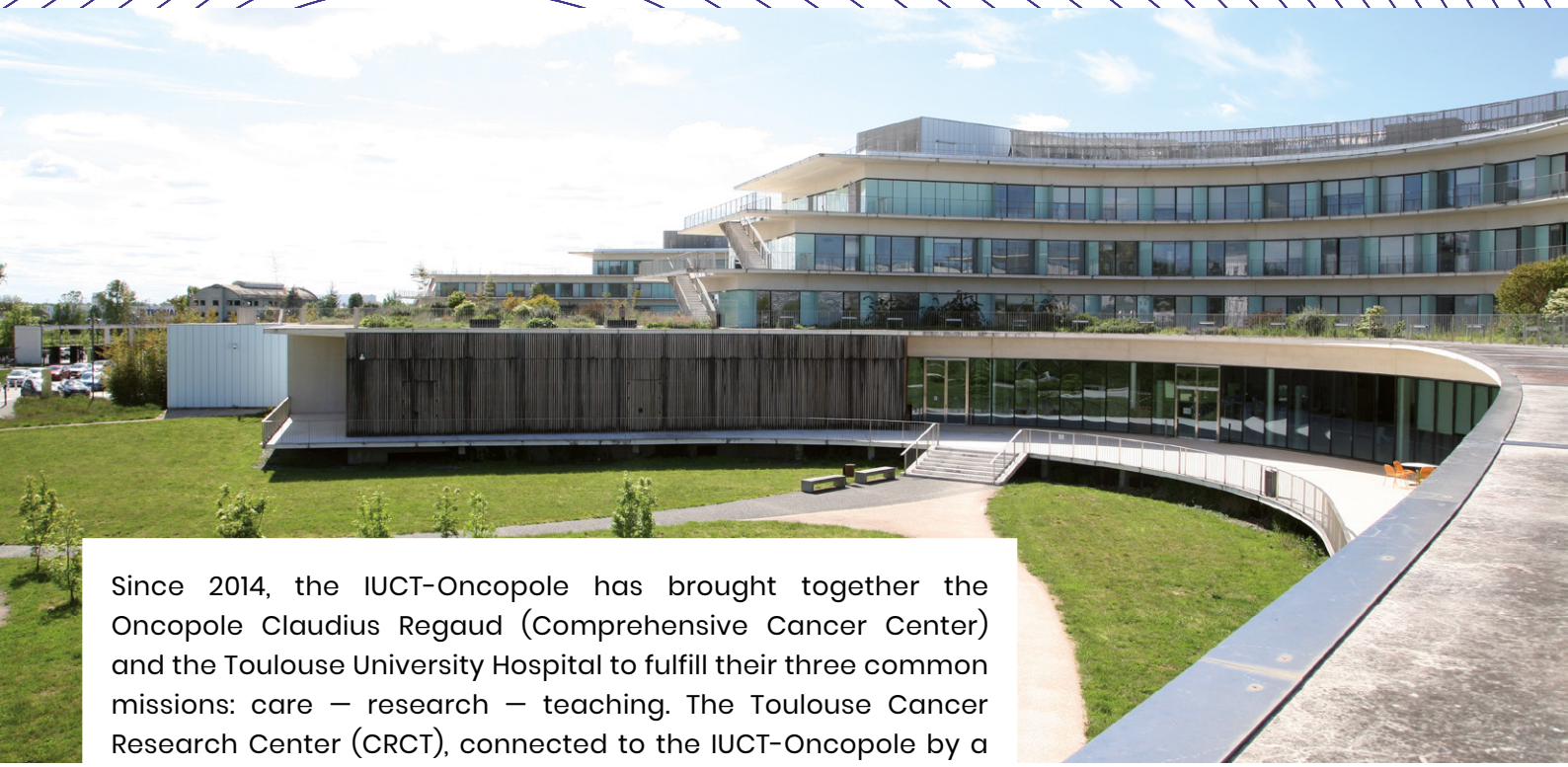
COMPANIES GET INVOLVED

PART V

A single site

A SINGLE SITE

The IUCT-Oncopole



Since 2014, the IUCT-Oncopole has brought together the Oncopole Claudius Regaud (Comprehensive Cancer Center) and the Toulouse University Hospital to fulfill their three common missions: care — research — teaching. The Toulouse Cancer Research Center (CRCT), connected to the IUCT-Oncopole by a mere walkway, complements expertise and offers fundamental and translational research programs. Altogether, more than 2,000 professionals pool their expertise to fight against cancer and provide patients and their families with the best possible support.

