

Faster and further in the battle against cancer

The background is a solid teal color. There are four abstract geometric shapes: a pink shape in the top-left corner, an orange shape in the top-right corner, a pink shape in the bottom-right corner, and an orange shape in the bottom-left corner. The text is centered in the middle of the image.

**Determined
to beat
cancer**



PROF. JEAN-YVES BLAY

EXECUTIVE DIRECTOR OF THE CENTRE LÉON BÉRARD

In 2020, cancer did not go into lockdown, but was as great a threat as in any other year. The pandemic unleashed by the coronavirus SARS-CoV-2 spread widely and we all faced an exceptional and unprecedented healthcare crisis. At the Centre Léon Bérard, our priority from the end of February 2020 was to continue ensuring the diagnosis and treatment of patients with cancer.

Every year, cancer kills 157,000* people in France and 380,000 new cases of cancer are diagnosed.

We therefore wished to make sure we could continue treating the disease, while at the same time taking measures to protect our staff, our patients and their families, in conjunction with the other hospitals in our region and doctors' surgeries.

Our teams succeeded in transforming our organizations in just a few days. All professions were involved in these efforts – doctors, care staff, researchers and staff from the administrative, IT, logistics and technical services. You can find out more about some of these actions in this annual report.

The measures taken proved to be effective and were still in place in May 2021: triage at reception, a ban on people accompanying patients as well as visits, the creation of an inpatient unit dedicated to patients with

cancer and COVID-19, referral to home hospitalization where possible, video consultations, etc.

To better understand the evolution of this virus and to evaluate the effectiveness of various treatments in our particularly immunocompromised patients, we have also initiated clinical or observational studies. These studies have shown excess mortality among COVID + patients during treatment, but they also predict an increase in deaths from cancer in the years to come, due in particular to the postponement of diagnosis and care, often by the patients themselves. As you will see in this document, the Centre Léon Bérard has recorded a drop in activity, the number of patients seen fell by 7% in 2020, and the activities of surgery, chemotherapy and radiotherapy stagnated. On the other hand, we increased our home-based care by 5% and achieved an extraordinary number of video consultations. In 2021, we continue to encourage our patients not to interrupt their care and call on people who notice symptoms to be screened as soon as possible: our hospitals are safe.

Finally, in spite of the difficult situation due to the epidemic, we have continued to innovate and to maintain our usual activities, as you will discover in reading this report. ●

*2018 data from National Cancer Institute (INCa), Public Health France, FRANCIM network of cancer registries and Biostatistics and bioinformatics service of the Hospices Civils de Lyon (HCL)

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2020: a year like no other

Online consultations for patients being monitored, remote adapted physical activity classes and therapeutic education workshops thanks to follow-up by telephone and then by video conference, launch of observational and clinical studies, provision of chemotherapy at home, preparation of inpatient meals by a Michelin-starred chef, manufacture of fabric facemasks or personal protective equipment (PPE) by local companies or societies... In 2020, the teams of the Centre Léon Bérard reinvented their organizations to ensure the care of patients with cancer.

ORGANIZATION OF CARE

- **Creation of a dedicated COVID-19** unit with 8 beds within the 3 B South inpatient ward, with 6 beds for the 'Unit for the management of unexpected admissions' (UMUA) and 2 standby beds in the recovery room for possible resuscitation. 3 referral doctors have also been appointed to answer various questions about COVID-19 and to manage patients with the disease: Dr. Souad Assaad, Dr. Virginie Avrillon and Dr. Bénédicte Mastroianni.
- On March 23, the Centre Léon Bérard turned the 3 B South ward into **a ward dedicated to caring**

for patients with COVID-19 and cancer (14 beds in single rooms).

From November 30, 2020 to May 31, 2021, this ward was divided into 2 distinct units with 8 COVID-19 beds and 7 post-emergency beds – post-emergency being the ward's usual activity.

- **The healthcare teams on these wards were specifically trained** in March and April 2020 in the proper use of PPE, nasopharyngeal swabs and other tests, as well as oxygen therapy, COVID-19, its treatments and its progression. Information continues to be provided regularly. Training and information sessions on the situation have been organized regularly for all staff. ●

Key figures

437

patients

tested in the UMUA*,
36 of whom were positive

**Number of COVID-19
patients hospitalised at CLB
– all inpatient units:**

683 stays

632 patients

➤ **Dedicated unit 3 B South:**
14 then 8 beds, 85 stays,
81 patients

➤ **Intensive care in 2BS
and 2C:**
20 beds, 71 stays, 68 patients

➤ **Continuous monitoring:**
14 beds, 41 stays, 38 patients

**Unit for the management of unexpected
admissions'*

PROTECTING AND CARING

- Triage at reception, banning or limiting accompanying persons and visits according to the periods of lockdown, referral to home hospitalization where possible, creation of a specific multidisciplinary consultation meeting, reorganization of the technical platforms to limit the transmission of the virus, substantial investment by the pharmacy to obtain the necessary equipment and medicines, etc. From the first lockdown, **our services were reorganized in a few days in order to continue caring for cancer patients.**
- **A multidisciplinary consultation meeting (MCM) was created** in March 2020 to optimize the care of non-COVID cancer patients for whom the epidemic could have an impact on treatment. Every day, CLB doctors answer the following questions for each of our patients: should treatment be started; can it be postponed; what other alternatives might be available; or should a patient from another healthcare facility who cannot be operated on due to a lack of space at that facility be taken on as an emergency case?

- **In November 2020, a regional Cancer and COVID MCM was created** created to discuss the risks versus the benefits of resuming cancer treatment (chemotherapy, targeted therapy, radiotherapy, surgery) in COVID + patients undergoing active treatment for their cancer, and to help decide on the intensity of care for COVID + patients. This meeting is open to all physicians in the region. •



**FIRST SESSION OF THE MCM
CANCER AND COVID
ON NOVEMBER 5, 2020**

43

**NUMBER OF CASES DISCUSSED:
BETWEEN NOVEMBER 5
AND DECEMBER 31, 2020**

Key figures

Between March 9, 2020
and December 31, 2020:



1,262

patients

patients had a
nasopharyngeal swab
at the CLB for an RT-PCR
test and 304 of them tested
positive for COVID-19

39

COVID+ patients (diagnosed
through RT-PCR) deceased,

of
whom

18

at CLB

**Please note that these are all reported figures
from the electronic health record (EHR) and
only include patients tested at the CLB.*

1,237

employees tested
by nasopharyngeal swab
at the Centre Léon Bérard,
218 of whom were
positive



> In 2020

12,437

**VIDEO CONSULTATIONS WERE
CARRIED OUT (38 IN 2019)**

ONLINE CONSULTATION: A REVOLUTION

- From Monday March 16, 2020 and within one week, **nearly 660 follow-up appointments for cancer patients treated at the Centre Léon Bérard had been carried out by video consultation.** This amazing feat was made possible due to a relaxation of the rules by the supervisory authorities; thanks to a technical solution proposed by the GCS SARA* (of which the CLB is a founder) financed by the Auvergne-Rhône-Alpes Regional Health Authority (ARS ARA); and also through the strong commitment of the Centre Léon Bérard's IT department, which in just a few days equipped 50 consultation rooms; and thanks to the flexibility of our doctors. ●

MAINTAINING THE CONNECTION WITH OUR PATIENTS

- From the first lockdown, **the supportive care teams offered to**

continue monitoring and caring for their patients by telephone or video conference. This was made possible by the Centre Léon Bérard subscribing to a teleconferencing solution. Psychologists, social workers, therapeutic education nurses, a tobacco addiction therapist, an addiction treatment liaison team (ELSA), adapted physical activity teachers, dieticians, socio-estheticians and social hairdressers organized remote appointments and workshops to continue supporting patients and providing them advice on living better with cancer.

> A few examples!

- The socio-estheticians and social hairdressers shot videos to support patients during their first chemotherapy treatment, to give them advice on ways of limiting the side effects of treatment (hair loss, scarf tying, skin and nail care, corrective make-up, etc.).
- The therapeutic education nurses carried out their workshops and evaluations over the telephone.
- The communication service organized a dozen themed webinars open to a wide audience, to which geographically distant patients could connect: post-cancer in pediatric patients (children, adolescents, young adults), management of metastatic breast cancers, lung cancer, nutrition for malnourished patients, complementary therapies, etc.

- The adapted physical activity (APA) teachers launched a challenge to the patients, inviting them to keep moving – even when they were confined to their homes by the lockdown! Twice a week, they offered an exercise on the CLB website and its social media sites: challenge 1 – squats, challenge 2 – jumping jacks.
- The Meeting and Information Space for patients was closed during the first lockdown, but the healthcare support worker remained accessible by telephone. The Meeting and Information Space reopened its doors from May 2020, welcoming the patients who visited it. ●

RESEARCH GOES ON

- Despite the lockdown, followed by the stricter measures put in place during 2020, **researchers at the Centre Léon Bérard and the Cancer Research Center of Lyon continued to carry out their scientific work,** maintain the essential activities of the laboratories and technological platforms, or follow up and initiate clinical studies. The teams continued to work on site to preserve samples and tumor models, to ensure the proper functioning of technological and digital equipment or to work remotely to write scientific publications and process data from their research.

One observational study and two clinical trials focused on cancer patients who

**The Cooperative Healthcare Consortium (Groupement de coopération sanitaire, GCS) Healthcare Information System in Auvergne-Rhône-Alpes is a non-profit private law body, created at the end of 2018 through the consolidation of the SISRA and SIMPA Cooperative Healthcare Consortiums. It is the expert for e-health operations in Auvergne-Rhône-Alpes.*

had contracted COVID-19 were set up in 2020:

> **The prospective ImmunONCOVID-20 study**, coordinated by Dr. Virginie Avrillon, medical oncologist at the Centre Léon Bérard and principal investigator of the trial, compared three treatments associated with the standard treatment:

- a chloroquine analog (GNS561), which is currently being tested as an anti-cancer therapy and for which we already have data on its toxicity and safety;
- an anti-PD1 (nivolumab) immunotherapy to boost the immune system;
- an antibody, anti-interleukin-6R (tocilizumab), to slow down a runaway immune response.

> **The ONCOVID-19 observational study**, collaborative and national, with the objective of following the progression of cancer patients undergoing treatment and showing symptoms of COVID-19.

> **The ONCOVID-21 study:** evaluation of a ddPCR technology for the detection of SARS-CoV-2 based on different types of samples and monitoring of the serological status in cancer patients with suspected (symptomatic) COVID-19. ●

SOLIDARITY WITH THE CARE STAFF

- **Many companies and associations have supported our medical and paramedical staff** by creating or providing PPE – masks, surgical gloves, aprons, overalls – or by offering chocolates for Easter 2020, flowers for Mother's Day, pizzas at the end of the working day, dermocosmetic products, etc.
- The '10 sur 10' (10 out of 10) association, which specializes in helping people to find employment, responded to our call for the rapid provision of protective equipment to the private healthcare professionals who work with our patients at home. It offered women and men (volunteers for the duration of the training, then paid as self-employed one-person businesses) the chance to do sewing at home, making masks, gowns and overgowns which we were lacking in March and April 2020.
- The chef Christian Têtedoie, frequently joined by fellow chefs, settled into the kitchens of the Centre Léon Bérard, run by our food service provider SHCB, to prepare meals for our patients and healthcare professionals. His suppliers generously provided special foods for the patients. ●



THANK YOU !

It is impossible for us to mention all the companies, associations and individuals who have helped us during this crisis, but we thank them all here.

➕ **There is a page dedicated to them on our intranet site.**

www.centreleonberard.fr/institution/actualites/crise-sanitaire-un-elan-de-solidarite-exceptionnel-pour-soutenir-nos-soignants

In March 2020, faced with the healthcare emergency, the Centre Léon Bérard launched the 'Urgence COVID-19' (COVID-19 Emergency) appeal for donations.

