RAPPORT *Annuel*



2025

CANSEARCH
fondation de recherche
contre le cancer de l'enfant

CANSEARCH Fondation

Mission

The CANSEARCH Foundation is dedicated to advancing paediatric oncology and haematology for the benefit of children and their families. Based in Geneva, its work extends across Switzerland and internationally. By funding innovative projects, the Foundation supports the development of personalised therapies, including those based on pharmacogenomics, with the aim of making treatments more effective and less toxic. It also promotes the well-being and recovery of children affected by cancer and blood disorders, while providing support to their families when needed.



Vision

The CANSEARCH Foundation is working towards a future in where every child with cancer can benefit from precision medicine tailored to their individual genetic profile, helping to reduce side effects and improve their chances of recovery. By collaborating with leading medical centres and internationally recognised researchers, the Foundation aims to play a key role in advancing paediatric treatments and improving the quality of life of young patients.



Values

The Foundation’s work is guided by core values: scientific innovation to advance medicine, collaboration with research institutions and healthcare professionals, and a strong commitment to supporting children and their families. Transparency and excellence are also at the heart of everything the Foundation does, ensuring that its work has the greatest possible impact.



Message from the *President*

Dear friends, donors and partners of the CANSEARCH Foundation,

We are delighted to present our 2025 Annual Report, highlighting the work and achievements made possible by your generosity and our shared commitment. Since the Foundation was established, our mission has remained unchanged: to bring together generosity and expertise and turn hope into tangible progress for children with cancer.

In 2025, philanthropy continues to play a vital role in funding projects that serve the public good in Switzerland. With almost 13,800 active foundations and several billion Swiss francs distributed each year, Switzerland has one of the most dynamic philanthropic ecosystems in Europe. Geneva holds a unique position within this landscape. As an international city, it is home to an exceptional concentration of humanitarian organisations, NGOs, foundations and academic institutions, making it a global hub for philanthropy and for humanitarian and scientific collaboration.

For CANSEARCH, this rich ecosystem represents both a tremendous opportunity and a growing challenge. With an increasing number of organisations championing equally worthy causes and seeking donor support, fundraising has become more competitive and demanding than ever. At the same time, our work – including research into precision therapies and comprehensive genetic sequencing – requires considerable resources.

Against this backdrop, maintaining and diversifying our sources of funding is essential, as is demonstrating clearly and transparently the tangible impact of every donation. The continued support of our philanthropic partners and foundations is crucial in providing the stable, long-term funding needed to pursue increasingly ambitious scientific projects for the benefit of children.

Over the past year, CANSEARCH has faced several key strategic challenges:

- supporting increasingly complex and costly research while expanding the international reach and impact of our scientific projects;
- securing stable, long-term funding in an uncertain economic environment;
- raising awareness of childhood cancers, attracting new philanthropic partners and strengthening relationships with our longstanding donors.

Meeting these challenges requires us to continually innovate in the way we work, strengthen our standards of governance and evaluation, and communicate clearly and compellingly about the progress made possible by our donors.

The year 2025 was also marked by an extraordinary range of creative initiatives from friends and supporters of the Foundation. We were particularly encouraged by the involvement of young people, whose enthusiasm and generosity give us great hope for the commitment and solidarity of future generations. These initiatives reflect the warmth, creativity and dedication of our donors, volunteers, corporate partners and individual supporters. We are immensely fortunate to have such a committed community behind us.

Thanks to this collective support, CANSEARCH can continue to advance medical research, explore new therapeutic approaches and open up new possibilities for treatment. While significant progress has been made and more children are surviving cancer, some survivors experience long-term effects as a result of their illness and treatment. Understanding these late effects, and finding ways to prevent or reduce them, therefore remains a central focus of our research.

We extend our heartfelt thanks to everyone who makes the CANSEARCH Foundation's mission possible: our Foundation Board, Scientific Committee, partners and volunteers, as well as all the researchers and healthcare professionals who work alongside us. We are especially grateful to our loyal donors, whose continued commitment and trust make all our projects possible.
Together, let us continue to work with determination and passion to give every child affected by cancer the best possible chance of recovery and the prospect of a healthier, brighter future.

