# ANNUAL REPORT **2019**







**Me Robert Hensler** President



**Professeur Marc Ansari** Founder and Director de CANSEARCH

# A WORD FROM THE PRESIDENT AND DIRECTOR/FOUNDER **ME ROBERT HENSLER ET PROF. MARC ANSARI**

It is 2019, almost ten years after the creation of the CANSEARCH Foundation, and the number of children with cancer has not decreased; on the contrary, it has increased slightly (almost 300 new cases per year), for no clear reason.

The main cancers affecting children continue to be leukaemia (33%), central nervous system tumours (20%) and lymphomas (13%), with the balance comprising more than 50 other cancers.

Medical research has progressed in many areas, including oncology, but the financial resources allocated to paediatric research are not at all comparable to those allocated to adults and funding remains very marginal [less than 2%], although cancer remains the leading cause of death by disease in children.

The CANSEARCH Foundation must, therefore, pursue its mission in order to bring more hope for healing and survival through the research projects conducted by its more than twenty researchers, laboratory technicians and students, with the constant concern of further reducing the toxicity of treatments and developing personalized medicine.

The various research projects of the research platform in the field of personalized medicine, such as projects in pharmacogenomics, but also those in other disciplines such as oncogenetics or neuro-oncology and our project to set up the first germline DNA biobank in pediatric oncology and hematology in Switzerland, are all aimed at advancing this muchneeded medical research.

Medical research has always mobilized significant financial resources and has made it possible to bring healing to sick children so that they can get back to school and a "normal" life.

As donors, members of our Boards and Committees, researchers, partners or volunteers, you all contribute directly to our mission and it is from the bottom of our hearts that we wish, through this Annual Report, to express our deepest gratitude and our heartfelt thanks for your trust, loyalty and commitment.

We were able to share with many of you a very emotional moment during our 4th gala fundraiser on 3 October 2019 at the Arena in Geneva. We were very touched by your presence. While thanking you for having been with us once again that evening, we look forward to seeing you again in 2021 to celebrate the 10th anniversary of the foundation! To all of you who support us so faithfully, we express our deepest gratitude and warmest thanks for your generosity and your many actions in favour of CANSEARCH.



# **MISSION OF THE CANSEARCH FOUNDATION**

The main mission of the foundation is to increase and improve the cure of children with diseases in the fields of pediatric oncology and haematology through medical research. To this end, it mainly supports the CANSEARCH Research Laboratory, a research platform in pediatric oncology and haematology in Geneva.

The scientific research projects of the CANSEARCH Foundation, a large part of which is related to personalised medicine (also known as "precision medicine") and individualised therapies, aim to better adapt treatments to the individual genetics of each child in order to reduce the toxicity they experience while improving their survival. They are carried out mainly for cancers such as leukaemia, or for children receiving stem cell transplants. Other studies aim to study certain types of tumours in more detail (liver, brain or extra-cranial tumours such as neuroblastoma).





Juli

**Sébastien Joliat** Treasurer

## **FINANCIAL ELEMENTS**

Once again this year, we have the great pleasure of being able to thank all our generous donors for their one-time or regular donations, as well as all those who have set up actions [CANDO for CANSEARCH] in favour of the foundation.

Your support has enabled the CANSEARCH Foundation to finance its research projects, mainly through the salaries of researchers and laboratory equipment.

Your unconditional involvement and generosity ensures that the CANSEARCH pediatric oncology and hematology research platform will have the financial sustainability to carry out its projects.



# **PROFIT AND LOSS STATEMENT** FOR THE YEAR ENDED DECEMBER 31ST, 2019

(with previous year comparative)