➕ **A great many people responded to this appeal: 1,100 donations were made online and €110,000 were raised.**

www.centreleonberard.fr/institution/actualites/urgence-covid-19-nous-soutenir

Key elements of the Centre Léon Bérard in 2020

- Management structure and organization
- Medical departments
- High-tech technical platforms
- The Centre Léon Bérard in 2020
- Highlights
- Patient satisfaction





Management structure and organization

EXECUTIVE BOARD OF THE CLB

(ON MAY 31, 2021)

MEMBERS WITH VOTING RIGHTS

> Président

Mr. Pascal MAILHOS (October 25, 2018)
Prefect of the Auvergne-Rhône-Alpes region, Prefect of the Rhône department

> Representative of the Medical Training and Research Unit (UFR) of Claude Bernard University Lyon 1

President Carole BURILLON
(Jan. 4, 2021)
President of the Medical Studies Coordinating Committee in Lyon

> Representative of the Hospices Civils de Lyon

Mr. Raymond LE MOIGN (June 2020)
Executive Director of the Hospices Civils de Lyon

> Representative of the National Cancer Institute (INCa)

Prof. Alain VIARI
(renewed by INCa in June 2018)

> Representative of the Regional Economic and Social Council (CESER)

Mrs. Sandrine STOJANOVIC (May 2018)

> Expert External Consultants

Mr. Yannick NEUDER (December 2017)
Deputy Vice-President for Higher Education, Research, Innovation and European Funds – Auvergne-Rhône-Alpes Region

Mrs. Émeline BAUME (Feb. 2021)
Vice-President of Metropolitan Lyon

Mrs. Anne BRUGNERA (January 2020)
Member for the 4th district of the Rhône, municipal and metropolitan councillor of Lyon

Mr. Pierre-Jean TERNAMIAN (Sept. 2020)
President of the Regional Union of Healthcare Professionals Auvergne-Rhône-Alpes

> User Group Representatives

Mrs. Jeanine LESAGE (nov. 2020)
National League Against Cancer, Rhône Committee

Mr. Jacques RAPHIN
(renewed in January 2020)
National League Against Cancer, Rhône Committee

> Representatives of the Medical Association Committee of the Centre Léon Bérard

Dr. Pierre MEEUS (Nov. 2019)

Dr. Helen BOYLE (Nov. 2019)

> Representatives of the Social and Economic Committee

Mrs. Christophe PEZET (Nov. 2018)

Mr. Carole REYNAUD (Nov. 2018)

MEMBERS WITH AN ADVISORY CAPACITY

> Auvergne-Rhône-Alpes Regional Health Authority (ARS-ARA)

Dr. Jean-Yves GRALL (Oct. 2016)
Executive Director of the Regional Health Agency Auvergne Rhône-Alpes

> Executive Director of the Centre Léon Bérard

Prof. Jean-Yves BLAY

> Employees of the Centre Léon Bérard

Mr. Damien SEBILEAU
Deputy Executive Director

Mrs. Sandrine MOUNIER
Administrative and Financial Director

Mrs. Sophie BEAUPÈRE
Unicancer General Delegate

M. Patrick MEHLEN

Director of Fundamental/Translational Research and of the Regional Centre for the Fight against Cancer (CRCL)

> Auditors

Mrs. Valérie MALNOY
Audit firm ORFIS BAKER TILLY

ORGANIZATIONAL STRUCTURE

Executive board

Prof. Jean-Yves Blay
Executive director

> The corporate bodies

Medical committee of the establishment
Social and Economic Committee
Scientific Council
Users' Committee

MEDICAL DEPARTMENTS

Franck Mestre
Information Systems
Security Manager

Damien Sebileau
Deputy executive
director

Patrick Mehlen
Director of basic/
translational
research & CRCL

David Pérol
Director
of Clinical Research
& Innovation

**Philippe
Zrounba**
Deputy executive
director for medical
affairs

**Frédéric
Gomez**
Director of
Medical
data

**Anne
Miermont**
General
Secretary

**Abdel
Achache**
Director of
Operations, Quality
and Patient
Safety

**Anne-Sophie
Nicoloso**
Director of Human
Resources

Thierry Durand
IT Manager

Nathalie Blanc
Director of
Communication

Sandrine Mounier
Chief Financial and
Administrative Officer
- Coline Perriot
- Céline Lefèvre
- Virginie Létourneaux

Anne Miermont
International Relations
and Partnerships
Officer

Bérénice Camhi
Head of Legal Affairs

Hugo Crochet
Head of Operations
- Véronique Abondance
- Steeven Amavi
- Jean-Philippe Viret

Abdel Achache
Head of Quality,
Admissions and
Patient Satisfaction

Élise Tabet
Head of
Fundraising and
Development

CRCL
Translational Teams
& Platform
Research Grants
Administration
Partnership and
Institutional Relations
(Ministry, Siric, INCa...)

Christelle Galvez
Head of Nursing
and Care pathway
Michel Rivoire
Director of Training
Helen Boyle
Risk Management
Coordinator
Patrice Peyrat
Operating Rooms Director
Philippe Zrounba
Healthcare Network
Relations Manager

Medical departments



DEPARTMENT OF PATHOBIOLOGY

Dr. Catherine CHASSAGNE-CLÉMENT

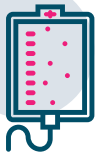


DEPARTMENT OF MEDICAL ONCOLOGY

Dr. Olivier TRÉDAN

Dr. Thomas BACHELOT,
Co-Head of the Department of Medical Oncology

Dr. Anne-Sophie MICHALLET,
Co-Head for hematologic tumors



DEPARTMENT OF ANESTHESIOLOGY

Dr. Jean-Luc SOUBIROU



DEPARTMENT OF RADIOTHERAPY

Prof. Vincent GRÉGOIRE



DÉPARTEMENT OF SURGERY

Prof. Michel RIVOIRE



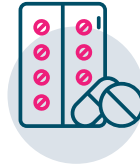
DEPARTMENT OF NUCLEAR MEDICINE LUMEN CENTER

Dr. Thomas MOGNETTI



**DEPARTMENT
OF ONCOLOGY
SUPPORTIVE CARE**

Prof. Gisèle CHVETZOFF



**DEPARTMENT
OF PHARMACY**

Bertrand FAVIER
managing pharmacist



**DEPARTMENT
OF RADIOLOGY**

Prof. Frank PILLEUL



**DEPARTMENT
OF PEDIATRIC ONCOLOGY
INSTITUTE OF PEDIATRIC
HEMATOLOGY
AND ONCOLOGY (IHOPE)**

Dr. Perrine MAREC-BÉRARD



**DEPARTMENT
FOR COORDINATION
OF EXTERNAL CARE
AND INTERFACING**

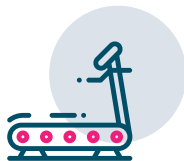
(hospitalization and home-based care)

Dr. Bruno RUSSIAS



**DEPARTMENT
OF PREVENTION
AND PUBLIC HEALTH**

Prof. Christine LASSET



**DEPARTMENT
OF CANCER PREVENTION AND THE ENVIRONMENT**

Prof. Béatrice FERVERS

High-tech technical platforms



ONE OF THE LARGEST RADIOTHERAPY CENTERS IN FRANCE

with 8 accelerators comprising 1 Cyberknife®, 2 tomotherapy machines, and 5 accelerators and a dedicated scanner on 2 sites in Lyon and Villefranche-sur-Saône, as part of a cooperative healthcare consortium with the Hôpital.

STATE-OF-THE-ART OPERATING UNIT

An 11-room, with one room dedicated to screening and interventional endoscopy.



INTERVENTIONAL OPERATING UNIT

A 3-room dedicated to interventional radiology, endoscopy and central venous line insertion.



PATHOBIOLOGY PLATFORM

combining anatomical and cytopathology analyses as well as molecular biology procedures.



IMAGING PLATFORM

with 2 MRI scanners, 2 scanners, radiography, ultrasound, 2 mammography units, one of which is reserved for stereotaxis for guided biopsies, and a women's center.

A BRACHYTHERAPY UNIT



NUCLEAR MEDICINE PLATFORM

equipped with 2 PET scanners that are 100% digital and 3 gamma cameras, of which one is a Veriton-CT, as part of a cooperative healthcare consortium with the Hospices Civils de Lyon.



The CLB in 2020

HEALTHCARE & RESEARCH

35,943
patients cared
(-7%)

of whom **10,258**
new patients
(-13%)

323 beds
and outpatient
places in surgery
and medicine

214 home
hospitalization
places

80,211

consultations

(-15%)

and **12,437**
video consultations

11,092

conventional
hospitalizations (-7%)

31,536

day hospital stays
(medical) (-5%)

2,481 patients
enrolled in a clinical
trial (all types of trial)

421 scientific
publications



EMPLOYEES OF THE CLB

1,978
employees

80.4%
women
(1,590)

19.6%
men
(388)



on December 31, 2020

105 logistics
and technical staff

138
administrative staff
(117 administrative
+ 21 networks)

211 medical
technology staff

222 medical
administrative staff

35
professions
spread over
the following
sectors

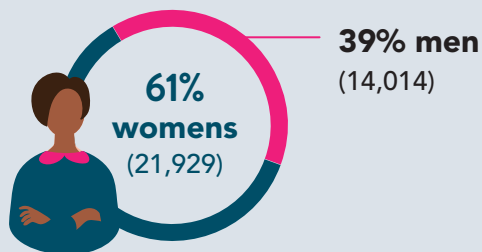
681
employees
in the care
sector

361
employees in
the research
sector

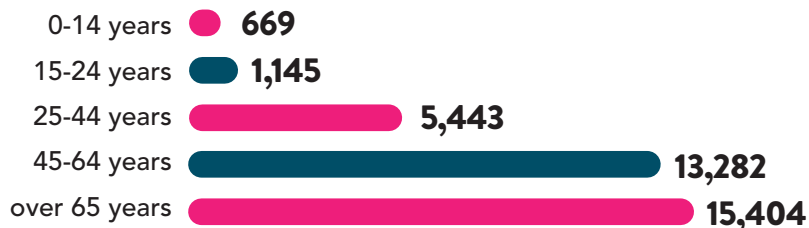
260
employees in
the medical
sector

PROFILE OF THE CLB'S PATIENTS*

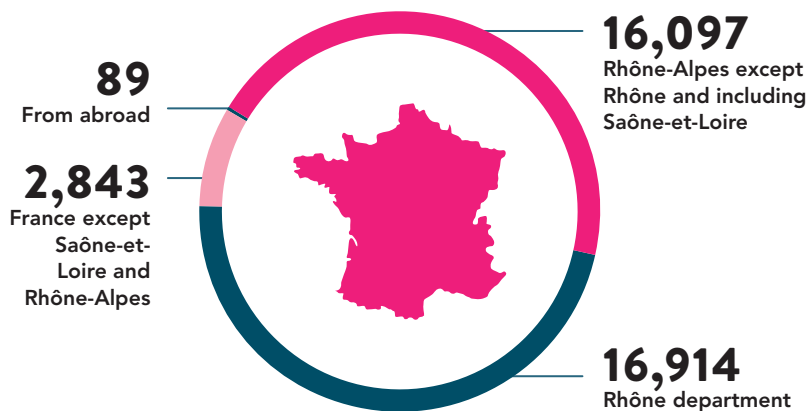
35,943
patients :



Breakdown by age

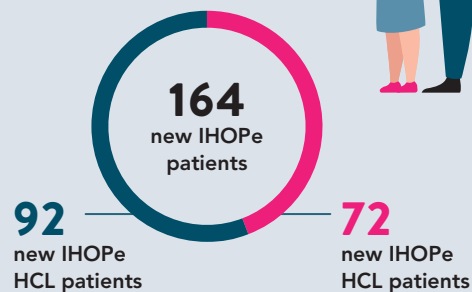


Geographical breakdown of patients



Focus on IHOPe**

605 patients > **475** of whom aged under 15



*Globale active list data

**Institute of Pediatric Hematology and Oncology, Health Cooperation Group of the Hospices Civils de Lyon and the CLB

Highlights of 2020

CHRISTIAN TÊTEDOIE

Michelin-starred chef



JANUARY

Michelin-starred hospital meals

The Centre Léon Bérard and its food services provider SHCB are renewing their partnership with the chef Christian Têtedoie. After becoming interested in hospital patients, Têtedoie hopes in this second collaborative venture (the first was launched in the second half of 2018) to offer delicious and innovative meals to cancer patients being treated as outpatients. This time, he plans to place greater emphasis on vegetables (seasoning, cooking method, forgotten vegetables, etc.). ●

FOR ME, MEALTIMES SHOULD BE A MOMENT OF PLEASURE – EVEN MORE SO WHEN THEY ARE IN A HOSPITAL. WHEN YOU SERVE PATIENTS MEALS THAT THEY WANT TO EAT, IT'S ANOTHER WAY OF TAKING CARE OF THEM AND TAKING PART IN MAKING THEM WELL AGAIN. THAT'S WHY I WANTED TO WORK WITH THE TEAMS FROM SHCB TO PROVIDE A DIFFERENT VIEW OF HOSPITAL CUISINE BY BUILDING ON THE WORK ALREADY DONE AND ADDING LITTLE TOUCHES TO THE SPICES, THE TEXTURES, THE COOKING METHODS.

1st prize draw organized for International Childhood Cancer Day

On February 1, the Centre Léon Bérard organized its first prize draw at the Groupama Stadium (Décines) to raise funds for the pediatric research carried out on its site. More than 450 people took part and €17,000 were raised thanks to the generosity of the participants. ●



MARCH

Improving dosages for pediatric treatments

The Institute of Pediatric Hematology and Oncology of Lyon (IHOPE: cooperative healthcare consortium of the Hospices Civils de Lyon and the Centre Léon Bérard) has created a new unit – unique in France – dedicated to the study of anti-cancer treatments in children and teenagers. The main objectives are to optimize treatment doses and limit secondary toxicities with the aim, over time, of increasing the five-year remission rate at IHOPE (currently 75%).

This project is based on a team that already has solid expertise in the optimization of treatments in oncohematology. The work of this team has notably led to the creation of dedicated software for PK/PD modeling and treatment dosage adaptation. The mission of this unit is to build explanatory and predictive models aimed at better understanding the therapeutic effect according to drug exposure and individual patient characteristics, and at predicting this therapeutic effect at individual and population scale, with a view to optimizing the dosages of these drugs in a more personalized manner. ●



JUNE

Mid-term evaluation of LYriCAN

The eight sites for integrated cancer research (SIRIC), including the LYriCAN in Lyon, underwent a mid-term evaluation by the National Cancer Institute (INCa), which accredited the sites for five years in January 2018. A written report detailing the activities of the previous two-and-a-half years was submitted to the members of the international jury assembled by INCa. On October 22 and 23, 2020, all the SIRICs were heard by that jury. Jean-Yves Blay, Director of LYriCAN, had the opportunity to present the activities of LYriCAN and its impact on cancer care and research in Lyon.

At the end of this presentation, the Director, accompanied by Marina Rousseau-Tsangaris (coordinator of LYriCAN), Pierre Saintigny (co-leader of IRP2), Alexandra Traverse-Glehen (co-leader of IRP1) and Patrick Mehlen (Research Director of the CLB and the CRCL) spent 30 minutes answering questions from the jury. The feedback on LYriCAN was very positive and the mid-term achievements were very well received by the jury, which assesses the quality of the science, but also the organization, operation, communication and dissemination of knowledge, as well as budget management. ●

First patients enrolled in the 'article 51' arrangement

The Auvergne-Rhône-Alpes Regional Health Authority gave its approval to the Centre Léon Bérard to trial, within the framework of the 'section 51' arrangement, an innovative organization that enables patients to receive their immunotherapy treatment at home. In June, the first five patients joined the initiative. ●



Highlights of 2020

JUNE

CRCL - fundamental research: publication of the Hcéres report

In June 2020, the High Council for Evaluation of Research and Higher Education (Hcéres) published the evaluation report of the Cancer Research Center of Lyon (CRCL).