The site comprising the IUCT-Oncopole and the CRCT is certified as a Comprehensive Cancer Center by the Organisation of European Cancer Institutes (OECI). This label of excellence attests to the expertise in oncology and highlights the multidisciplinary nature of patient care, along with the high level of integration of research and care.

The strength of this model —a pioneer in France— lies in pooling the skills of care and research teams who work together on a daily basis so patients can benefit from comprehensive care at the cutting edge of innovation.

Comprehensive Cancer Center

9 years after opening, the IUCT-Oncopole offers:

2 times as many clinical trials to patients

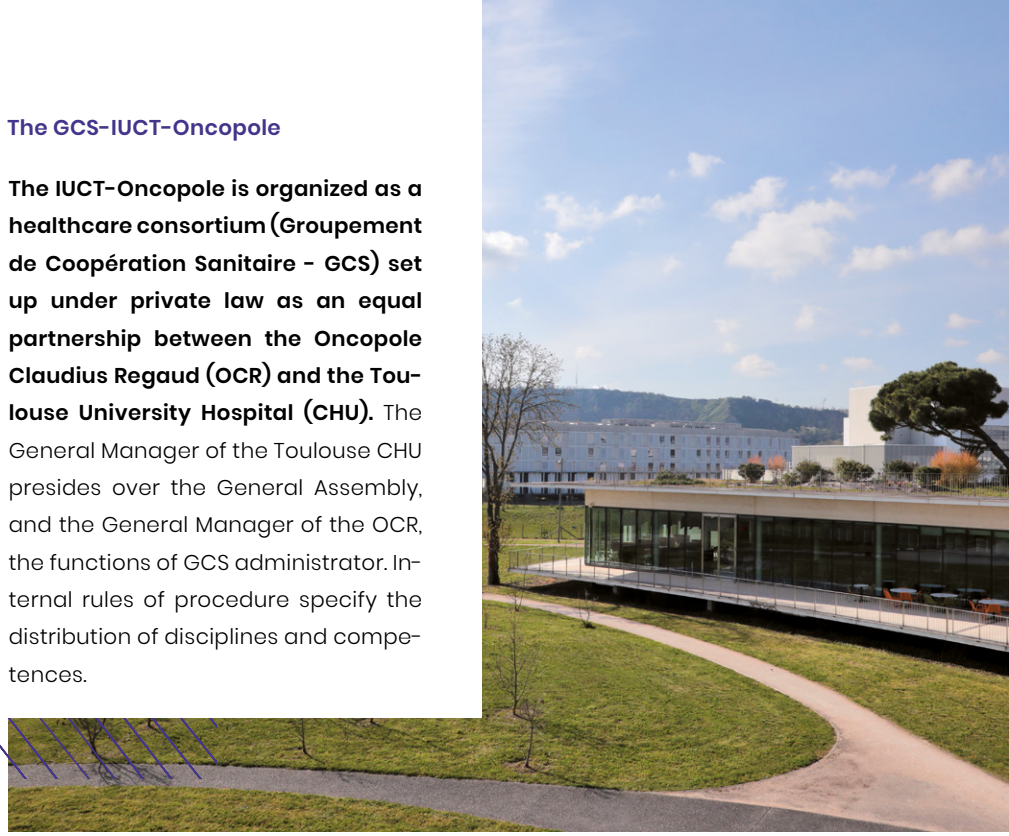
2 times more publications in international scientific journals

ORGANIZATION

The IUCT-Oncopole groups together more than 20 healthcare activities and medico-technical platforms. Its organization is structured around 18 medico-clinical departments and 12 Organ Coordination Committees (OCC), associated with three other OCCs at the Toulouse University Hospital's Rangueil and Purpan sites.

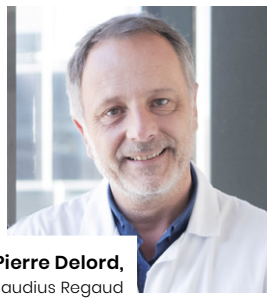
The GCS-IUCT-Oncopole

The IUCT-Oncopole is organized as a healthcare consortium (Groupement de Coopération Sanitaire - GCS) set up under private law as an equal partnership between the Oncopole Claudius Regaud (OCR) and the Toulouse University Hospital (CHU). The General Manager of the Toulouse CHU presides over the General Assembly, and the General Manager of the OCR, the functions of GCS administrator. Internal rules of procedure specify the distribution of disciplines and competences.

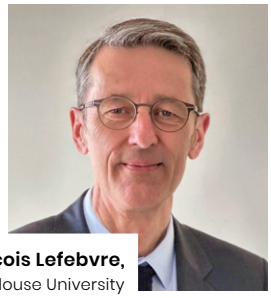


A committed Scientific Council

A joint Scientific Directorate for the IUCT-Oncopole and the CRCT, as well as a Scientific Council, work in concert to oversee the governance of the site. All translational research programs are steered jointly by a physician and a researcher.