With our deepest gratitude,



Sébastien Joliat
President of the CANSEARCH Foundation

Message from the *Founder*



Prof. Marc Ansari

Head of the Pediatric Oncology
and Hematology Unit,
Director of the CANSEARCH Research
Platform in Pediatric Hemato-Oncology
at the University of Geneva,
Founder of the CANSEARCH Foundation

This year, the CANSEARCH Foundation is celebrating an important milestone: 15 years of unwavering commitment to fighting childhood cancers and blood disorders.

Fifteen years guided by one fundamental belief: every child deserves the best possible chance of recovery, with treatments that are increasingly effective and better tolerated.

Thanks to this collective commitment, the progress we are seeing today is both real and measurable. The scientific advances supported by CANSEARCH have contributed to significant improvements in survival rates while helping to reduce the side effects of treatment – two essential objectives in protecting the future health and quality of life of young patients.

The results achieved by the Paediatric Oncology and Haematology Unit at the HUG are remarkable, with a survival rate of 94%, above the national average, demonstrating the tangible impact of the research we support. These achievements are no coincidence: they are the result of sustained investment in innovation, scientific collaboration and increasingly personalised and safer medicine.

At the heart of these efforts, the CANSEARCH Research Platform in Paediatric Oncology and Haematology at the University of Geneva has established itself as a recognised centre of expertise both nationally and internationally, particularly in the fields of precision medicine and paediatric pharmacogenomics. Our growing understanding of the relationship between a patient's genetic profile and their response to treatment now makes it possible to tailor dosages to the individual, improving the effectiveness of therapies while limiting their toxicity. The quality and intensity of this scientific activity are reflected in an impressive body of work: more than 376 publications and over 411 presentations at international conferences. These achievements demonstrate not only the credibility and expertise of our Foundation, but also the scale of the challenges that still lie ahead. The year 2025 was also marked by the expanding reach of our activities. The organisation of major symposia, closer collaboration with leading institutions – including EPFL, the University of Bern, Campus Biotech and Gustave Roussy in Villejuif – and our participation in major international conferences all reflect the recognition CANSEARCH has gained within the scientific and medical communities.

Building on this momentum, we are taking another significant step forward with the planned opening in 2026 of our first satellite research platform in Pondicherry, India. This ambitious project will allow us to share our expertise and contribute directly to improving care for children in regions where survival rates remain very low.

These achievements are above all the result of an exceptional team. Now comprising more than twenty specialists – researchers, physicians, bioinformaticians, doctoral students and technicians – it embodies excellence, innovation and the next generation of scientific research. The many distinctions and competitive grants we have received, including three grants from the Swiss National Science Foundation (SNSF) in 2025, further confirm the quality and impact of our work.

Adding to these shared achievements, I was deeply honoured to be appointed Full Professor at the University of Geneva's Faculty of Medicine, where I myself completed my medical studies.

Our research projects, structured around ten areas of precision medicine, cover a broad spectrum of paediatric oncology and haematology. They include innovative studies such as the BuGenes trial – a prospective, randomised international study designed to tailor chemotherapy doses to each child's individual genetic profile in order to reduce side effects – as well as our new *drug profiling* initiative, which anal-

yses how individual patients metabolise and respond to medicines by combining genetic and biological data. Our work also includes the development of biobanks such as BaHOP. Each of these initiatives is driven by the same objective: to achieve lasting improvements in the care and treatment of children.

Another initiative of which we are particularly proud is Canhypnosis, recently introduced within our unit at the HUG. The programme provides hypnosis training for healthcare professionals as a complementary approach to caring for children with cancer. Its aim is to reduce the pain, stress and anxiety associated with treatment while improving children's overall well-being and quality of life.

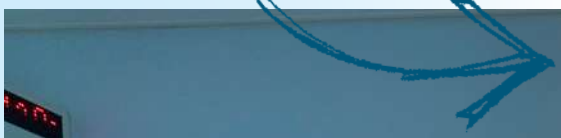
More than ever, we are convinced that research holds the key to transforming the lives of young patients. Thanks to you, our dear friends and donors, we can continue to pursue this mission with ambition, determination and hope.

I sincerely thank you for your trust and your continued commitment to our cause.