The 22 candidate teams were confirmed. They are divided into two scientific departments: TERI (Tumor Escape, Resistance and Immunity) and CITI (Cancer Initiation and Tumor cell Identity). (see also page 58). ●



SEPTEMBER

EXPEDAJAC : post-cancer care for young peoples

On the occasion of Gold in September, an international movement dedicated to the fight against pediatric cancers, the Institute of Pediatric Hematology and Oncology (IHOPE) and the Centre Léon Bérard wished to emphasize the continuation of research to cure pediatric cancers with a poor prognosis and to make young patients aware of the problems of the post-cancer period. The EXPEDAJAC

project was presented at a public conference. The project aims to assess the needs of children, adolescents and young adults previously treated for cancer, in order to offer them a long-term follow-up that is truly adapted to their disease, their expectations and those of their families. A specific consultation has also been created to deal with medical, psychological or social complications that may arise after the disease and its treatment. ●

OCTOBER

Let's stay connected for Pink October

As part of Pink October (Octobre Rose), a month dedicated to the promotion of breast cancer screening, and currently more broadly to women's cancers, the Centre Léon Bérard launched a 'Let's stay connected' challenge: to stay in contact in this unprecedented year. This creative and inter-generational challenge was an opportunity to convey a message of support to all women who are fighting the disease every day. To this end, the event was publicized widely on the CLB website, in all social media and also internally, in the Center's departments, where a number of posters were put up. Nursing homes, former patients, relatives, families, schoolchildren, colleagues, foundations, children, CLB employees – everyone came out to support women with breast cancer! The result? More than 2,000 friendship bracelets made by supporters for patients were donated in less than two months and distributed to patients and their relatives. ●



NOVEMBER

A new fundraising race: 'La Scintillante'

In November, the Centre Léon Bérard created a brand-new fundraising race to aid research: 'La Scintillante'. The program included two routes accessible to all, in the heart of Lyon and dedicated 100% to the fight against cancer. Because of the healthcare crisis, the event was organized exclusively online, and it raised more than €80,000 for cancer research. ●

DECEMBER

Opening of GyNET trial to participants

The GyNET clinical trial enrolled its first patient in December 2020. The aim of this early phase clinical trial is to provide patients with endometrial and cervical cancers with new therapeutic options thanks to a molecule developed in research conducted in the CLB laboratories. It is coordinated by Prof. Isabelle Ray-Coquard, a doctor specializing in gynecological cancers at the Centre Léon Bérard.

This clinical trial, part of the DEPGYN project, follows the discovery of a new concept by researchers at the Centre Léon Bérard: 'dependence receptors' and the development of an antibody called NP137 (anti-netrin-1) – created and perfected by the company NETRIS Pharma – the first drug created at the Centre Léon Bérard. This molecule was the subject of a phase I trial in 2017 and demonstrated its effectiveness as a targeted therapy against certain cancers (sarcomas and endometrial and cervical cancers). ●

Patient satisfaction

At the end of 2020, the National Health Authority published the results of a patient satisfaction survey following the patients' hospital stays. The e-satis survey in 2020 included nearly 836 healthcare facilities for stays

of more than 78 hours and 788 facilities for outpatient surgery. Patient responses provide a satisfaction score out of 100 and in 2020, the Centre Léon Bérard obtained the score 80/100, the same as in 2019. ●

The Centre Léon Bérard is therefore among the **17%** of hospitals in France with the best scores.



	CLB	National score*
Overall score of hospitalized patients (Score out of 100)	80	74
Reception	79	73
Care by doctors/surgeons	86	81
Care by nurses/nursing assistants	87	82
Meals	71	73
Room	78	59
Organization of discharge	71	64
Overall score of patients admitted for outpatient surgery (Score out of 100)	80	78
Organization prior to hospitalization	84	81
Reception on the day of surgery	86	81
Care provision	86	84
Room and refreshments	71	74
Organization of discharge and return home	74	70

> **82%**
OF HOSPITALIZED PATIENTS WOULD CERTAINLY RECOMMEND THIS FACILITY

> **85%**
OF PATIENTS ADMITTED FOR OUTPATIENT SURGERY WOULD CERTAINLY RECOMMEND THIS FACILITY

⊕ All the results of the Centre Léon Bérard, as well as the results of other healthcare facilities, can be found on www.scopesante.fr (in French).

*Average adjusted score of all establishments out of 100 patients surveyed..



Personally tailored care and support for each patient

- 1. Preventing and screening
- 2. Diagnosing
- 3. Treating
- 4. Hospitalizing
- 5. Supporting



1 Preventing and screening

Cancer prevention is one of the healthcare missions of the Centre Léon Bérard

It is based on the commitment of all the institute's teams, especially the departments of Prevention and Public Health, and Cancer Prevention and the Environment, but also of all the medical departments. As regards screening, **the Centre Léon Bérard has one of 148 oncogenetic consultation centers in France** and it takes part in the organized screening programs for breast and colorectal cancers in partnership with the Auvergne-Rhône-Alpes Coordination center for cancer screening. As part of its 2021-2025 medical and scientific project, **the CLB aims to build a Prevention Center on its site.** ●

PREVENTION

Don't forget the carers!

In France, 40% of cancers are directly linked to individual behaviors and lifestyles (e.g. smoking, alcohol, being overweight/obese, exposure to UV rays) and could therefore be prevented through behavioral changes. On October 1, 2020, the department of Cancer Prevention and the Environment, in partnership with the National Cancer Institute (INCa) and the April Foundation (Fondation April), **launched a feasibility and acceptability study for the implementation of a cancer risk factor prevention consultation for carers of patients treated at the Centre Léon Bérard.** This project consists of identifying carers with high

risk factors for developing cancer, **offering them a consultation in order to inform them and make them aware of recommendations for prevention**, as well as supporting them in a process of behavioral change.

This prevention program is part of a more general project at the CLB to support carers, which covers various actions ranging from the creation of a consultation for carers to therapeutic education, and including the establishment of a place for carers to exchange experiences, to listen and be listened to over the long term. ●

In figures

906
Tobacco addiction consultations

2,126
Oncogenetic consultations

80,211
consultations
carried out,
of which

780
Medical gynecology consultations

353
Nutrition and metabolism consultations

166
Occupational cancer professionals



TOBACCO ADDICTION

VIDEO CONSULTATIONS

In the case of tobacco addiction, the shift to video consultations has been beneficial to CLB patients. It has enabled an increase in the number of appointments and better monitoring of patients. ●



188

PATIENTS CARED FOR

906

CONSULTATIONS



DR. DOMINIQUE TRIVIAUX

Tobacco addiction therapist



THIS NEW TYPE OF CONSULTATION MEANS PEOPLE NO LONGER HAVE TO TRAVEL. IT IS THEREFORE MORE EASILY ACCESSIBLE FOR PATIENTS WHO LIVE FURTHER AWAY AND ALSO FOR THOSE PATIENTS WHO ARE MOST TIRED. FEWER PATIENTS FAILED TO ATTEND THEIR CONSULTATION OR CANCELLED AT THE LAST MINUTE.

THE VIDEO CONSULTATIONS HAVE MADE IT POSSIBLE TO CARE FOR GEOGRAPHICALLY DISTANT PATIENTS (E.G. IN AIN, ARDÈCHE, DRÔME, ISÈRE) FOR WHOM IT HAD PREVIOUSLY BEEN DIFFICULT TO ENVISAGE TREATMENT FOR TOBACCO ADDICTION AT THE CENTRE LÉON BÉRARD. THESE PATIENTS WERE REFERRED WITH VARYING DEGREES OF SUCCESS TO LOCAL TOBACCO CLINICS, IF THEY EXISTED AND THE TREATMENT TIMES WERE ACCEPTABLE AND COMPATIBLE WITH THE CLB'S CARE SCHEDULE, WHICH UNFORTUNATELY WAS NOT ALWAYS THE CASE.

2. Diagnosis

**A key step
on the care pathway**



Making a cancer diagnosis is a key step in the care of patients with cancer. This step should be taken as early as possible and should enable doctors to characterize the advance of the tumor as precisely as possible so that they

can propose a personalized treatment protocol adapted to the tumor, but also to the individual. **The Centre Léon Bérard has all the tools for diagnosis and for monitoring an illness on one site.**

Diagnostics and cancer monitoring are supported by high-performance technical platforms and teams that are constantly seeking fresh innovations:

- > Pathobiology, which combines competences in anatomy and cytopathology, as well as molecular biology, with state-of-the-art sequencers, in particular;
- > The biological sample management platform;
- > Imaging;
- > Interventional diagnostics.

BREAST CANCERS

MyPebS study

The Department of Radiology of the Centre Léon Bérard is taking part in the European study MyPeBS (My Personal Breast Screening). The objective of this large international clinical study is **to compare a personalized risk-based screening strategy** (based on each woman's individual risk of developing breast cancer in future years) with standard screening in 85,000 female volunteers aged 40 to 70 years and recruited from 6 countries: Belgium, Spain, France, Israel, Italy and the United Kingdom. ●

EQUIPMENT

Acquisition of a new gamma camera: the Veriton-CT

In nuclear imaging, **the LUMEN department acquired a Spectrum Veriton-CT camera in July 2020, which makes it possible to obtain high-quality 3D whole-body images** while reducing the duration of the examination or the doses of isotopes injected. This new equipment will be used to monitor cancer treatments in order to measure their effectiveness and adjust them, if necessary, as early as possible in the treatment process.

It is particularly suitable for monitoring

bone tumors and Lutetium 177-based vectorized treatments.

The CLB's Nuclear Medicine department has 3 gamma cameras (one of which is digital), 2 latest generation digital PET scanners and a radiopharmaceutical platform for the isotopes Ga68 and Lu177. It is one of the largest nuclear medicine platforms in France and one of the very few to combine the activities of gallium 68 diagnostics, Lutetium 177 therapy and the implementation of phase 1 clinical trials in nuclear medicine. ●

In figures

PATHOBIOLOGY

20,373

anatomic pathology procedures

186,930

anatomic pathology slides

2,458

cytology procedures

3,544

molecular biology procedures

> Biological Sample Management platform

> In connection with trials or institutional collections

1,915 procedures and **2,479** tubes of tumors
frozen for the tumor tissue bank

3,754 procedures and **13,032** tubes of frozen
blood samples (blood, serum, plasma, cells)

2,567 procedures and **5,354** tubes of derived
products (DNA and RNA extracts)

> In connection with clinical trials designed and implemented externally

3,453 patients

13,169 samples received and prepared

25,064 tubes generated after process
(short-term storage and transfer to those conducting the trials)

RADIOLOGY

> Breast cancer

5,410

mammograms

5,477

breast ultrasound scans

150

stereotactic biopsies

1,075

ultrasound-guided biopsies

1,056

percutaneous markers

> Non-breast cancer

13,856

scanner procedures

13,254

standard X-rays

9,649

MRI scans

3,462

standard ultrasound scans

ENDOSCOPY

2,161

endoscopies carried out

1,681

patients given treatment

NUCLEAR

MEDICINE

11,453

procedures in total

Gamma camera

3,417

diagnostic procedures

PET scanner

7,909

procedures

INTERVENTIONAL

RADIOLOGY

2,923

diagnostic procedures

*Interventional radiology is used for diagnosis but is also
offered for cancer treatments and supportive care.*

DID YOU KNOW?

The Centre Léon Bérard's Biological
Sample Management platform also
houses the Unicancer collections, which
come from the various Centers for the
Fight Against Cancer (CLCC)



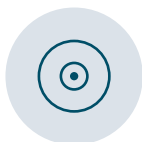
Nearly
450,000
tubes stored
in total.

Distribution of cancers treated

11,381

patients were
hospitalized or
had treatment as
outpatients

(chemotherapy, surgery
and radiotherapy)



2,369

(20.8%)

Breast



1,384

(12.2%)

Digestive system

Stomach, colon, rectum,
gallbladder, pancreas, etc.



1,238

(10.9%)

Respiratory system

Lungs, bronchi, trachea, heart,
pleura, etc.



1,093

(9.6%)

Hematology

Myelomas, plasmocytomas, Burkitt
lymphomas, MNHL, ALL, etc.



1,006

(8.8%)

Soft tissues, bone and cartilage

Soft tissues, fibrosarcomas,
neurofibromatosis, Ewing sarcomas,
osteosarcomas, etc.



900

(7.9%)

Non-tumoral condition



804

(7.1%)

Upper aerodigestive tract

Lips, tongue, salivary glands, gum, floor
of the mouth



720

(6.3%)

Female reproductive system

Gonadal germ cell tumors, extra-gonadal
germ cell tumors, cervix, uterus, vagina, etc.

at the Centre Léon Bérard



630

(5.5%)

Male reproductive system

Testicles, germ cell tumors, extra-gonadal germ cell tumors, testicles excluding germ cell tumors, prostate, penis, etc.



420

(3.7%)

Skin

Melanomas, nevus, skin (other histology)



377

(3.3%)

Urinary tract

Wilms tumor, bladder, dome, kidney, pelvis, etc.



206

(1.8%)

Central nervous system

Gliomas, oligo, nerves, meninges, spinal cord, etc.



141

(1.2%)

Endocrine glands

Thyroid, parathyroid, pineal, adrenal



29

(less than 1%)

Neuroblastoma



7

(less than 1%)

Eye

Retinoblastomas, eye, body, chamber, globe, etc.

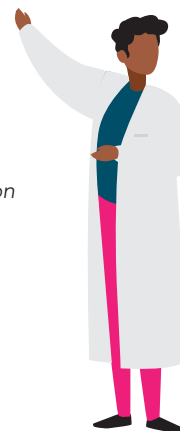


57

(less than 1%)

Other locations

Lymph nodes, unknown or ill-defined primitive location



3. Treatments

SURGERY

Outpatient mastectomy



Since March 2020, it has been possible to perform a mastectomy in one day at the Centre Léon Bérard. The decision to undergo this procedure on an outpatient basis according to a dedicated care pathway is made by the patient during the surgical consultation. In 2020, 27 patients followed this pathway, with an excellent satisfaction rate.