	2019	2018
Income	4'244'318	3'595'823
Grants, private donations	4'231'625	3'595'823
Subsidies and financial aid, city of Geneva	12'693	-
Direct expenses	1'714'498	1'205'791
Laboratory expenses	219'519	171'659
Salaries, wages & other research expenses	1'466'776	936'442
Research donations	-	64'185
Fixed assets depreciations	28'203	33'505
Profit from operations	2'529'820	2'390'032
General and administration expenses	678'975	315'057
Fund raising events cost	373'916	8'562
Salaries and other benefits - administration	224'636	212'199
Scientific Committee fees	9'110	10'268
General and administration expenses	54'612	68'883
Accounting, audit and consultancy fees	16'702	15'145
Earnings before interests and taxes (ebit)	1'850'844	2'074'975
Financial result	-16'381	-14'554
Banks fees	-4'980	-3'809
Other financial revenues	173	85
Exchange variations	-11'574	-10'831
Earnings before fund affectation	1'834'464	2'060'421
Funds contributions	1'834'464	2'060'421
Contribution to the research fund	1'849'735	2'082'205
Contribution to the fixed assets depreciations fund	12'475	11'721
Fixed assets depreciations fund reallocation	- 1'031	
Use of the fixed assets depreciations fund	-26'715	-33'505
NET PROFIT	_	



## **BOARDS AND COMMITTEES OF THE CANSEARCH FOUNDATION**

Some changes have taken place in our Board and Committees during the year 2019.

Mr. and Mrs. Olivier and Michèle Maus, as well as Mr. Guerric Canonica, have given us great pleasure to accept to join our Honorary Committee. Mr. Philippe Lenz, already a member of the Foundation Board, took over the function of Treasurer from Mr. Sébastien Joliat on 1 January 2020.

We would like to take this opportunity to warmly thank all the members of the CANSEARCH Foundation's Boards and Committees for their time and valuable expertise.

### COMPOSITION OF BOARDS AND COMMITTEES AS OF JANUARY 1, 2020

### **Honorary Committee**

Mrs Martha ARGERICH Mr Guerric CANONICA Mr Guy DEMOLE Mr Léonard GIANADDA Mr Romain GROSJEAN Mrs Carole HUBSCHER Frédy and Franco KNIE families Mrs Michèle MAUS Mr Olivier MAUS Mr Olivier MAUS Mr Pierre MOTTU Mr Claude PICASSO Mr Stan WAWRINKA Mr Jean ZERMATTEN ZEP

### **Foundation Board**

Mr Robert HENSLER, President Mrs Céline DENIZOT, Vice-President Mr Sébastien JOLIAT, Treasurer (until 31.12.2019) Mr Philippe LENZ, Member (then treasurer from 01.01.2020) Mr Maurice Machenbaum (from 01.01.2020)

### **Director and Founder of the Foundation**

Professor Marc ANSARI

### **Consultative Committee**

Mr Thomas GOOSSENS Ms Patricia HUBSCHER EICHENBERGER Mr Gian Cla PINÖSCH

### **Scientific Committee**

Professor Jakob PASSWEG, Chairman Professor Sylvain BARUCHEL, Member Professor Marina CAVAZZANA-CALVO, Member Professor Urs MEYER, Member

### **General Secretariat & Fundraising**

Mrs Patricia LEGLER, Secretary General Mrs Nathalie MARTENS JACQUET, Donors' Officer

### 2019 event organizing committee & permanent volunteers

Mrs Stephanie ANSARI Mrs Laurence BAGNOUD-ROTH Mrs Alix RIVOIRE Mrs Valérie STECK Mrs Cathy WINTSCH

# WHY IS IT IMPORTANT TO CONTINUE SUPPORTING CHILDHOOD CANCER RESEARCH?

In Europe, it was only after the creation of hospitals dedicated exclusively to children in the first half of the 19th century that there was a real interest in paediatric cancers. Prior to that, they often went unnoticed because of the high child mortality at that time.

In the 1930s, thanks to the discovery of certain molecules, the first trials of anti-cancer drugs began. These were often derived from treatments administered to adults and were therefore not always well suited to children, and radiotherapy was still in its infancy.

From around 1970 onwards, paediatric oncology began to develop and international collaborations were set up, allowing studies to be carried out on these rare tumours which could not be done in a single country due to a lack of sufficient numbers of cases.

Medical research on childhood cancer is therefore young, but in 50 years it has already made it possible, in high-income countries, to reverse the mortality rate. Whereas 80% of children with cancer died in the 1970s, they can now be cured.

It is in order to save ALL children, and above all to reduce the sometimes heavy side effects of those who are cured, that RESEARCH MUST CONTINUE, because it is the only way to bring what these children and their families want most: A FUTURE WITHOUT DISEASE!