94% survival rate

The HUG's UOHP currently posts the highest survival rate in Switzerland



The Global Impact of CANSEARCH's Scientific Innovations

The CANSEARCH Foundation funds innovative research in precision medicine, with a particular focus on pharmacogenomics. Through the excellence of its openly shared scientific publications and its extensive collaborations with leading medical networks and internationally recognised experts, the CANSEARCH Research Platform in Paediatric Oncology and Haematology at the University of Geneva has established itself as a leading international research centre. By continually expanding its international partnerships and collaborative studies, the CANSEARCH Research Platform is helping to advance research and accelerate discoveries in the fight against childhood cancers.

Nearly 2,800 children worldwide benefit from advances made through CANSEARCH research.

20% increase in survivale over 10 years among children who have received a stem cell transplant.

+ than 20 researchers and team members work at the CANSEARCH Research Platform, alongside around 20 additional collaborators who work with the team regularly in Bern, Basel, Paris, India, Los Angeles and elsewhere.

+ than 200 hospitals worldwide collaborate with the CANSEARCH Research Platform.

10 areas of research are currently being pursued at the CANSEARCH Research Platform, including personalised therapies, leukaemia, haematopoietic stem cell transplantation, sickle cell disease, liver tumours, brain tumours and neuroblastoma.

+ than 30 translational clinical research studies are being conducted, taking discoveries directly from the laboratory to the patient's bedside at the Paediatric Oncology and Haematology Unit of the HUG.

+ than 38 countries collaborate with CANSEARCH.

+ than 376 scientific papers have been published since 2011 in prestigious journals including the *Journal of Clinical Oncology*, *The New England Journal of Medicine*, *Nature* and *Blood*.

+ than 411 research abstracts have been presented at international conferences since 2011.



BaHOP, the biobank established in Geneva in 2015, is celebrating its tenth anniversary. Its purpose is to store, share and analyse samples in accordance with international standards, supporting the advancement of research in paediatric oncology. Today, the biobank holds more than 12,000 samples.



Scientific partnership with Gustave Roussy in Villejuif, France, one of Europe's leading cancer centres. This close collaboration is helping to accelerate access to innovative therapies and improve clinical protocols. Since October 2025, Dr Brice Fresneau, a physician-researcher at Gustave Roussy, has been regularly involved with the CANSEARCH Research Platform, contributing to its research project on ototoxicity. His involvement reflects CANSEARCH's strong links with an international network of leading scientific and medical institutions.



Scientific partnerships with leading international networks and associations, *including SIOP (International Society of Paediatric Oncology) and EBMT (European Society for Blood and Marrow Transplantation).*CANSEARCH is also affiliated with the Faculty Centre for Translational Biomarker Research (CITB) and the Translational Research Centre in Oncology and Haematology (CRTOH), which is itself affiliated with the *Swiss Cancer Center Léman* (SCCL).



Three competitive research grants awarded in 2025 reflect the excellence of CANSEARCH's research projects: an HUG early-career fellowship awarded to one of our physician-researchers; SNSF funding for the FINESS project (*Fathers in Need of Emotional and Social Support*); and approximately CHF 1 million in funding for the FRESCO project, including the GECCOS subproject focusing on ototoxicity.



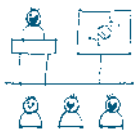
Research Platform in India. A satellite of the CANSEARCH Research Platform will officially open in 2026. Professor Rao Uppugunduri, who spent nearly 15 years working with the CANSEARCH Research Platform in Geneva, has received an SNSF grant for the INDALL project. He will lead this new CANSEARCH satellite research centre in Pondicherry, India. This Indo-Swiss collaboration will enable CANSEARCH to share its expertise in pharmacogenomics and personalised treatments in paediatric oncology and haematology.



Highly Specialised Medicine (HSM). In 2024, the HUG's Paediatric Oncology and Haematology Unit was designated as a specialist centre for the treatment of childhood cancers and blood disorders, with specific responsibility for paediatric allogeneic haematopoietic stem cell transplantation and the management of acute myeloid leukaemia (AML). The HUG is also Switzerland's leading centre for the treatment of paediatric liver tumours and is the only centre in the country where surgery for childhood liver tumours is performed.



Our research projects are accredited and co-funded by leading institutions, including the Swiss National Science Foundation (SNSF), the Swiss Cancer League, the HUG Private Foundation, Kinderkrebs Schweiz and the Swiss Biobank Platform.