The new protocol is based on multidisciplinary work involving

all the surgeons in the breast and gynecological surgery team, the anesthetists, the operating unit staff, the two nurses in charge of the care pathway and the inpatient services care staff (outpatient surgery unit and 1 A North). As a reminder, a total mastectomy, which is not an outpatient procedure, takes place within the framework of a one-night post-operative hospital stay.

The patient arrives on the day of the operation in the outpatient surgery unit. After the operation, which lasts one hour, the patient is taken to the recovery room. She leaves the hospital a few hours later, after being checked by the surgeon. The next day, the nurse who practises in the city goes to the patient's home to check the drains, replace the dressing and check that there are no complications. At the same time, a video consultation is carried out with the CLB nurse in charge of the care pathway. This video consultation facilitates the management of any complication in agreement with the surgical team. ●



DR. MELLIE HEINEMANN
& KARINE RINCK

Surgeon and nurse in charge
of the care pathway



THE CONVERSATIONS DURING THE VIDEO CONSULTATIONS WERE ABLE TO SHOW THAT BEING AT HOME CREATES A KIND OF “PROTECTIVE BUBBLE” IN WHICH THE PATIENTS ALLOW THEMSELVES TO DO MORE. THE PARTNER CAN BE PRESENT, HOLDING THE PATIENT’S HAND OR THE PHONE, “JUST BEING THERE”. SOMETIMES, EVEN THE PATIENT’S PET TAKES PART IN THE ONLINE CARE. FINALLY, THE PATIENTS LOOK AT – AND TOUCH – THEIR SCAR MUCH SOONER, BECAUSE THEY ARE IN A SECURE ENVIRONMENT AND IN THEIR OWN HOME.

INNOVATION

Artificial intelligence for the benefit of radiotherapy

In 2020, the Radiotherapy department at the Centre Léon Bérard launched **three new programs using artificial intelligence**. This new technology could indeed revolutionize this major cancer treatment, notably by better controlling dose delivery and reducing treatment time.

Technological and IT developments over the last 10 years have enabled radiotherapy to improve treatment precision and patient comfort, and to reduce treatment times. Artificial intelligence could make it possible to go even further and bring about a real revolution. This is what the Centre Léon Bérard wants to demonstrate in three programs conducted in collaboration with a start-up company, TheraPanacea, an industrial company and the Creatis laboratory (CNRS Unit UMR 5220 – Inserm U1294 – Claude Bernard University Lyon 1 – INSA Lyon – Jean Monnet University Saint-Étienne).

The project of the department of Radiation Oncology aims to change practices in three central technical aspects of patient care using tools integrating artificial intelligence:

- > Upstream of treatment, with, on the one hand, the selection and delineation of organs at risk and target volumes to be treated, and on the other hand, the planning of treatments and the initial calculation of doses based on magnetic resonance imaging (MRI).
- > During treatment, with adjustment involving renewed delineation and recalculation of doses during treatment.

With six projects already underway using artificial intelligence (AI) to improve the diagnosis and monitoring of cancer treatments, **the CLB is one of the French medical centers that is at the cutting edge in this field.** ●

DERMOSCOPY

A new tool for skin cancers

In January 2020, the Centre Léon Bérard acquired **a new tool – the FotoFinder®** – for monitoring skin lesions over time. This device enables clinical and dermoscopic photographs of moles to be taken and repeated over time to

detect any change requiring removal of a suspect lesion.

The CLB has a team of several dermatologists who manage all cases of skin cancer (from the surgical stage to the advanced disease stage). ●



ALEXANDRE MUNOZ

Dosimetrist in the
Radiotherapy department



**USED NOWADAYS
IN CLINICAL ROUTINE, THE
ANNOTATE TOOL FROM THE
COMPANY THERAPANACEA,
WHICH WE USE UPSTREAM OF
TREATMENT FOR AUTOMATIC
CONTOURING OF AREAS TO
BE IRRADIATED, IS 80% FASTER
THAN PREVIOUS TOOLS; WE
ULTIMATELY SAVE BETWEEN
1 AND 2 HOURS PER DAY.**

The treatment

DEPARTMENT OF PHARMACY

47,367
consultations carried out by
the medical department

276
medical interventions
during consultations

1,625
patients included
in clinical trials

PHARMACY

86,385
chemotherapy
interventions

11,341
interventions carried out as
part of a clinical trial

€37.7 mln
interventional radiology
procedures

360,000
surgical masks
delivered due to
COVID-19

29 000
FFP2 surgical masks

6 200
sets of overalls

DELIVERED
DUE TO
COVID-19

CELL THERAPY

117
cytapheresis sessions

101
patients for
the CLB

16
for IHOPE*

78
patients

69
patients for
the CLB

9
for IHOPE

**Institute of Pediatric Hematology
and Oncology*



ANESTHESIA

6,763
consultations

5,051
patients

7,491
anesthesia procedures

3,106
insertions of venous catheters

NUCLEAR MEDICINE

GAMMA CAMÉRA
127
therapeutic procedures



PHARMACY

of cancers

SURGERY

29,279
consultations

3,938

patients operated on except endoscopy
and except insertion of venous catheters

5,114

procedures except endoscopy and except
insertion of venous catheters

4,465

procedures under general anesthetic

649

procedures under local anesthetic

4,782

outpatient surgery stays

RADIOLOGIE

2,923
interventional
radiology procedures

*Interventional radiology is offered for the treatment of cancers and
supportive care (e.g. pain management, nutrition), and is also used
in diagnostics.*



RADIO THERAPY

3,197
patients

3,610
treatments

LYON

2,575
patients

1,883

Cyberknife®
sessions

6,232

tomotherapy
sessions

34,354
sessions
in total

19,151

classical
radiotherapy
sessions

7,088

Versa HD®
sessions

VILLEFRANCHE- SUR-SAÔNE

622
patients

4,931

tomotherapy
sessions

11,445
sessions
in total

6,514

classical
radiotherapy
sessions

BRACHYTHERAPY

762
sessions



Multidisciplinary consultation meetings

Cancer management is multidisciplinary and involves all the medical specialists of the CLB. **Multidisciplinary consultation meetings (MCMs) are organized on a weekly basis for every type of cancer pathology and all stages of the disease.** During these meetings, surgeons, radiotherapists, medical oncologists, diagnosticians, and support care professionals look at the records of each patient receiving care at the Centre Léon Bérard or at one of the external

medical centers to determine the most appropriate treatment protocol..

The CLB has 13 weekly MCMs (thoracic, ENT, sarcoma diagnostics (bone and soft tissue), hematology, gynecologic oncology and rare tumors, care of referrals in gynecology, urology, skin tumors, molecular diagnostics, metastatic lesions of the bone, digestive tract, sarcomas and breast) and a monthly TOX'IMM MCM to improve the care of patients undergoing immunotherapy. ●

> In 2020

THE TOTAL OF ALL THE WEEKLY MCMS DISCUSSED 15,518 CASES, OF WHICH 3,277 WERE CASES PRESENTED BY EXTERNAL DOCTORS.

THE MONTHLY TOX'IMM MCM DEALT WITH 90 CASES.



2020 TOTAL	Cases discussed	New Patients	Cases external
MCM sarcoma	2,448	865	449
MCM hematology	2,081	917	838
MCM digestive	1,670	664	91
MCM oncogynecology	1,509	410	564
MCM breast	1,485	858	60
MCM thoracic	1,483	579	185
MCM pre-treatment sarcomas, bone and soft tissues	1,175	791	382
MCM ENT	885	373	67
MCM molecular	699	602	309
MCM skin tumors	621	304	92
MCM URO + MCM rare c	534	345	39
MCM malignant bone lesion	371	229	29
MCM adolescents and young adult	217	96	172
TOTAL	15,178	7,033	3,277

4. Types of hospitalization and organization

Local apartments

The Centre Léon Bérard has **seven apartments for non-medical accommodation**, called 'appartements de proximité' (local apartments), in a small apartment block not far from the hospital and its technical platforms. The first patient to benefit from this new way of replacing hospitalization was received on 30 September 2013.

> In 2020

187

**STAYS WITH AN
AVERAGE LENGTH
OF 8 DAYS**



These apartments are offered to patients who live a long distance from the CLB, to spare them long, tiring journeys. The patients who benefited from this type of accommodation in 2020 came mainly for radiotherapy sessions, but also for outpatient surgery; surgical procedures involving admission on the morning of the procedure, for patients living far from the CLB; and medical oncology hospital stays. Finally, patients from French Guiana are also accommodated in these apartments under a convention between the CLB and the Centre Hospitalier de Cayenne medical center. •



GRAZIELLA GRESLIN

Accommodation officer



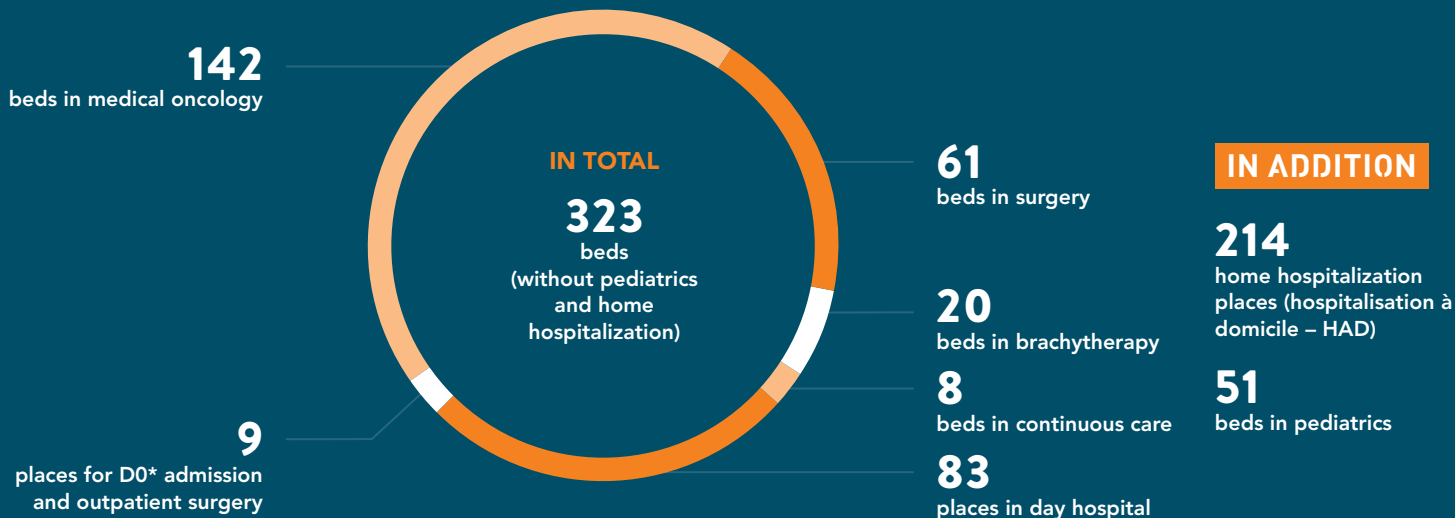
**THESE APARTMENTS ARE
NOT SEEN AS HOSPITAL
ROOMS.**

**THE PATIENTS
ARE COMPLETELY
INDEPENDENT AND
THEY DO NOT RECEIVE
ANY CARE.**



In figures

HOSPITAL CAPACITY



**Admission on the same day as the surgical procedure*

CONVENTIONAL HOSPITAL STAYS AND OUTPATIENTS

11,092
conventional
hospital stays

5.48
average length
of stay (in days)

31,536
day hospital stays
(medical oncology)

4,782
outpatient
surgery stays



CONTINUOUS CARE

710
stays with
transfers

3.6
average length
of stay (in days)

2,540
administrative
days

639
patients

86.7%
occupancy rate

HOME-BASED CARE

HOME HOSPITALIZATION
(HOSPITALISATION À
DOMICILE – HAD)

1,787
patients

7,512
stays

HOME-BASED CARE
(SOINS À DOMICILE – SAD)

1,286
patients

2,163
stays

5. Supportive care

To support patients and their families during the illness and treatments, the Centre Léon Bérard has put in place various complementary care and support activities. Some of these activities are financed by CLB fundraising campaigns and support from the voluntary sector.

SUPPORTIVE CARE

- > Social assistance;
- > Treatment of addiction;
- > Physiotherapy;
- > Nutrition;
- > Wounds and scarring;
- > Pain management;
- > Psychological support.

LIVING BETTER WITH CANCER

- > Adapted physical activity;
- > Associations;
- > Well-being;
- > Therapeutic education;
- > Meeting and information spaces;
- > Sophrology and art therapy.

Key figures for 2020

3,036

patients given care by the DISSPO*,
> 26.7% of the active list

1,631 patients given care by the psychology team

2,666 patients given care by the dietician team

668 patients seen regularly by the mobile palliative care team

835 patients seen in pain relief consultations

96 patients given care for chronic wounds

191 patients given care in lymphology

1,458 patients seen regularly by the social service

1,987 patients seen regularly by the physiotherapy team

FOCUS ON THE MEETING AND INFORMATION SPACE

88%
women

1,044

visitors to the patients' Meeting and Information Space (Espace de rencontre et d'information patient, ERI)

12%
men

> **43%** in search of information

> **45%** for talking, listening and socializing

*Interdisciplinary Department of Oncology Supportive Care

Therapeutic education and article 51

In 2020, **42 patients were able to have their immunotherapy treatment at home as part of the 'article 51'** experiment set up by the Centre Léon Bérard. In this innovative project, the role of the Therapeutic Education for Patients and their Families (Éducation thérapeutique aux patients et proches, ETAPP) team is to coordinate the establishment of education pathways for patients; ensure that healthcare professionals who practise in the city

develop their competences (training in immunotherapy within the framework of the Onco Aura regional oncology network); and monitor the city-based healthcare professionals.