Prof. Jean-Pierre Delord,
General Manager of the Oncopole Claudius Regaud & Administrator of the GCS IUCT-Oncopole



Jean-François Lefebvre,
General Manager of the Toulouse University Hospital & President of the General Assembly of the GCS IUCT-Oncopole

A SINGLE SITE

The Toulouse Cancer Research Center (CRCT)

The only center in Toulouse entirely dedicated to cancer research, the CRCT groups together 18 teams of fundamental and translational research (UMR 1037 Inserm, University of Toulouse III-Paul Sabatier | UMR 5071 CNRS, University of Toulouse III-Paul Sabatier), as well as nine technical research platforms. Each team integrates physicians from the IUCT-Oncopole, and all translational research projects are led by a researcher/physician duo.

THE MULTIDISCIPLINARY EXPERTISE OF THE CRCT TEAMS IS FEDERATED AROUND 4 STRATEGIC AXES:

- **Oncogenic pathways: from modeling to targeted therapy**
  The common goal is to understand and target the autonomous and non-autonomous mechanisms of oncogenic pathways.
- **RNA & Cancer**
  The mechanisms of RNA deregulation are explored to better identify their role in cancer initiation and progression, as well as in metastatic development.
- **Tumor microenvironment and metabolism**
  The challenge is twofold: on the one hand, understanding the dialogue between tumor cells and stroma, and on the other, the role of metabolism in tumor initiation and progression to identify new therapeutic strategies.
- **Onco-immunology**
  The goal is to promote collaboration among several teams by studying the cancer/immunity confrontation through different, but complementary, approaches.

Prof. Gilles Favre,
General Manager of the CRCT

Two additional cross-cutting programs are also being developed:

- Resistance mechanisms and new targets: from molecular pharmacology to clinical pharmacology.
- Development of mathematical, physical, and computational approaches in oncology.

Thanks to the strong interconnection on the site, less than 6 months are necessary for a CRCT discovery to be translated into a clinical trial at the IUCT-Oncopole.

Institut de Recherche en Informatique de Toulouse
CNRS - INP - UT3 - UT1 - UT2J

A partnership signed between the CRCT and the Toulouse Institute for Computer Research (IRIT) led to the creation in 2021, of the first research laboratory in digital cancerology. Named "Michel Laudet" in homage to the famous Toulouse computer scientist, it brings together 10 IRIT researchers and 12 CRCT and IUCT-Oncopole researchers, two doctoral students, three postdoctoral fellows and five interns from top-notch schools (Polytechnique, INSA Toulouse, Ecole Centrale Paris and Ecole des Mines).

LAAS CNRS

The CRCT also signed a convention with the Systems Analysis and Architecture Laboratory (LAAS-CNRS) to develop the technology of microfluidic chips to detect and quantify, in less than one minute, micro-RNA cancer markers.

A SINGLE SITE

Complementary on-site expertise

Set up within the IUCT-Oncopole, the Onco-Occitanie Network accompanies, federates, and coordinates all cancer care professionals in the Occitanie region to improve practices and patient care pathways. Its principal missions target 4 major axes:

- Contribute to coordinating regional organization of healthcare provision and its legibility
- Promote the quality and safety of treatments
- Develop expertise and innovative joint research projects, accompanying the evolution of healthcare provision
- Contribute to informing and training actors, patients and caregivers.

On site, the ***Établissement français du sang – EFS*** **(French National Blood Service)** has a unit for sampling hematopoietic stem cells (HSC) from adults to meet the needs of the IUCT-Oncopole, as well as a cellular therapy unit to prepare and store bone marrow and stem cell samples to respond to requests from other centers in the region, France and abroad. The EFS also runs the Institute of Adult Stem Cells and Regeneration (INCERE), located nearby on the "Santé du Futur" Campus.

Several patients' associations intervene on a regular basis with IUCT-Oncopole patients. Some are housed within the IUCT-Oncopole, while others are located on the campus.