Participation in international conferences and scientific meetings, providing opportunities to exchange expertise and develop research partnerships. In Geneva, CANSEARCH also organised conferences focusing on childhood liver tumours, paediatric palliative care and pharmacogenetics. At the end of 2025, Geneva also hosted the SFGM-TC meeting, bringing together experts from across the French-speaking world in bone marrow transplantation and cellular therapies.



The BuGenes study, the CANSEARCH Research Platform's flagship project, is expanding to 19 centres across Europe – including the United Kingdom – as well as the Middle East, Australia and New Zealand, enabling the study to recruit more participants. A further three centres in India, China and Europe have expressed an interest in taking part. Other studies, including MyeChild, FORUM, SCRIPT AML, RELIVE and PHITT, are also expanding internationally, with increasing collection and exchange of data and biological samples. These collaborations aim to improve our understanding of the diseases being studied, including liver tumours and blood cancers.

Financial *Overview* and Financial *Statements*

Dear donors and partners of the CANSEARCH Foundation,

It is with sincere gratitude that I present our financial report for 2025.

Thanks to your continued commitment and loyalty, the CANSEARCH Foundation has been able to pursue its vital mission. The care and prudence that guide our financial management enable us to maintain a solid financial foundation, support ambitious scientific projects and assist families facing the challenges of illness.

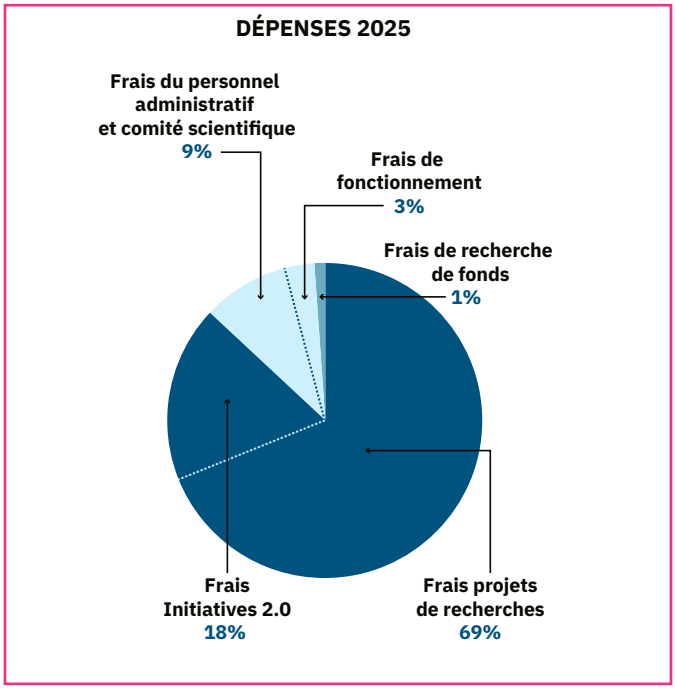
The change in our financial results between 2024 and 2025 should be viewed in the context of an exceptional previous year. In 2024, the Foundation benefited from a particularly favourable combination of circumstances: the success of our biennial charity evening, the remarkable support of Fergal Mullen – a generous philanthropist and accomplished sportsman – together with his network, as well as several significant donations received towards the end of the year.

The 2025 results therefore represent a return to a level more reflective of our usual activities. This in no way calls into question the Foundation's financial strength: our underlying position remains sound and carefully managed.

As our President, Sébastien Joliat, has highlighted, 2025 has been a significant year for philanthropy in Switzerland, with a record number of public-benefit foundations and more than CHF 9 billion committed each year to serving the public good. Geneva recorded the strongest growth in the country in 2025. The cantonal authorities have also strengthened their commitment to philanthropy through greater tax clarity, the creation of a Strategic Council and a new information platform, with health identified as one of the priority areas alongside education and research.

Nevertheless, many challenges remain. Private foundations such as CANSEARCH play a vital role in supporting areas of research that continue to receive insufficient funding, particularly when it comes to diseases affecting children.

Once again, our community showed remarkable commitment throughout 2025. Among the year's many inspiring initiatives were challenges undertaken by students, which helped raise awareness among a wider audience while generating valuable funds for research. Golden September, the month dedicated to raising awareness of childhood cancer, was another important highlight, helping to bring greater visibility to a cause that remains far too little known among the general public.