In 2020, 70 private nurses from all over the Auvergne-Rhône-Alpes region were trained and 28 therapeutic patient education workshops were carried out by private nurses in patients' homes

This innovative project has led to a real

coming together of all the players in the patient's care pathway, an enrichment of the practices of private nurses in a field that was previously underdeveloped in home-based care, greater peace of mind and safety for patients (dedicated and available caregiver at home), and an optimization of exchange and communication between the city and the hospital thanks to the development of connected tools and interfaces. ●

In figures

42

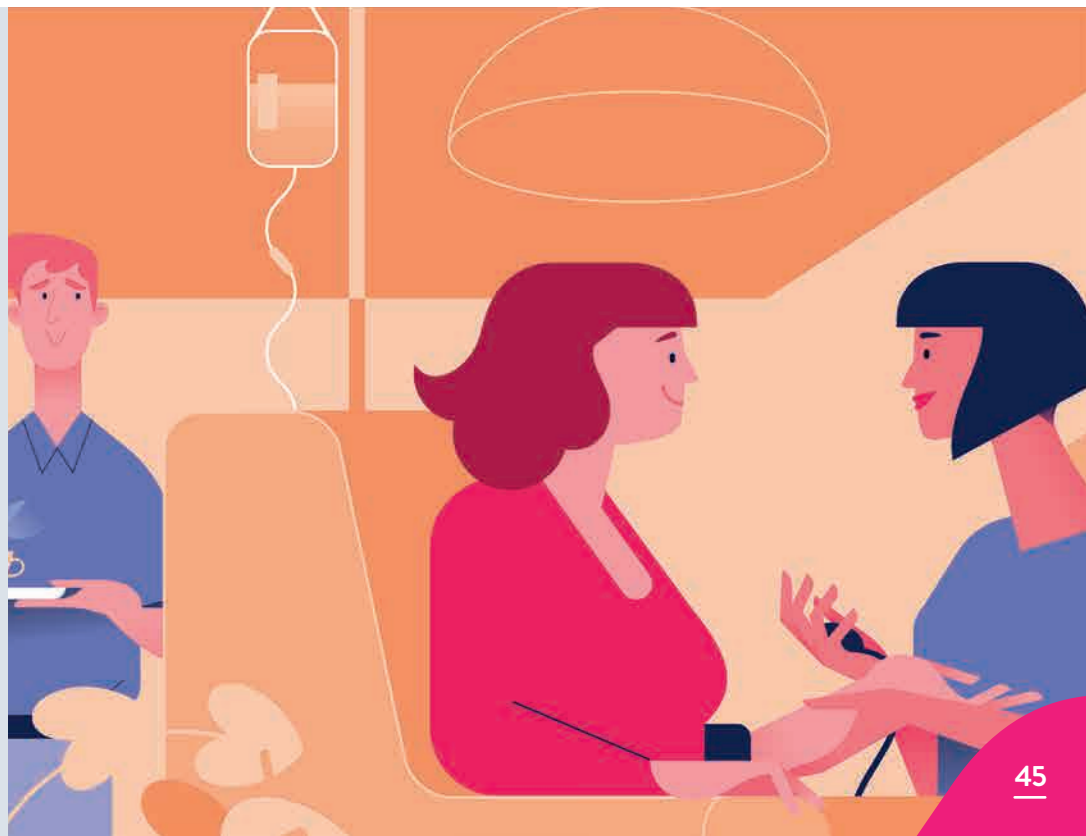
PATIENTS ENROLLED

on December 31, 2020
monitored for the following
tumor locations: lung,
urology, melanoma and ENT

109

DOCTORS' SURGERIES INVOLVED

(36 private nurses,
45 general practitioners
and 28 paramedics)



Figures for therapeutic

2 NEW WORKSHOPS

- 1** *'Understanding the challenges of my immunotherapy treatment and preventing adverse effects'*
- 2** *'Knowing about the various examinations and treatments associated with my immunotherapy and learning self-evaluation following the appearance of symptoms'*

732

educational diagnoses carried out at the start of care

of which **40** as part of the article 51 experiment on immunotherapy at home

530

patients in educational evaluation upon completion of care

of which **2** as part of the article 51 experiment on immunotherapy at home

INDIVIDUAL EDUCATIONAL WORKSHOPS

> 480 individual workshops

67

patients at workshop on
'Taking heed of one's fatigue in order to move ahead'

271

patients at workshops
on treatments

211 patients at workshop on
'Learning to read the results of my physical assessments with equanimity'

8 patients at workshop on
'Managing the adverse effects of my chemotherapy'

48 patients at workshop on
'Managing the adverse effects of my hormone therapy'

26 patients at workshop on 'Understanding the challenges of my immunotherapy treatment and preventing adverse effects'

▶ of whom **22** as part of the article 51 experiment on immunotherapy at home

6 patients at workshop on
'Knowing about the various examinations and treatments associated with my immunotherapy and learning self-evaluation following the appearance of symptoms' as part of the article 51 experiment on immunotherapy at home

education at the CLB in 2020



56
patients at workshop on 'stomas'
(colostomy and ileostomy)

59
patients at
nutrition workshop

23 patients at workshop on
'Managing my diet in spite
of the adverse effects of the treatments'

36 patients at workshop on
'Faith and a balanced diet'

27
patients at workshop
on physical activity

17 patients at workshop
'Assimilating the notion of physical activity'

10 patients at workshop
'Knowing and applying the recommendations
for physical activity'

GROUP EDUCATIONAL WORKSHOPS

> **162** group workshop sessions
358 patients

14 sessions and **35** patients at
'Fatigue' workshop

9 sessions and **23** patients at workshop
on 'Managing the adverse effects of my
hormone therapy'

51 sessions and **99** patients
at 'diet' workshop

17 sessions and **27** patients
at workshop on 'Eating in spite of side effects'

29 sessions and **56** patients
at workshop on 'Balancing my diet'

5 sessions and **16** patients
at workshop on 'Managing snacking and better
understanding labels'

76 sessions and **172** patients at workshop
on 'adapted physical activity'

40 sessions and **96** patients at workshop
on 'Assimilating the notions of physical activity'

36 sessions and **76** patients at workshop
on 'Knowing and applying the recommendations
for physical activity'

12 sessions and **29** patients at workshop
on socio-esthetics 'Discovering a well-being
workshop'

Providing treatment for addictions throughout the care pathway

The Team for Liaison and Care in the Treatment of Addiction (Équipe de Liaison et de Soins en Addictologie, ELSA) was set up at the Centre Léon Bérard in 2017 within the department of Prevention and Public Health.

Thanks to this multi-professional team (doctor, nurse, psychologist, dietician, secretary), **patients suffering from an**

addiction (to a substance or a non-substance addiction) can benefit from appropriate care during their hospitalization (classic hospitalization or day hospital).

Despite the healthcare crisis, the team increased its activity, conducting 1,441 interviews in 2020. This increase can be directly linked to the training

sessions carried out in previous years in the hospitalization services (which unfortunately could not be maintained in 2020), allowing better identification and reporting by the care teams. The number of pre-operative alcohol withdrawals was, however, impacted by surgery deferrals, with 17 withdrawals in 2020 compared to 31 in 2019. ●

Key figures

ACTIVE LIST OF THE ELSA

Addiction Treatment Liaison Team

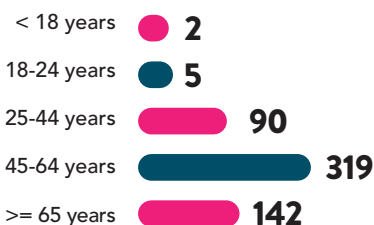
558
patients
of whom **489**
new patients

1,136
hospital stays

1,441
interviews



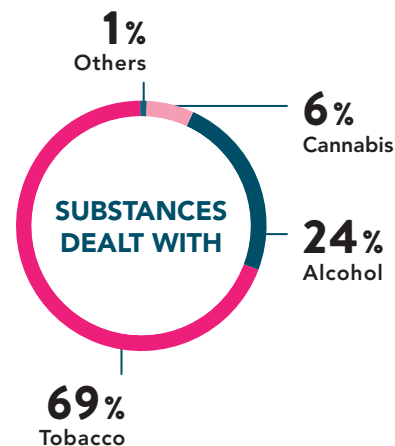
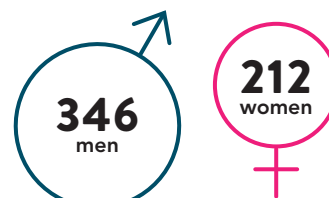
Distribution by age group



Distribution by facilitator



Distribution by sex





MARIE DARGENT

Nurse at ELSA



IN 2020, ELSA WAS IMPACTED BY THE HEALTHCARE CRISIS, AS WE ALL WERE. INITIALLY, THE SERVICE'S ACTIVITY WAS MODIFIED AND WE CONDUCTED INTERVIEWS EXCLUSIVELY BY TELEPHONE. WE RAPIDLY RESUMED OUR ACTIVITY IN THE SERVICES TO ENSURE HIGH-QUALITY CLINICAL EVALUATION AND TO SUPPORT THE CARE TEAMS. THE RECURRING CHANGES TO APPOINTMENTS (SURGERY, CHEMOTHERAPY, RADIOTHERAPY, ETC.) HAD A MAJOR PSYCHOLOGICAL IMPACT ON THE PATIENTS, WHO FOUND IT VERY DIFFICULT TO BE PROACTIVE IN ALTERING THEIR CONSUMPTION. WE HAVE SUPPORTED THEM AS WELL AS WE CAN TO GET THROUGH THIS DIFFICULT PERIOD AND TO COPE WITH THEIR DISTRESS.

Adapted physical activity

Since 2010, the **Centre Léon Bérard** has offered its patients the chance to do adapted physical activity (APA) during treatment. And since 2018 there has been a dedicated space for such activities on site: the Pyramid Space. The team also works closely with outpatients in the day hospital.

> In 2020

971

PATIENTS WERE SUPPORTED IN ALL PROGRAMS COMBINED

In 2020, a remote APA program was provided, including sessions by video conference (gymnastics, pilates, yoga, stretching, circuit training) and a personalized autonomous physical activity program at home (exercise sheets and telephone support). Monthly 'live' APA sessions were also organized, in cooperation with the communication service.

This program was created in the

context of the healthcare crisis caused by COVID-19, with the initial aim of ensuring the continuity of APA for those patients who were already in the program at the start of the pandemic. Access to the facility was quickly extended to new patients (adults or adolescents and young adults). This development forced on us by the crisis not only enabled us to enrich the range of our services, but also to make APA more accessible to patients, particularly those who live a long way from the CLB. ●

> In 2020

99

PATIENTS BENEFITED FROM THE REMOTE APA PROGRAM:



The average age of the participants was 50.9 years [12-78 years].



Innovation for all

- 6. Clinical research
- 7. Translational research
- 8. Fundamental research





6. Clinical research

> Focus on some flagship trials conducted at the CLB in 2020

LIBRETTO-001

The Centre Léon Bérard is participating in **the international multi-center LIBRETTO-001 study**, designed and implemented by Loxo Oncology. This is a phase 1/2 study of the safety and efficacy of selpercatinib (LOXO-292), an inhibitor of RET tyrosine kinases encoded by the RET proto-oncogene. The study investigator is Dr. Philippe Cassier.

This study consists of two phases, a phase 1 dose escalation study and a phase 2 study for the extension to the recommended dose. In this study, the cancer drug is administered orally to patients with advanced solid tumors, including solid tumors expressing the RET fusion gene (non-small cell lung cancer, thyroid cancer, pancreatic cancer, colorectal cancer), CMT with RET mutation and other tumors with RET gene activation (mutations in other tumor types or other evidence of RET activation). Adult and young adult patients aged 18 years and older can be enrolled in the study. The primary objective of this early phase study is to determine the maximum tolerated dose relative to the recommended Phase 2 dose. Twelve patients were enrolled in the study in 2020. ●



12

**PATIENTS
WERE ENROLLED
IN THE STUDY
IN 2020**

PHRC-K 2020

Three trials conducted by doctors at the Centre Léon Bérard have been selected as part of the annual call for proposals for the Hospital Program for Clinical Research in Cancer (PHRC-K 2020) out of 36 projects selected in France.

The three studies are as follows:

- > **PersoMed-I - EORTC 1634-BTG**: this is an international trial designed and implemented by the European Organization for Research and Treatment of Cancer (EORTC) and coordinated, in France, by the radiotherapist Dr. Ronan Tanguy. PersoMed is studying personalized, risk-adapted treatment in patients in post-puberty with a newly diagnosed medulloblastoma.
- > **TPN-RAD** is coordinated by Prof. François Gouin. It is a randomized study of the use of negative pressure dressings (NPWT) versus conventional dressings in patients with soft tissue sarcomas of the limbs or trunk operated on after external radiotherapy.
- > **EDEN**, coordinated by Dr. Aude Fléchon, is a prospective phase II de-escalation and evaluation study of the miRNA marker M371 in stage IIA-IIB seminomas < 3 cm. ●



ONCOVID-21

Since December 2019, the novel coronavirus (SARS-CoV-2), which causes the infectious disease known as COVID-19, has spread rapidly worldwide, including in France. **Recent reports show an overrepresentation of patients with cancer under active treatment or cancer in remission among patients with COVID-19.** The gold standard test for detecting the virus is a molecular biology method called RT-PCR (Reverse Transcriptase – Polymerase Chain Reaction), which has, however, shown limited sensitivity and reliability. The failure to detect or the underdiagnosis of SARS-CoV-2 infection in cancer patients can have consequences for cancer treatment and clinical outcome.