## THE PROGRESS OF OUR RESEARCH PROJECTS

In view of the important development of our research platform in pediatric oncology and hematology (CANSEARCH Research Laboratory) created in 2011 in partnership with the Faculty of Medicine of the University of Geneva and the University Hospitals of Geneva (HUG) and placed under the direction of Prof. Marc Ansari, its organisation has been reviewed and adapted: Dr. Tiago Nava, Head of Clinic at the HUG, has become Deputy Director of the CANSEARCH Research Laboratory, responsible for translational research. Dr. Rao Chakradhara Uppugunduri was promoted to Head of Basic Research and Mr. Denis Marino to Administrative Director of our pediatric oncology and haematology research platform.

As for our projects, there have been interesting developments which we describe below.

### The pharmacogenomics project

The global pharmacogenomics project has seen many results and advances. At present, despite improvements in the dose adjustment of Busulfan, the main therapeutic agent used in chemotherapy in preparation for hematopoietic stem cell transplantation, the project is still in progress, it remains difficult to achieve remission in all patients while minimizing the toxicity and adverse effects of the drugs. In order to stratify the risks for different patients, numerous studies and sub-studies have been developed by our pediatric oncology and hematology research platform to identify a maximum number of genetic biomarkers associated with the pharmacokinetics of Busulfan (i.e. how the body influences this drug) and the clinical results of the transplant (presence of side effects or not).

Several genes and their genetic variants (GST, CTH, UGT, KIAA etc.) have already been identified as such biomarkers. The same is true for several combinations of therapeutic agents (Busulfan is often used in association with other drugs). Since then, other functional experiments and in vitro sensitivity tests (cell-based, laboratory experiments) are underway to understand the role of other genetic variants in the observed clinical outcomes. Indeed, thanks in particular to new genotyping and genome sequencing techniques, we can identify new genetic markers.

### **The BUGENES Study**

The BuGenes study aims to conclude 15 years of work in the field of pharmacogenomics by prospectively identifying (using an algorithm) biomarkers that can predict in advance the reaction of a child to treatment with Busulfan, the main chemotherapeutic agent used to prepare a patient for a hematopoietic stem cell transplantation ("transplant") in certain leukemias. This genetically tailored dose personalization project is the first prospective pediatric pharmacogenetic clinical trial in Europe.

To this end, it is planned to recruit 230 patients between the ages of 0 and 18 who have been affected by this disease over the next few years. Re-enrolment will start with medical centres in Switzerland and will continue with organisations in France, Denmark, Italy and Canada.

In parallel, our researchers at the CANSEARCH Research Laboratory have been working to improve the customization method by including other patients in their databases for analysis, which will increase the reliability of the method.

In 2019, this project was supported by the International BFM Study Group (iBFM-SG), a leader in the treatment of leukemia in Europe.





### The MYECHILD project

During the past year, the recruitment of patients for this project has been extended to France, with 28 new medical centres having agreed to include their patients in this study. The United Kingdom, but also Ireland, Australia and New Zealand were invited to provide samples from their patients. In order to ensure that these samples were obtained as efficiently and safely as possible, the logistics of their shipments were rethought and tested by the various stakeholders, including new centres in France.

It should be noted that obtaining such samples is a long and delicate process that can take many months [the study itself will take several years because it is future-oriented it is called "prospective"]. Indeed, since this is extremely personal data, their transmission requires various consents and formalities before they can be sent from one country to another.

2020 should witness Switzerland's entry into the international protocol of this study, the aim of which is to test new therapeutic strategies and identify new genetic markers, with targeted DNA sequencing for this type of leukaemia (acute myeloid leukaemia) which still has a high mortality rate. The first sample recruitment in our country is planned for 2020.



### The FORUM Study

2019 was an important year for this project. The results of the research showed that radiotherapy was a better cure than chemotherapy in the treatment of acute lymphoblastic leukemia, despite the toxicities associated with it. This study is still open to answer other questions, including the role of genetic variants in the response to radiotherapy and the incidence of toxicities.

The pharmacogenomic component of FORUM has therefore progressed well, with more than 300 patients recruited in our study, most of whose DNA samples are located in Geneva. The entire genome sequencing of these patients began at the end of 2019 and is expected to be completed in 2020. The clinical data from this research will be available for genetic-clinical association studies.