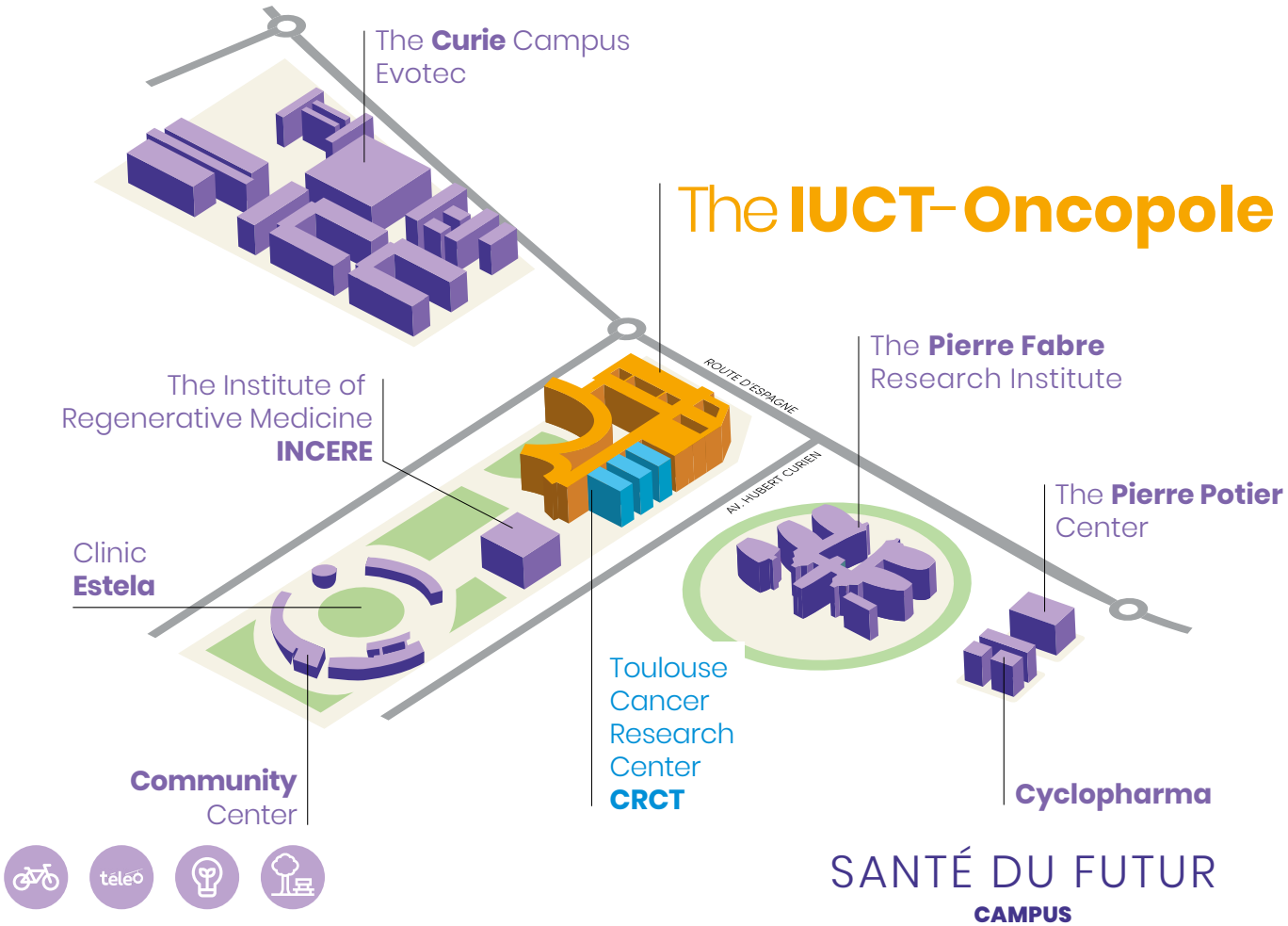
HIGHLIGHT 2022

Evotec SE, the German pharmaceutical research group, launched the construction of its plant "J.POD", manufacturing biological products on the Toulouse Santé du Futur Campus. J.POD Toulouse, the second installation of this type and the first in Europe, will use Just-Evotec Biologics's J.POD flexible technology to respond to the needs for clinical and commercial manufacturing of biological products.

A SINGLE SITE

The “Santé du Futur” Campus

The IUCT-Oncopole and the CRCT are located on the “Santé du Futur” Campus, concentrating the competences from the academic, scientific, medical, clinical, and industrial, public and private sectors striving for the same objective –the fight against cancer. More than 5,000 professionals work together every day on this 220-hectare campus. Beyond the buildings, the IUCT-Oncopole offers 3,000 m2 of landscaped green space to patients and visitors.



HIGHLIGHT 2022

A cable car linking the IUCT-Oncopole to the Toulouse University Hospital-Rangueuil and the University of Toulouse III-Paul Sabatier was inaugurated in May 2022. Connected to the subway and buses, “**Téléo**” is one of the first urban cable cars in France, and the longest with its three kilometers!

The IUCT-Oncopole is accredited by:

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