It is therefore important to improve the detection of SARS-CoV-2 infection in these patients by enhancing the sensitivity of viral load and serology tests, and to provide patients with access to mass detection in healthcare facilities that specialize in cancer.

In this context, **doctors and researchers at the Centre Léon Bérard have mobilized and launched a clinical research protocol** to evaluate the ability of the Digital Droplet PCR (ddPCR) technique to detect SARS-CoV-2 in nasopharyngeal samples from symptomatic patients suspected of having a COVID-19 infection and to compare it to RT-qPCR using a validated marketed serological test (EUROIMMUN)

as a reference. Digital Droplet PCR is a highly sensitive and specific technique for molecular quantification. The Bio-Rad SARS-CoV-2 ddPCR kit is used for ddPCR. Oropharyngeal samples (easier and less invasive collection) are also analyzed by ddPCR and RT-PCR. Finally, the sensitivity, specificity and diagnostic accuracy of an in-house serological test are also evaluated.

This study, designed and implemented by the Centre Léon Bérard and coordinated by Dr. Bénédicte Mastroianni, medical oncologist at the CLB and principal investigator of the trial, has been open at the Center since November 2, 2020.

On February 9, 2021, 78 patients out of the 200 planned had been enrolled. ●



SIOP EPENDYMOMA II

Ependymoma is a tumor of the central nervous system that develops in children and young adults. Its low incidence limits the development of innovative therapeutics and hinders improvements in its management, even though its prognosis remains poor to this day.

SIOP Ependymoma II is a European clinical research program coordinated by Dr. Pierre Leblond and designed and implemented by the Centre Léon Bérard.

The objective of this large-scale study is to harmonize and improve diagnostic

and treatment procedures for children, adolescents and young adults with ependymoma, and, over time, to offer new treatment recommendations.

Patients are enrolled when the disease is diagnosed and they go through a selection stage that will make it possible to adjust further care according to the characteristics of the disease and the age of the patient, and thus to divide them into three subgroups:

- Patients older than 12 months with no residual disease after surgery;

- Patients older than 12 months with residual disease after surgery;
- Patients younger than 12 months or to whom radiation therapy cannot be offered.

The efficacy of the innovative strategies will be studied in each subgroup, based on survival without recurrence and the rate of the response to treatments.

To date, nearly 250 children have been enrolled in the SIOP EPII program, covering 15 European countries. ●

Key figures



2,481
patients enrolled in a clinical trial,
or **22.9%** of the active list

1,625
patients enrolled in interventional research

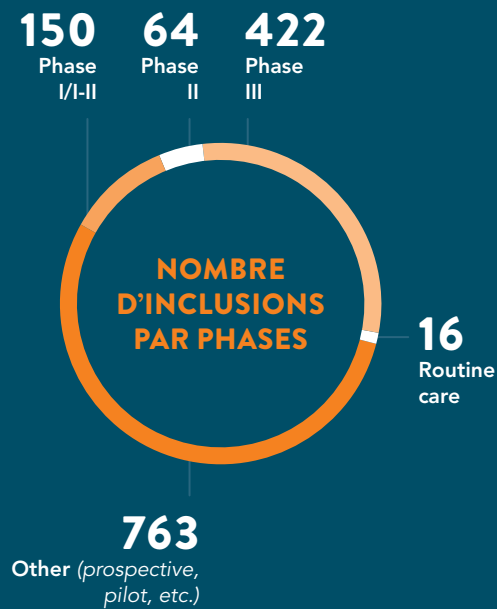
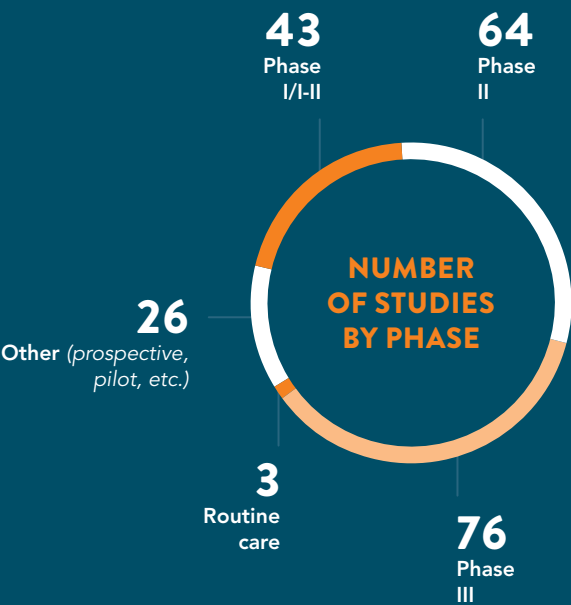
424
patients enrolled in early phase I and II trials,
of whom **106** in phase I

107
early phase I and II trials, of which
25 were phase I trials

247
studies open to patients

41
clinical trials designed and
implemented by the CLB

212
trials for biomedical research



7 Translational research

A Chair of Excellence in Human and Social Sciences

As part of the Chairs of Excellence program of the National Cancer Institute (INCa) and in partnership with the Cancer Research Cluster Lyon Auvergne-Rhône-Alpes (CLARA), Claude Bernard University Lyon 1 and the LYriCAN site for integrated cancer research, a chair in Human and Social Sciences (HSS) was created and launched in October 2019. **The main topic is the societal challenges of personalized medicine and innovations in cancer treatment and research.**

The recipient of this chair, sociology researcher Dr. Sylvain Besle, took up his post in March 2020. His research program consists of four parts:

- > The France Médecine Génomique 2025 (France Genomic Medicine 2025) platforms and the reference to experimental medicine;
- > A rare disease model: paving the way for a cross-border health system;
- > Immuno-oncology and the crises in the healthcare system;
- > The evaluation of inequalities in health in the context of experimental medicine.

The first Scientific Board of the chair, composed of experts in the field of Human and Social Sciences, took place on October 23, 2020, attended by representatives of the various partners. The mission of this Scientific Board is to monitor the progress of work on the various parts of the program and, where necessary, to advise on strategic and scientific approaches to ensure the proper execution of the program. The arrival of Dr. Sylvain Besle strengthens the HSS department of the Centre Léon Bérard, as well as the work on questions connected to patients' access to innovation. ●

BIO-INFORMATICS

Explaining the mechanisms of evolution and identifying the cell at the origin of cancer

Breast cancer is a very heterogeneous disease characterized by many different 'types' and 'subtypes'. One way of classifying these is based on molecular characterization, i.e. genes present and/or altered.

Bioinformatics plays a major role in the analysis of these data to better understand how cancer evolves, but also to understand from which cell it has developed. The Gilles-Thomas bioinformatics platform at the Centre Léon Bérard, in collaboration with Prof. Alain Puisieux's* research team, has studied a particular subtype of triple-negative breast cancer ('claudin-low'). By combining data from genomics (DNA), transcriptomics (RNA), epigenetics (gene silencing) and proteomics (protein expression), three subgroups were identified. These results, published in the prestigious journal *Nature Communication***, demonstrate that the origin of this subtype follows three distinct developmental trajectories. Surprisingly, the data show that one subtype is derived from normal human mammary stem cells, with characteristics that could be of therapeutic interest. ●

**Professor Alain Puisieux, former Director of the Cancer Research Center of Lyon (CRCL), has been Director of the Curie Institute since September 2019.*

***Comprehensive characterization of claudin-low breast tumors reflects the impact of the cell-of-origin on cancer evolution. Pommier et al., 2020. Nature Comm*

INNOVATIVE APPROACHES

Liquid biopsies – a new path?

The strength of thoracic oncology at the Centre Léon Bérard lies in the close collaboration between clinicians and researchers, allowing patients to benefit from new diagnostic tools such as liquid biopsies. These liquid biopsies take the form of blood samples and are therefore less invasive than biopsies taken from the tumor. The cancer cells release DNA that can be extracted and analyzed. A study published in 2020* based on the LIBIL protocol, whose principal investigator is Dr. Pierre Saintigny, collected more than 3,000 liquid biopsies from nearly 375 patients with bronchial cancers in the Auvergne-Rhône-Alpes region. Their work

involved the analysis of circulating tumor DNA from 128 patients whose tumors contained identified alterations in the ALK or ROS1 genes – the largest cohort reported at the time. **The test used made it possible to detect ALK and ROS1 abnormalities in circulating DNA** with good sensitivity. The liquid biopsies also allowed the detection of resistance mechanisms during the evolution of patients under specific treatments, enabling better selection of subsequent treatments. This work is continuing, in order to confirm **the advantage of liquid biopsies in patient care.** ●

**Clinical Relevance of an Amplicon-Based Liquid Biopsy for Detecting ALK and ROS1 Fusion and Resistance Mutations in Patients With Non-Small-Cell Lung. Mezquita et al., 2020. Cancer JCO Precis Oncol*

EVENT

Triple negative breast cancer

The meeting between a researcher, Marie-Alexandra Albaret, and a patient association representative, Élisabeth Marnier (Europa Donna), led to **the organization of a major conference on triple-negative breast cancer** in September 2020. This cancer can be aggressive and resistant, and it makes sense to do research aimed at identifying new therapeutic avenues. Europa Donna-Lyon, associated with the Rhône Committee of the National League Against Cancer, the association Jeune & Rose and LYriCAN, organized this conference in the Bachut library (8th arrondissement of Lyon) on the topic of

studying externalized proteins in breast cancer. The event, both face-to-face and by videoconference, showed that interest in this subject went beyond Lyon, with connections from all over France.

A number of speakers participated, bringing different points of view to the issue: Pierre-Étienne Heudel, oncologist at the Centre Léon Bérard; Pierre Pournin, oncopsihologist at the Hôpital privé de la Loire hospital in Saint-Étienne; Marina Rousseau-Tsangaris, coordinator of LYriCAN; and moderator Pascale Romestaing, responsible for the Lyon branch of Europa Donna. ●

Key figures

- 2 participations in European projects
- 90 new collaboration contracts
- 54 academic collaborations
- 41 industrial collaborations
- 49 agreements for the transfer of biological samples



INDUSTRIAL PROPERTY AND LICENSE

- 7 patents filed
 - > 3 patents licensed to manufacturers
- 4 start-ups accommodated
 - > 2 start-ups created

8. Fundamental research

CRCL

Very positive evaluation by Hcéres

The final stages in the process of evaluation of the Cancer Research Center of Lyon (CRCL) by the High Council for Evaluation of Research and Higher Education (Hcéres) took place in 2020. Because of the healthcare crisis, the on-site visit by the international committee of experts could not take place and it was replaced by hearings of the CRCL's management by videoconference and evaluations of the project team leaders based on files and written exchanges. In spite of these very special conditions, **the committee of experts issued a very positive evaluation report, both for the CRCL and for its research teams.** The report particularly emphasizes the fact that the CRCL is one of the most visible cancer research structures in France and praises its willingness to 'transfer' the results of fundamental research to the clinic. The evaluation of the CRCL ended with the validation of the projects of the research teams applying for the 2021-2026 contract by the CRCL's supervisory institutions (Inserm/CNRS/Claude Bernard University Lyon 1/Centre Léon Bérard). This last stage was successful, as all 22 applicant teams were selected and presented to the CRCL's scientific organization. These teams are divided into two scientific departments: TERI (Tumor Escape, Resistance and Immunity) and CITI (Cancer Initiation and Tumor cell Identity). ●

NEW TEAM

'Adhesion and signaling in metastatic melanoma'

Winner of the 2019 edition of the ATIP-Avenir program launched jointly each year by Inserm (the French National Institute of Health and Medical Research) and CNRS (the French National Centre for Scientific Research), Julien Ablain joined the Cancer Research Center of Lyon (CRCL) on October 1, 2020 to create his research team. He joined one of the two CRCL departments: TERI – Tumor Escape, Resistance and Immunity. Julien Ablain's research program will aim to elucidate certain mechanisms of tumor initiation and progression, in particular those that can lead to the formation of metastases in melanoma. These metastases represent the main cause of death in melanoma patients. ●



Julien Ablain



Sylvain Lefort

Two new researchers recruited in 2020 Inserm competition

Julien Ablain and Sylvain Lefort (team led by Véronique Maguer-Satta) are both winners of the 2020 Inserm 'research fellows' competition for researchers.



Two major scientific publications

During 2020, **two scientific papers resulting from the work of CRCL teams were published in prestigious scientific journals.** The first, published in the journal *Nature Cell Biology** and written by the team led by Inserm research fellow Fabrice Laval, **'Reprogramming, Stem Cells and Oncogenesis'**, in collaboration with Patrick Mehlen's team, reports on the identification of a secreted molecule – Netrin-1 – capable of dictating the fate of embryonic stem cells. In an original way, this protein is able to provide two conflicting pieces of information to the same cell, namely: 'remain a stem cell' or 'become differentiated', depending on the receptors to which it binds. This study therefore provides new insight into the control of the fate of stem cells, opening up prospects for regenerative medicine and cancer.

The second publication, in the journal

*Science Advances***, was the result of work directed by Nikolai Popgeorgiev (lecturer at Claude Bernard University Lyon 1 – UCBL), from the CRCL team **'Signaling, Metabolism and Tumor Progression'**, led by Germain Gillet. This work demonstrates a better understanding of the role played in the process of apoptosis, or programmed cell death, by a family of proteins that have been very well-preserved during evolution: the Bcl-2 proteins. The researchers succeeded in isolating molecules from the Bcl-2 proteins of *Trichoplax*, a marine placozoan, which are capable of inhibiting certain human Bcl-2 proteins commonly overexpressed in cancers. In vitro tests have demonstrated the ability of these molecules to sensitize cancer cells to drugs currently used in chemotherapy. These original results open up a new field of research on molecules with antitumor activity that exist in primitive organisms and that are worth exploiting for human health. ●

**Netrin-1 promotes naive pluripotency through Neo1 and Unc5b co-regulation of Wnt and MAPK signaling*, *Nature Cell Biology*, volume 22, pages 389–400 (2020)

***Ancient and conserved functional interplay between Bcl-2 family proteins in the mitochondrial pathway of apoptosis*, *Science Advances*, Sep 30, 2020: Vol. 6, no. 40

In figure

421 joint CLB and CRCL scientific publications

257 CRCL scientific publications

of which **16** journals with an impact factor >10

498 members of the CRCL
of whom **157** are researchers and teacher-researchers



34 different nationalities at the CRCL

Joining forces against cancer

- 9. Education and training
- 10. National and international partnerships
- 11. Communication
- 12. Fundraising



9. Education and training

A nationally and internationally recognized center of expertise and referral in oncology, the Centre Léon Bérard has as its mission to transfer its knowledge to the professionals of today and of the future. It also maintains the competences of its staff through an ambitious training program.