### Neuroblastoma (Oncogenetics) Project

Neuroblastoma is the most common extracranial tumour in children, developing mainly in the abdomen, but also in the chest. This cancer, which originates from cells of the sympathetic nervous system, is a significant contributor to the death of children under 5 years of age. Children with high-risk neuroblastoma have a particularly poor prognosis with a survival rate of less than 50% despite intensive treatment. During 2019 and early 2020, our researchers, under the direction of Dr. Fabienne Gumy-Pause, continued their work on the role and efficacy of the PRIMA-1MET molecule in the treatment of neuroblastoma by focusing mainly on the performance of in vitro and in vivo pre-clinical experiments. The aim of this work is to demonstrate that this molecule has such potential that it could be rapidly considered for the treatment of this tumour or other pediatric cancers.

In parallel with these experiments, our researchers have also continued their work on the combination of this molecule with the chemotherapies used in the standard treatment of this cancer. The results obtained highlighted several promising synergies and identified new targets for PRIMA-1MET actions.

These very encouraging results, which will allow new and innovative treatment options to be considered for young patients with this disease, have been published in 2019 [Mlakar et al., J Exp Clin Cancer Res], while more recently obtained results will be presented at the ANRA ("Advances in Neuroblastoma Research Association"] World Congress in Amsterdam in May 2020 and then sent for publication in a recognized medical scientific journal.




### The Brain Tumour Project (Pediatric Neuro-Oncology)

High-grade gliomas (brain tumours) represent a serious pathology in children, for which research must be intensified in order to improve the prognosis for these patients. Thanks to our project in this field, led by Dr. André von Büren, which aims to analyse data from patients diagnosed with this disease and which is being carried out in collaboration with the Geneva University Hospitals (HUG), a path of hope is opening up for patients.

In 2019, a study on this topic was published in the European Journal of Cancer. The results show that a biopsy is feasible in patients with a brain-stem inflicting glioma and that the tissue obtained is sufficient for detailed molecular analyses.

The goal for the future is to create a data registry of patients with high-grade gliomas in collaboration with European working groups in order to understand why there are significant disparities in diagnosis between young children (-3 years) and older children or adolescents.



# The Kids Liver CANSEARCH Group (Liver tumors)

For liver cancer, which is very rare in children [1% of all childhood cancers], Prof. Marc Ansari is associated with other researchers from Europe, Japan and the USA within the framework of the CHIC ("Children's Hepatic International Collaboration") international collaboration project. Within this framework, an exceptional database of patients who have suffered from these very rare tumors will be set up, which will provide a better understanding of this cancer and the ways to treat it.

This project, as well as the one concerning the international clinical study of the treatment of childhood liver cancer (PHITT), benefited from fruitful exchanges between researchers during the working meeting on the "International Liver Pediatric cancer project" held at the Biotech Campus in Geneva at the end of 2019.

Thanks to the various collaborations through CHIC and PHITT, we will contribute to the creation of the first international registry for all children relapsing from liver cancer in order to improve the survival of children suffering from this pathology.





### The biobank project

The establishment of a biobank dedicated to the collection of biological material and related clinical and genetic data from paediatric cancer patients is essential both to validate treatment strategies and to provide tomorrow's researchers with the material they need for their future research on paediatric cancers.

The first stage of this biobank project consisted in creating the BaHOP ("Biobank in Pediatric Hematology and Oncology") which, since 2016, has been collecting and storing numerous samples of biological materials such as blood or saliva, within the Pediatric Oncology and Hematology Research Platform.

On this basis, samples are collected and stored from patients outside Geneva and Switzerland who participate in various international clinical trials for which the pediatric oncology and haematology platform is active, such as our FORUM or MYECHILD projects described above. This is an example of the very interesting synergies that exist between our various projects.

In 2019, the national part of the bio-bank called "BISKIDS" ("Biobank In Switzerland for germline DNA collection in Kids with blood disorders and cancer") made good progress with the start of the collection of germline DNA from the approximately 1'000 survivors of child cancer in Switzerland (out of the 7'000 survivors in our country). This step, which will be conducted according to the strictest ethical rules of consent, will on the one hand enable future genotype-phenotype association studies to be carried out, such as the study entitled "Genetic risks



of complications in children after oncological treatment in Switzerland (GECCOS)" described below, but also to link this data with that existing at other institutions such as the Swiss Childhood Cancer Registry in Berne (supported by the Swiss National Science Foundation). In order to make this material even more easily accessible to researchers in the future.