In an uncertain geopolitical environment, we remain firmly committed to managing every donation with care and transparency, ensuring that the resources entrusted to us are used as effectively as possible. In keeping with our long-term vision, we also maintain reserves equivalent to three years of operating expenses, excluding restricted funds, to safeguard the continuity of our commitments and the long-term sustainability of our work.

As we look ahead to 2026, we will continue to uphold the same high standards of transparency, integrity and accountability.

On behalf of the entire Foundation team, I would like to express my heartfelt thanks for your trust and generosity. Year after year, your support enables us to continue working towards a better future for children with cancer.



Patricia Hubscher Eichenberger
Treasurer of the CANSEARCH Foundation

Income Statement for the *Fiscal Year 2025*

	2025 (CHF)	2024 (CHF)
Donations collected during the financial year	**1'914'688**	**6'132'525**
Donations collected	1'868'454	6'071'991
Donations in kind *	30'734	30'734
Municipal grants and City of Geneva	15'500	29'800
Research expenses during the financial year	**2'900'952**	**3'106'248**
Research and support expenses	928'803	1'003'217
Researcher and physician expenses	1'261'957	1'275'074
Initiatives 2.0	595'065	715'572
Equipment depreciation	115'128	112'386
GROSS OPERATING RESULT	**- 986'265**	**3'026'278**
Overheads	**446'469**	**927'600**
Event expenses	6'990	494'168
Administrative staff expenses	286'949	284'044
Scientific Committee fees	10'000	10'000
Administrative premises expenses	30'734	30'734
General administration expenses	77'995	89'931
Fees	33'800	18'723
GROSS OPERATING RESULT BEFORE FINANCIAL EXPENSES & INCOME	**- 1'432'734**	**2'098'677**
Financial result	**-36'296**	**120'965**
Bank charges	-4'609	-2'295
Interest income	23'907	40'216
Other financial income	–	116
Result on foreign exchange variations	-55'595	82'928
RESULT FOR THE YEAR BEFORE ALLOCATION OF FUNDS	**- 1'469'030**	**2'219'643**
Use, allocation & release of funds	**-1'469'030**	**2'219'643**
Funds earmarked for research		
Allocations to funds earmarked for research	–	2'297'073
./. Releases	-1'372'153	–
Fund for depreciation of research equipment		
Allocation to the fund for depreciation of research equipment	12'183	24'750
./. Releases from funds earmarked for research	–	–
./. Uses of funds	-109'060	-102'180
RESULT FOR THE YEAR	**0**	**0**

* In-kind donations include all services provided free of charge (rent, volunteers).

Governance

The Foundation Board

Bringing together six members with a diverse range of expertise, the Foundation Board is united by a common goal: to advance the Foundation's mission. Serving on a voluntary basis, its members share a strong commitment to the public good. The Board plays a key strategic role, setting the Foundation's overall direction, overseeing the responsible management of its resources and ensuring that its activities deliver measurable impact. Each year, it approves the budget and financial statements and appoints the members of the Foundation's key bodies: the Scientific Committee, General Secretariat, External Auditor and Honorary Committee.



Prof. Marc Ansari
Founder

Head of the Pediatric Oncology and Hematology Unit, Director of the CANSEARCH Research Platform in Pediatric Hemato-Oncology at the University of Geneva



Sébastien Joliat
Chairman & Founding Member
CFO and Member of the Executive Management of Hyposwiss Private Bank Genève SA



Patricia Hübscher Eichenberger
Treasurer
Managing Director of Caran d'Ache SA



Guerric Canonica
Membre
Attorney at Canonica Valticos Carnicé & Associés



Phil Lenz
Membre
Chief Executive Officer of Butterfield Trust (Switzerland) Ltd



Maurice Machenbaum
Membre fondateur
Co-founder of WISE Philanthropy Advisors



Valérie Steck
Membre
Secretary General, CANSEARCH Foundation

The Scientific Committe

Every September, researchers from the CANSEARCH Research Platform in Paediatric Oncology and Haematology at the University of Geneva present their work to the Scientific Committee. Bringing together leading international experts, the Committee provides rigorous, multidisciplinary and forward-looking assessment of ongoing research projects. Its membership evolves in line with scientific advances and the specific needs of the research, drawing on the expertise of internationally renowned specialists whenever required. The Committee also plays an important strategic role and may be called upon at any time to assess new projects, review funding applications and provide expert recommendations to the Foundation Board.