Education and training are arranged along three main lines:

- > **UNIVERSITY EDUCATION**
- > **THE TRAINING INSTITUTE**
- > **THE INTERNAL TRAINING PLAN**



Training Institute for external health professionals

Set up in 1981, this Institute offers more than 30 training courses and in 2020, it trained around 100 professionals simply as a result of the healthcare crisis. Face-to-face training courses had to be cancelled and videoconference sessions were organized.

In 2020, the Training Institute was inspected for the purpose of the national certification for the quality of training bodies, Qualiopi, which it obtained on November 25, 2020. ●

LAURE

Medical oncology intern, medical training
on anti-tumor immunotherapies



VERY GOOD TRAINING,
EVEN IN THE ABSENCE OF
KEY BASIC KNOWLEDGE.
THE REVISION OF THE
BASICS WAS VERY USEFUL
TO ME AND MADE IT
POSSIBLE FOR ME TO
FOLLOW THROUGHOUT
THE TWO DAYS. **MY THANKS
TO THE FACILITATORS
FOR HAVING TAKEN THE**

**TIME TO GO OVER THE
BASICS AGAIN.** THE VIDEO
FORMAT DID NOT REDUCE
THE QUALITY OF THE
TEACHING. CONVIVIAL
ATMOSPHERE – EVEN WITH
REMOTE TEACHING – AND
FACILITATORS WHO WERE
EASY TO CONTACT, WHICH
MADE IT EASIER TO ASK
QUESTIONS.

MAUD

Private nurse, training course
on central venous lines



VERY PRODUCTIVE AND
BENEFICIAL COURSE FOR
MY DAY-TO-DAY WORK.
**THANK YOU FOR YOUR
PROFESSIONALISM, FOR
LISTENING, POSSIBILITY OF
MAKING OBSERVATIONS.**
VERY EDUCATIONAL AND
VERY RICH TRAINING
COURSE!

Key figures for the Institute

117

persons
trained

of whom 8 doctors:

- 2 anesthetists
- 1 general practitioner
- 1 pharmacist
- 1 oncologist
- 1 hospital practitioner
- 1 pneumologist
- 1 head of clinic in oncology

72 instructors

466 hours
of training given

14 training courses offered

> of which **13** courses accredited
by the ANDPC*

*Agence nationale du développement professionnel continu
(National Agency for Continuing Professional Development)

The university and inter-university degrees managed in conjunction with the Claude Bernard University Lyon 1:

- > **IUD*** in **oncogeriatrics**: 5 sessions of 2 days / academic year
- > **IUD in pediatric pain and palliative care**: 5 sessions of 2 days / academic year
- > **European IUD in surgical practices in oncology**: 3 sessions of 3 days / academic year
- > **IUD in respite**: 4 sessions of 2 days / academic year
- > **IUD in tobacco addiction and help in stopping smoking**: 4 modules of 3 days / academic year
- > **MASTER 1 and 2 in public health** – coordination of M1 and participation in teaching

- > **MASTER 1 and 2 in oncology** – participation in teaching

Due to health measures, the following diploma courses could not be offered:

- > **DU** senology**: 3 sessions of 2 days / academic year
- > **UD in oncology of the upper aerodigestive tract**: 4 sessions of 2 days / academic year
- > **IUD in supportive care in oncology**: 5 sessions of 2 days / academic year
- > **IUD in comparative pathology in oncology**: 8 modules over 3 weeks, of which 2 available through e-learning

**IUD: inter-university degree - **UD: university degree*

The Lyon Master's degree in oncology

Created in 2013 as part of the Cancer Research Center of Lyon (CRCL) and the Excellence Laboratory (LabEx) DEVweCAN, **the Master's Cancer degree course is the only one in France to offer a complete training program in oncology in years 1 and 2 (M1 and M2)**. In 2020-2021, this course has 123 students, based on the research and oncology sites of Lyon, including the Centre Léon Bérard.

The M1 offers a basic foundation course, which gives students access to three specializations in M2. ●

Key figures for university education

12 university teachers, of whom

3 assistant heads of clinic (CCA)

9 university lecturers – hospital practitioners (PUPH)

80 non-university doctors and nurses participating in university courses

8 medical forums organized

1 clinicians/researchers meeting organized

Key figures for Master

46 students in M1

35 students in M2 biology of cancer

30 students in M2 therapeutic innovation in oncology

12 students in M2 oncology 3.0 'omics' approaches to personalized medicine



SOPHIE

Nurse

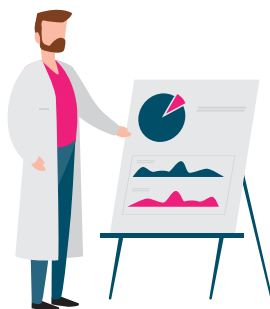


Internal training in 2020

1,066

CLB employees trained

(one or more training courses)



2.47% of the
gross payroll devoted
to continuing professional
education

1,736
employees
taking study
leave

21,768
hours of
training

THE TRAINING COURSE
ON PAIN MANAGEMENT
ENABLED ME TO APPROACH
MY DAILY PRACTICE
DIFFERENTLY. FOR
EXAMPLE, I'VE LEARNED
TO BE BETTER AT ADAPTING
MY LANGUAGE AND MY
UNDERSTANDING OF THE
PAIN EXPRESSED BY THE
PERSON BEING CARED FOR.
IT'S AN ASSET TO BE ABLE TO
TAKE ADVANTAGE OF THESE
TRAINING COURSES AT OUR
WORKPLACE AND WITH OUR
COLLEAGUES.

10. National and international partnerships

For all parts of its mission of care, research and teaching, the Centre Léon Bérard forms partnerships for the purpose of developing or funding its activities. It gains its strength from its national and international reach and numerous collaborations.

ACCESS TO HEALTHCARE

ITARA, a pilot project for regional equality

The ITARA project, led by the Centre Léon Bérard, aims **to facilitate access to state-of-the-art care for the battle against pain during cancer.** To this end, ITARA (Intrathécale Auvergne-Rhône-Alpes) is gradually creating a network of healthcare professionals (doctors, nurses, pharmacists, etc.), trained and supported according to their individual needs, to serve patients in the Auvergne-Rhône-Alpes region. Intrathecal analgesia is a treatment of choice for intractable cancer-related pain. The goal is to give patients a much better quality of life through the relief and reduction of side effects. This enables them to resume activities, sleep better, become involved in family life again, etc. Becoming proficient in relation to the products' indications and knowing how to handle them require a learning process and an investment that may seem onerous for services that rarely encounter these

patients (a complex technique, very rigorous organization, medical skills and specific care teams). As a result, this technique is available to very few teams, so that very few patients have access to it. The project was born out of this important coordination work and in order to respond to these unmet needs.

Supported by the APICIL Foundation and the departmental committees (Ardèche and Loire) of the National League Against Cancer, the ITARA project enables patients throughout the Auvergne-Rhône-Alpes region to benefit from these techniques, even if they are located far from the referral centers. In December 2020, **more than 20 facilities in 10 French departments had already used one or more of the services offered.** ●

The patient is also a partner

Set up in March 2018, Regards Croisés (Diverse Perspectives) enables former patients and their families to reflect and to spearhead proposals for the organizations of the hospital part of the Centre Léon Bérard. The group was revived in 2021 and two-thirds of its current members are new. In spite of the healthcare crisis, the group met by videoconference in 2020 and worked on **'support for patients' families'**. Its efforts resulted in the production of a booklet for families and a project presented to CLB management for the creation of a space especially for carers and family members. ●

HEMATOLOGY

A project with the Valence Medical Center

As a regional referral center for cancer care, the Centre Léon Bérard has forged numerous partnerships with medical centers in the Rhône-Alpes area with the aim of providing equal access to care to all the inhabitants of the region. For example, doctors from CLB give support to medical facilities in sectors under pressure by carrying out 'consultations avancées' (specialist

consultations provided at local hospitals and other facilities that are most accessible to patients). In 2020, for instance, hematologist Dr. Anne-Sophie Michallet provided consultations for patients at the Valence Medical Center. A plan to create a position of shared assistant doctor in hematology is being studied and could be implemented in the course of 2021. ●

Home hospitalization in Villefranche-sur-Saône

A branch of CLB's home hospitalization has been established in Villefranche-sur-Saône, within the Nord-Ouest hospital (HNO-Villefranche). The Nord-Ouest hospital and the Centre Léon Bérard have collaborated for many years. For nearly 30 years, there have been regular exchanges between the practitioners of the Centre Léon Bérard and the Villefranche facility. In 2012, the

opening of the Radiotherapy Center in the Beaujolais region, as part of a Cooperative Healthcare Consortium, facilitated the care pathway of patients in the north and west of the Rhône department. Patient care through home hospitalization is a new area of collaboration. The home hospitalization branch, which has been in operation since 2018, currently cares for close to 20 patients every day. ●



Key figures

RECEPTION OF INTERNATIONAL PATIENTS

An activity strongly
impacted by the pandemic
and border closures
Despite this:

390 new cases
processed

207 patients provided
with medical care

78 new international
patients treated

90% adults
10% children

New in 2020:

Systematic teleconsultation
scheduled before
patient appointment



11. Communication

MEDIA RELATIONS

The Centre Léon Bérard was cited

1,100

times in print, online or in radio and television reports



82

requests from journalists dealt with

25

press releases sent

WEBSITE



577,553

visitors to the Centre Léon Bérard website

80

news items published

1,249

requests for information from patients, family members, healthcare professionals, students, companies and the general public were handled by the communication service, together with the Meeting and Information Space

SOCIAL NETWORKS

(as at December 31, 2020)



10,076

subscribers

314

publications



4,056

subscribers

151

publications



7,169

subscribers

53

publications



2,580

subscribers

100

publications



1,485

subscribers

39

videos posted

EVENTS

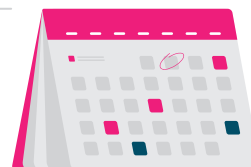
The Centre Léon Bérard organized

20

20 information events for the general public, patients and their families in 2020 (excluding fundraising)

A DOZEN 'LIVE' EVENTS

on social media with the 'espace Bien-être' (space dedicated to well-being and complementary therapies), the dieticians and the adapted physical activity team



LE CANCER NE S'EST PAS CONFINÉ.

**160 000
MORTS PAR AN.**

**Soutenez la recherche
en Rhône-Alpes :**
www.centreleonberard.fr

CENTRE
DE LUTTE
CONTRE LE CANCER **LEON
BERARD**

12. Fundraising

DONATIONS AND BEQUESTS RECEIVED IN 2020

Donations and bequests received in 2020 totaled €8,954,050.

This amount comprises all the donations and bequests made over the course of the year by individuals, associations, companies and municipalities in the Auvergne-Rhône-Alpes Region to aid innovation in research on cancer and support to patients.

€5,184,890 (+8% COMPARED WITH 2019)

Donations in 2020

As you can see in the table 'Supply and Use Account' (pages 76-77), reviewed and certified by the auditor, donations received in 2020 totaled €5.185 million:

- **The major part of these donations is 'unrestricted':** their use is decided by the Executive Board of the Centre Léon Bérard in line with the priority needs and in collaboration with the directorates of research and healthcare. Some peripheral donations are earmarked for specific programs, in particular for patient support.
- **€32,000 are from grants** provided by nearly 200 municipalities of the Auvergne-Rhône-Alpes Region. ●

€3,769,160 (+2.5% COMPARED WITH 2019)

Bequests in 2020

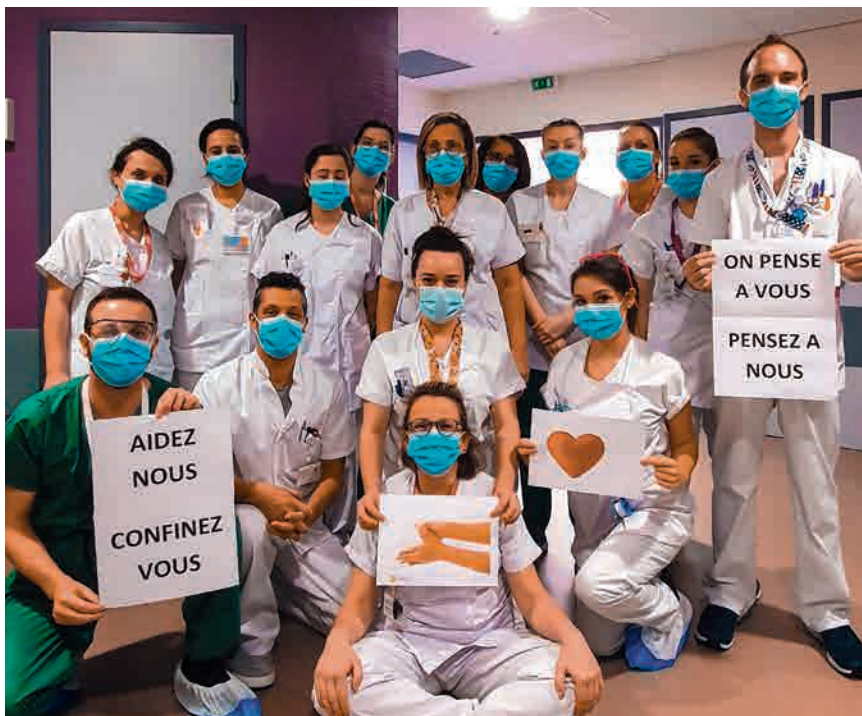
This amount corresponds to the sum of sales made during 2020 of property bequeathed to the Centre Léon Bérard (movable and immovable property) and financial products (life insurance, etc.). ●

Fundraising and operating expenses

These expenses represent only 11.7% of the total amount of funds raised from the general public.