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### The GECCOS project

The aim of the GECCOS project is to analyse the weaknesses of each child who has had cancer in Switzerland by deciphering his or her genes in order to identify genetic risk factors for developing complications such as lung or hearing problems.

Data on the disease, its treatment and health problems after the end of treatment already exist and are collected on an ongoing basis. All this data is stored at the Swiss Child Cancer Registry in Berne. In order to compare and analyse this data with the genetic information of these patients, salivary kits for the extraction of genetic material will be sent out in 2019. To date, 950 people have already been contacted to provide such a sample of their saliva and we plan to send such kits to all of the approximately 7,000 paediatric cancer survivors in Switzerland.

The analysis of these data by our researchers can only be carried out once the DNA from each kit has been extracted, a task that will be carried out at the CANSEARCH Research Laboratory. The phenotypic data (lung function and hearing test) will then have to be made available at the Institute for Social and Preventive Medicine (ISPN) in Bern in order to correlate the genotypic and phenotypic data.

For this project, two PhD student researchers, associated with the Institute of Social and Preventive Medicine in Bern, joined the CANSEARCH Research Laboratory to coordinate the implementation of this project.

# CONGRESSES AND CONFERENCES IN WHICH OUR RESEARCHERS ACTIVELY PARTICIPATED IN 2019

- Meeting of SIOPEL, ("International Society of Pediatric Oncology for Liver Cancer"), (CHILTERN/PHITT) - Hiroshima, November 2018
- iBFM conference on individualised therapy in leukaemia (ALL FORUM), Milan, January 2019
- Scientific Committee of the Swiss Paediatric Oncology Group (SPOG) - Lugano, February 2019
- The 45th General Assembly of the European Society of Blood and Marrow Transplantation (EBMT) - Frankfurt, March 2019
- ALL-SCTped 2012 FORUM Study Committee Meeting - Frankfurt, March 2019
- The workshop organized by the "Children's Hepatic tumor International Collaboration " (CHIC) - Schönried, March 2019
- Annual meeting of the Society of Pedriatic Hematology and Oncology" (GPOH) on pediatric brain tumours - Basel, March 2019
- The Chiltern Collaborators' Meeting Munich, April 2019
- The "Personalized medicine day" organized by the European Society of Pharmacogenomics and Personalised Therapy" (ESPT) - Belgrade, May 2019
- Annual Meeting of SIOP Europe, the European Society for Paediatric Oncology - Prague, May 2019
- iBFM/SIOPE meeting for the FORUM and BUGENES projects Prague, May 2019

- Meetings of the Swiss Group for Pharmacology and Individual Therapy (SPT) and the Swiss Society of Clinical Pharmacology and Toxicology (SSCPT) - Basel, June 2019
- Myechild-Connect AML on individualized therapies in myeloid leukemia - Paris, September 2019
- The annual congress on personalised medicine of the European Society of Pharma- cogenomics and Personalised Therapy (ESPT)
  Seville, October 2019
- 51st Annual Congress of the International Society of Paediatric Oncology (SIOP) - Lyon, October 2019
- The Chiltern Collaborators' Meeting on Liver Cancer - Campus Biotech de Genève, November 2019
- The symposium co-organized by Swissnex, the University of Geneva and the Indian institute JIPMER - Puducherry, India, November 2019
- The 62nd Annual Meeting of the American Society of Hematology (ASH), Orlando, December 2019
- Working meeting with partner researchers from the Paediatric Research Centre at Sainte-Justine Hospital, Montreal, December 2019



# **OTHER ITEMS RELATING TO OUR OPERATIONS IN 2019**

Since 2011, the CANSEARCH pediatric oncology and hematology research platform has published 172 papers and 263 abstracts presented at international and national congresses, demonstrating the dynamism of our scientific research.

Our research is currently conducted by more than twenty researchers, laboratory technicians and students, specializing in pediatric oncology and hematology, biomedicine, molecular and cellular biology, genetics and statistics.