Prof. Jakob Passweg
Chairman

Hematologist, Basel, Switzerland
Head of the Hematology Department at the University Hospital of Basel



Prof. Sylvain Baruchel

Senior Medical Advisor Innovative Therapies
Professor Emeritus University of Toronto
at the Hospital for Sick Children



Prof. Urs A. Meyer

Professor Emeritus of Pharmacology Biozentrum, Basel



Prof. Roderick Skinner

Consultant Paediatric Oncologist / Honorary Professor of Childhood Cancer
Great North Children's Hospital and Newcastle University

The Foundation Office

The CANSEARCH Foundation office operates with three staff members working a combined 210% of full-time hours. The Foundation is also fortunate to benefit from the continued commitment and expertise of its dedicated volunteers.



Valérie Steck, Florence Schmidt, Thanh Mai



Our volunteers, Cathy Wintsch and Alix Rivoire



The Honorary Committee

Leading figures supporting CANSEARCH

Bringing together influential figures from the medical, cultural, business and philanthropic communities, the CANSEARCH Foundation's Honorary Committee provides invaluable support and advocacy for our mission. Through their standing and personal commitment, its members help strengthen the human, scientific and societal impact of our work. Their support reflects a shared commitment: to give children with cancer the prospect of a brighter future through advances in paediatric oncology research.

Me Robert Hensler, *Président*
Mme Martha Argerich
M. André-Jacques Auberton-Hervé
Mme Caroline Barbier-Mueller
M. Guy Demole
M. Romain Grosjean
Mme Carole Hubscher
M. & Mme Hubert et Caroline Keller
Familles Fredy et Franco Knie
M. Bertrand Levrat
M. Raymond Loretan
M. & Mme Olivier et Michèle Maus
M. Pierre Mottu
M. & Mme Kristian et Kate Parker
Mme Nagwa Said
M. & Mme Adam et Chloé Said
M. Stan Wawrinka
ZEP
M. Jean Zermatten

A message from Hubert Keller, Member of the Honorary Committeer



For me, supporting CANSEARCH is a meaningful and deeply considered commitment, rooted in the belief that research into childhood cancer deserves sustained attention and resources. Despite the support given to medical research and access to care, many essential projects – particularly those focused on innovative treatments – remain underfunded.

The reality of childhood cancer in Switzerland remains deeply concerning: every week, a child dies from the disease, while many survivors face long-term health effects. Against this backdrop, foundations have a vital role to play. CANSEARCH is at the forefront of supporting cutting-edge research, helping to develop more effective and precisely targeted treatments, while accompanying children and their families throughout an immensely difficult journey.

As a member of the Honorary Committee, I am proud to be associated with a Foundation that acts with integrity, commitment and vision. The advances made possible by the dedication of researchers and healthcare professionals, together with the extraordinary wave of support we witnessed in 2024 – particularly at our charity evening – demonstrate the tangible impact of this collective effort.

I would like to pay tribute to the dedication of the Foundation Board, the Scientific Committee, our partners and volunteers and, above all, to the generosity of our donors. Their support is essential to advancing research and opening up new possibilities for young patients.

Many challenges remain, but progress gives us every reason to hope. Together, with determination and a shared sense of responsibility, let us continue working towards a future in which every child with cancer has the best possible chance of recovery and can look forward to a brighter future.

CANSEARCH *Research* Projects in 2025

An overview of the key areas of research being explored by the CANSEARCH Research Platform in Paediatric Oncology and Haematology at the University of Geneva, and how they contribute to improving cancer treatment.

Paediatric cancers differ from adult cancers because they are linked to cell development rather than ageing. Children's rapidly growing cells are more susceptible to mutations, while treatments such as chemotherapy can cause more severe side effects in young patients. Despite this, childhood cancers remain relatively under-researched.

To help address this need, Professor Marc Ansari established the CANSEARCH Foundation in 2011, together with the HUG and the University of Geneva, as well as the CANSEARCH Research Platform in Paediatric Oncology and Haematology at the University of Geneva.