- **Expenditure of €661,000 was linked to appeals for donations from the public** (telephone appeals for donations, mail shots, e-mails, events, websites), as well as donor management software, mailing of tax receipts, etc.
- **€395,000, of which €88,000 of expenses linked to the management of bequests** (co-ownership charges of bequeathed real estate assets, bills for repairs and maintenance of these assets, disposal costs, local taxes, grave maintenance, etc.). The remaining portion corresponds to the salary expenses of the donor relations department staff. ●

> What was achieved with the donations



€110,000

Special COVID-19 fundraising appeal

When the first lockdown was imposed in March 2020 due to the healthcare crisis, a number of companies, associations and individuals rallied round to make donations of goods or provide services to the Center's care staff (donations in kind). Whether professional medical protection materials (masks, hydroalcoholic solutions, etc.) or various types of help (local accommodation, food deliveries, etc.), these donations in kind were rapidly made available to our teams and met urgent needs.

At the same time, the Centre Léon Bérard was able to count on an exceptional surge of solidarity from its donors, who came forward during this challenging period. An urgent fundraising campaign, launched a few days after the start of the lockdown to support the research being done on COVID-19 (see pages 8 to 11), raised more than €100,000 thanks to the generosity of over 1,100 donors. ●

€11,740

Sophrology

Since 2016, the Centre Léon Bérard has given its patients the chance to attend sophrology sessions. Initially aimed at children and adolescents, these sessions were extended to adults in September 2019. The sessions are free and are offered to patients in hospital for chemotherapy, surgery or in intensive care.

This discipline has many benefits, improving the management of stress, anxiety and emotions in general. It also helps patients to better manage pain or sleeping problems, and it supports their preparation for care and treatment, for a return to daily life following an illness or at the end of life.



'Sophrology goes far beyond relaxation and reducing tension – it provides supportive care. As a sophrologist, I am there to pass on keys that enable the patient to access inner resources in spite of the illness. Patients might recall a fond memory, a trip, a place where they feel happy, or even visualize something in the future.' Christel Fayard-Couturier, sophrologist at the Centre Léon Bérard. ●

€115,000

PASCA program

Launched at the Centre Léon Bérard in 2018, the PASCA program (Healthcare Pathway Throughout Cancer) follows adult patients over five years following treatment for one of the following cancers: breast, testicular, hematologic malignancy, soft tissue sarcoma.

The objective is to detect 22 complications (e.g. deterioration in physical condition or chronic pain) that can occur after treatment, in order to prevent possible relapses. Four screening assessments are performed on the patient over this five-year period, under the supervision of a clinical researcher and an adapted physical activity (APA) teacher. When a complication is identified, the patient is immediately referred to a health professional for rapid treatment.

The donations allocated to PASCA have made it possible to finance the follow-up of patients, the work of adapted physical activity teachers and the purchase of small items of equipment necessary for making these assessments (bicycles, hoops, balls, etc.).

Due to the healthcare crisis, only 25 new patients joined the program in 2020 and there were 49 follow-up assessments (patients on the program the previous year).

The year was nevertheless marked by:

- The establishment of a dedicated medical consultation following the assessments;
- The embedding of the project within clinical research (it is now a cohort

study) with the creation of a database for evaluation – with 51 new patients enrolled between December 2020 and March 2021);

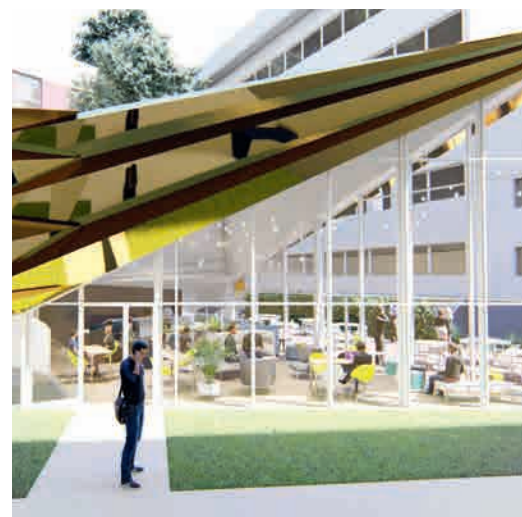
- The creation of a short hospital stay focused on APA at the Émilie de Vialar facility for follow-up care and rehabilitation to combat physical deconditioning. ●

€348,000

Local apartments



The Centre Léon Bérard has seven 'appartements de proximité' (local apartments). They are made available to autonomous patients who do not require inpatient care, who live a long way from Lyon and who are undergoing treatment at a CLB technical facility: outpatient surgery, radiotherapy, therapeutic trials and long stays. These apartments are equipped with all the essential comforts for a stay: bedding, towels, a fully equipped kitchenette, breakfast, television, etc. ●



€78,000

Research auditorium

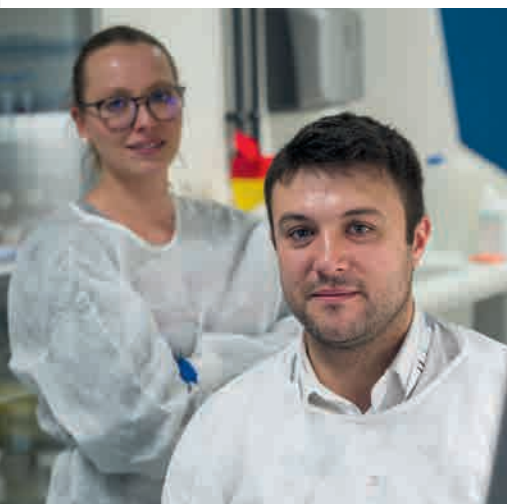
The Centre Léon Bérard's current project is to finalize the development of research facilities, culminating in the construction of a new building housing a basement auditorium with more than 220 seats as well as meeting rooms and a social space. Situated at the center of the Cheney complex of buildings and open to all researchers, these new workspaces will provide additional leverage for maximizing the creativity of research projects and innovation, and aiding collaboration and knowledge transfer.

Work on this new building will continue throughout this year and in 2022. ●

€59,000

Bio-informatics cluster

The donations made it possible to equip the center further, with the development of the computing cluster 'Regroupement d'ordinateurs' to increase data calculation power. This infrastructure, which enables platform engineers to carry out sequential and automated analyses of large volumes of genomic data, is a great asset for the CLB. ●



25 FUNDED POSITIONS

linked to research programs
and patient comfort

Post-docs, laboratory technicians or clinical research technicians: more than 25 FTE positions have been funded thanks to donations and bequests in order to strengthen the teams or initiate new projects before they obtain longer-term funding. ●



€160,000

Relaxation area for parents at IHOPe*

The association Les Étoiles Filantes (The Shooting Stars) presented a cheque for €160,000 to IHOPe in order for it to complete its 'Parents' Relaxation Space and to fund research on infiltrating gliomas of the brain stem. Depending on the pathology, children and their parents may spend between 6 and 24 months in hospital for treatments that take place on an outpatient basis, but also as inpatients for treatments lasting from a few days to several weeks. It is essential that their mental stability and well-being be maintained during these long periods. Parents who spend hours, day and night, at their child's bedside, on uncomfortable folding camp beds, need time for themselves and need to be made welcome in a pleasant and comfortable place that allows them to rest, meet other parents and, if necessary or desirable, have access to care or to workshops designed for them, such as

yoga or relaxation. This type of space was not included in the architectural design of IHOPe and it is a serious omission in relation to the well-being and mental health of the families involved.

A new project was therefore initiated in 2020 to develop an unused terrace. A relaxation area of 50 square meters will be created. Due to the healthcare crisis, the work has only just begun. The donation from Étoiles Filantes will be added to those of other associations (APPEL, Lions club, Mont Blanc Demilly, AGOPIG, Lili la guerrière and Give Hope) to finance this project.

The other part of the donations will be used to fund research on infiltrating gliomas of the brain stem. These represent between 10% and 15% of all brain tumors in children and mainly affect children between the ages of 5 and 10, with a peak at the age of 6. ●

**Institute of Pediatric Hematology and Oncology, Health Cooperation Group of the Hospices Civils de Lyon and the CLB*

THOSE WHO SUPPORT US

Individual donors

Although 2020 was thrown into confusion by the COVID-19 pandemic, the crisis did reveal the exceptional generosity of people living in the region, who did not hesitate to support cancer research. **Although the situation led us to fear a substantial decline in private donations, people gave massive support to the actions of the Centre Léon Bérard, which resulted in a record amount of funds raised.**

Despite the cancellation of the majority of events organized by the center, and those it usually participates in, the commitment of the general public never faltered. The first edition of 'La Scintillante', a fundraising walk and race organized by our teams and planned for November 14, 2020 in Lyon, was cancelled nearly two months before the starting pistol was due to be fired. Nevertheless, €80,000 in donations were raised thanks to the efforts of the participants. ●



Associations

Chaponnay contre le cancer, Espoir Cancer, Hommage Piano, APPEL, ALBEC, 111 des Arts, Fédération Enfant Santé, un Horizon d'Espoir, Agir contre le Cancer, SOLEA, Les Bonnes Fées, the Lions Clubs in the region: every year, the Centre Léon Bérard can count on the support of dozens of associations that take action for the benefit of the cancer research carried out in our laboratories and to improve the comfort of patients, both adults and children. Their activities have been

especially impacted by the healthcare crisis, as the successive lockdowns, the restrictions and/or bans on gatherings have made it completely impossible for the associations to organize most of their events. Nevertheless, **they have been able to adapt in order to renew their support for our actions and some of them, thanks to favorable dates in relation to the pandemic, managed to hold their events while observing the hygiene rules.** ●



Companies

In 2020, more than 50 companies supported the Centre Léon Bérard through corporate philanthropy. In spite of the healthcare crisis, they showed their support for the fight against cancer and once again demonstrated their increasing efforts on behalf of the CLB's actions. During the first lockdown in March, **our teams received material support in the form of donations in kind, in particular items to protect care staff from the virus** and thus ensure continuity of care at a time when protective equipment, such as surgical

masks or hydroalcoholic solutions, was scarce. The value of these donations in kind totaled close to €90,000.

Corporate donors also stepped up to the mark for the challenges between companies – 'Put on Your Sneakers' ('À vos Baskets') in June 2020 and 'Step by Step' (Pas à Pas), organized for the first time in November 2020. The first event raised €57,500 and the second brought in €31,500 to support the development of adapted physical activity at the Centre Léon Bérard. ●

Key figures

OVERVIEW OF

DONORS TO THE CLB

€4.442M

from the generosity of nearly 40,000 individual donors who supported the Centre Léon Bérard teams with one or more donations during the year.

€270,000

in corporate philanthropy from more than 50 companies in the region (excluding donations in kind).

€32,000

from more than 200 municipalities in the region that voted in favor of a grant to support the Center and its missions for the general good.

€460,000

collected thanks to nearly 60 large and small associations to help the CLB's research teams and patient care.

Supply and use accounts

USE OF FUNDS BY DESTINATION

Use of funds during financial year

	TOTAL	Of which donations from the public
1 - SOCIAL PROGRAMS	226,955,773	3,443,617
1.1. Carried out in France	226,955,773	3,443,617
Actions carried out by the organization	208,655,595	3,443,617
• Fundamental / translational / clinical research	26,439,272	3,326,881
• Patient care & quality of life	182,216,323	116,736
Payments to a central body or to other bodies operating in France	18,300,178	-
1.2. Carried out abroad	-	-
2 - FUNDRAISING EXPENSES	660,689	660,689
2.1. Costs of appeals for donations from the public	660,689	660,689
2.2. Search costs for other resources	-	-
3 - OPERATING EXPENSES	33,173,071	394,665
TOTAL USE OF FUNDS	260,789,534	4,498,971
4 - ALLOCATION TO PROVISIONS AND DEPRECIATION	1,772,387	206,755
5 - DEDICATED FUNDS CARRIED FORWARD FOR THE YEAR	-	-
Surplus from donations from the public in the financial year	11,377	4,248,324
TOTAL	262,573,298	8,954,050

RESOURCES BY ORIGIN

Resources in the financial year

	TOTAL	Of which donations from the public
1 - RESOURCES LINKED TO DONATIONS FROM THE PUBLIC	8,954,050	8,954,050
1.1. Unrequited contributions	-	-
1.2. Donations, legacies and sponsorships	8,954,050	8,954,050
Manual donations	5,184,890	5,184,890
Bequests, donations and life insurance	3,769,160	3,769,160
Sponsorship	-	-
1.3. Other resources linked to donations from the public	-	-
TOTAL RESOURCES	8,954,050	8,954,050
2 - REVERSAL OF PROVISIONS AND DEPRECIATION	-	-
3 - USE OF PREVIOUS DEDICATED FUNDS	-	-
Deficit from donations from the public in the financial year	-	-
TOTAL	-	-
DEFERRED RESOURCES LINKED TO DONATIONS FROM THE PUBLIC AT THE BEGINNING OF THE FINANCIAL YEAR (excluding dedicated funds)	-	19,387,280
(+) Excess or (-) insufficiency of public generosity	-	4,248,324
(-) Investments and (+) divestments from public generosity during the year	-	-556,293
DEFERRED RESOURCES LINKED TO DONATIONS FROM THE PUBLIC AT THE END OF THE FINANCIAL YEAR (excluding dedicated funds)	-	23,079,311



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