Some of our studies are carried out in close collaboration with other centres in Switzerland

or around the world, as is the case for our pharmacogenetics project in which we are funding a researcher at CHU Sainte-Justine Hospital in Montreal, Canada. For our GECCOS project on the risks of complications after pediatric cancer, we are supporting two researchers, PhD students from the Institute of Social and Preventive Medicine in Bern, active on this project. Finally, we also have a DNA sequencing project underway with the EPFL.

In addition, more and more medical and science students are asking to come and do long-term internships at our research platform.



## AN EVENING FULL OF JOY AND HOPE

On October 3, 2019, the Geneva Arena hosted more than 870 guests for the 4th edition of the CANSEARCH Foundation charity evening, of which a large part of the costs were covered thanks to generous sponsorship. Thanks to all of you for your participation, and continued support



1. The Foundation Board / 2. some of the researchers of the CANSEARCH pediatric oncology and haematology research platform / 3. Singer Isabelle Boulay / 4. The auction led by Mrs Laurien Hessels / 5. Singer Bénabar / 6. Speech of the President, Mr Robert Hensler in front of the 870 guests / 7. Speech of the founder and director of the foundation, Prof. Marc Ansari / 8. The Children's Choir of the Pediatric Onco-haematology Unit of the HUG accompanied by the pupils of the Carolina School / 9. The Master of Ceremonies, Olivier Dominik

## THE ACTIONS OF OUR GENEROUS DONORS

Once again, many of you have become involved with the CANSEARCH Foundation by talking about our mission to those around you, making donations or organizing activities in our favour [CANDO for CANSEARCH].

Thanks to all your initiatives, the sum of more than CHF 200,000 has been raised. This is in addition to all the donations you have generously made outside of CANDO.

We are very grateful for this magnificent outpouring of generosity for which we thank you from the bottom of our hearts, on behalf of the children and their families who fight against the disease every day.

Here are just a few examples of the CANDOs in which you participated in 2019:

• CANRUN

More than a hundred runners and walkers participated in the 5th edition of the RACE FOR GIFT solidarity race in support of CANSEARCH and won the prize for the most important fundraiser.

A group of runners also took part in the Escalade Race participating in the colours of CANSEARCH.

### • CANSWANS

A sale of swan photographs was organized by a generous friend of the foundation, with proceeds going to the CANSEARCH Foundation.

CANDINNER

A real estate group organized a charity evening for its clients and partners with a photo auction in support of CANSEARCH.

### • CANGOLF

A golf competition in support of CANSEARCH allowed many friends of the foundation to get together and combine sporting fun with charity.

### • CANTRIATHLON

A young mother completed a triathlon thanks to the support of her family and friends, so that children with cancer could benefit from the medical research carried out by the foundation.

### CANSWIM

One family took advantage of the Christmas Cup to raise funds to support our researchers in their activities.

### • CANBASKETS

One bank converted the steps taken by its employees in an effort to promote physical activity into donations for the CANSEARCH Foundation.

### • CANBOOK

Various initiatives to write books or schoolwork on the theme of paediatric cancer and scientific and medical research have helped to raise awareness of these areas among the public and young people.

Finally, various companies carried out commercial activities to support our mission by allocating a percentage of their sales to the foundation and several people organized parties or dinners where donations replaced gifts. Finally, some people wished to support CANSEARCH in lieu of flowers on the occasion of a death of a friend or family member.











# **THANK YOU**

To all of you who have been at our side, whether you are friends, volunteers, researchers, caregivers, donors, families of sick children or members of our Councils and Committees or sponsors, we extend our warmest thanks for your precious and indispensable help, allowing us to tirelessly seek again and again to find more solutions to cure children.

### A HUGE THANK YOU TO ALL OF YOU!



### Publisher

Fondation CANSEARCH Chemin Pont-Perrin 6 CH – 1226 Thônex T. +41 76 679 45 63 info@cansearch.ch www.cansearch.ch

### Photography

@Raphaël Lods @Laurence l'Huillier

### Mirabaud & Cie

Boulevard Georges-Favon 29 CH – 1204 Geneva Account no.: 508397 Swift: MIRACHGGXXX IBAN: CH10 0877 0000 0005 0839 7

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