The CANSEARCH Foundation's primary mission is to fund medical research into childhood cancers and blood disorders. Its goal is to improve our understanding of these diseases, reduce the toxicity and side effects of treatment, and increase the effectiveness of existing therapies.

Individualised Therapy: A Global Pharmacogenomics Project

Our research focuses on personalised medicine, an approach to healthcare in which treatment is tailored and optimised for each patient according to the unique characteristics of both their tumour and their individual biology. The aim of precision, or individualised, medicine is to make treatment more effective while reducing side effects.

Pharmacogenomics lies at the heart of this approach**.** It examines how genetic variations influence an individual's response to medicines and can help predict whether a patient is likely to respond well, poorly or not at all to a particular treatment. This is especially important in paediatric oncology, where chemotherapy can be highly toxic and its effectiveness can vary considerably from one child to another. Individualised therapy makes it possible to adjust drug doses to each child, helping to improve the chances of recovery, reduce the risk of relapse and limit side effects, some of which can be severe or long-lasting.

In oncology, studies have shown that around 20% of patients do not respond to standard treatment. The drugs used in cancer chemotherapy are particularly well suited to pharmacogenomic research because they are often administered at doses that can cause severe toxicity, while individual responses to treatment vary considerably. Optimising their use is therefore essential to achieving the best possible therapeutic outcome. Short- and long-term treatment-related toxicity affects more than 40% of cancer patients and can be life-threatening or lead to permanent health problems. Pharmacogenomics therefore has the potential to improve both the safety and effectiveness of treatment and, ultimately, increase survival rates among children with cancer.





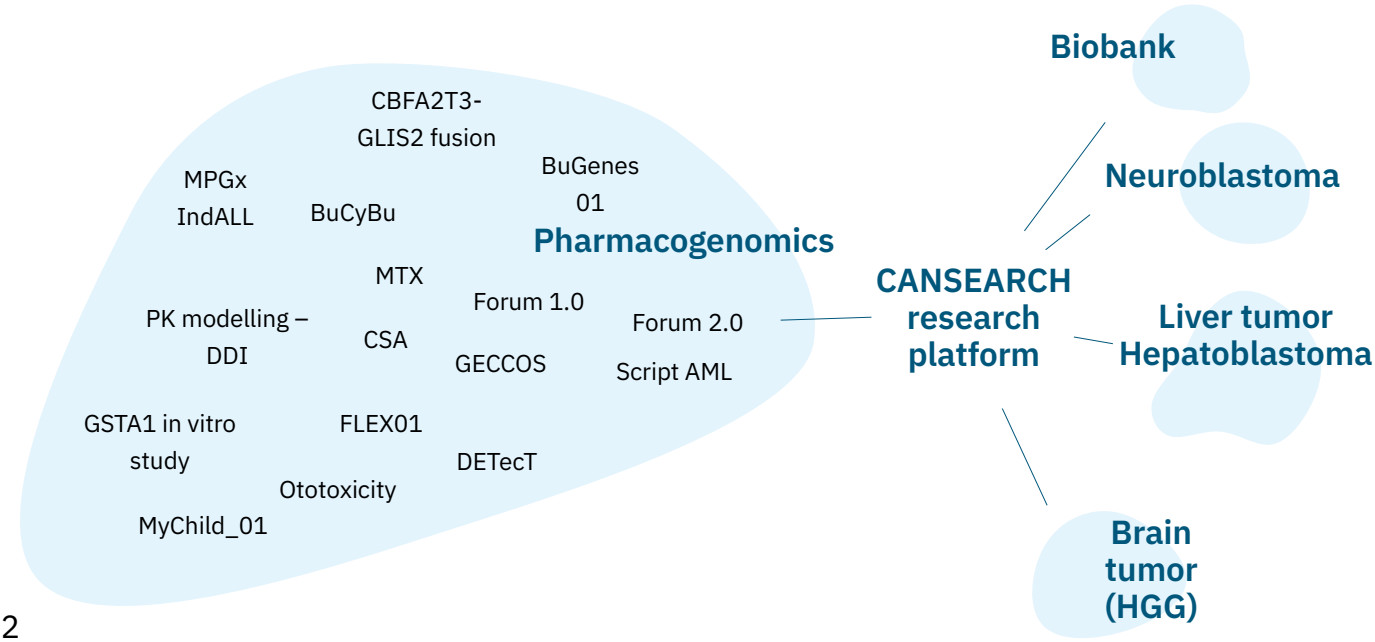
Initially, our research focused on **busulfan (Bu)**, a drug commonly used in children undergoing haematopoietic stem cell transplantation. Busulfan is particularly complex to administer because determining the right dose for each patient can be challenging.

Building on the progress made in optimising the use of busulfan, we have expanded our research to other important medicines administered before and after transplantation, including those used to prevent or treat immune complications such as **graft-versus-host disease (GvHD)**.

While determining the optimal dose of busulfan remains a challenge, our research now takes a broader approach, looking at the entire treatment regimen in order to tailor it more precisely to each child.

Our research currently focuses on 10 major areas. At the heart of these is our work on personalised medicine, encompassing pharmacogenomics and therapeutic drug monitoring in chemotherapy. This programme is subdivided into 13 sub-research projects.

1. Pharmacogenomics (PGx) and Individualised Therapy
2. Haematopoietic Stem Cell Transplantation (HSCT)
3. BaHOP Biobank
4. Neuroblastoma
5. Brain Tumours
6. Liver Tumours – RELIVE and SWISSLIVERRE
7. Drug Profiling
8. Leukaemia
9. Genetic Risk of Post-Treatment Complications
10. Non-Malignant Haematology (e.g. sickle cell disease)



Our Precision Medicine Research Projects (interconnected across our 10 research areas):

I. Individualised Therapy and Pharmacogenomics (PGx) (includes 15 sub-projects)

II. Biobanks

III. Neuroblastoma

IV. Paediatric Liver Tumour Projects

V. HGG

I. Individualised Therapy and Pharmacogenomics (PGx)

Our research focuses on personalised medicine, an approach that tailors treatment to each patient according to the specific characteristics of both their tumour and their individual biology. This precision medicine approach aims to improve the effectiveness of individually tailored treatments while reducing side effects.

Pharmacogenomics (PGx) lies at the heart of our research, helping to improve the safety and effectiveness of treatments and, ultimately, survival rates among young patients.

The "PGx umbrella" encompasses and connects all our pharmacogenetic studies. It is, by its very nature, broad in scope and highly translational. Translational research is a two-way scientific process that accelerates the translation of discoveries from basic research into practical clinical applications – taking research "from the laboratory to the patient's bedside" – while also allowing clinical observations to inform further research. Its aim is to improve diagnosis, treatment and prevention by bridging the gap between laboratory research and patient care.

1. The FORUM 1.0 This study aims to optimise treatment for children with acute lymphoblastic leukaemia (ALL) who require a stem cell transplant. By using biomarkers and genetic factors to individualise treatment doses, the study seeks to reduce toxicity while maintaining the effectiveness of treatment.

Children cannot simply be treated in the same way as adults, which is why it is essential to study conditioning regimens specifically designed for children with ALL. FORUM 1.0, the largest international study of its kind to date, demonstrated the superiority of total body irradiation (TBI) in children over four years of age. However, the study is ongoing and the data collected continues to provide valuable insights.

These findings also highlight the potential of a personalised approach to chemotherapy drugs such as busulfan. By adjusting doses individually using therapeutic drug monitoring and predictive models, it is possible to improve treatment effectiveness while reducing toxicity. By achieving a better balance between benefit and risk, these personalised approaches could offer an alternative to irradiation, which remains the standard treatment but can be associated with significant long-term effects. Our research therefore aims to help clinicians identify the right treatment, at the right dose, for each child.

For example, by precisely adjusting the dose of busulfan, we have been able to reduce the risk of relapse by almost 20% in patients with ALL following haematopoietic stem cell transplantation (HSCT). These findings have recently been published in the scientific journal Blood Advance.

The study compares different conditioning strategies used to prepare patients for allogeneic haematopoietic stem cell transplantation (HSCT). For some children with high-risk or relapsed ALL, a stem cell transplant is necessary once remission has been achieved. Before transplantation, patients undergo conditioning – an intensive course of treatment designed to eliminate remaining leukaemia cells and prepare the body to receive the transplanted stem cells. With several treatment options now available, our laboratory research continues to provide clinicians with the evidence they need to make more informed treatment decisions and select the approach best suited to each child.

2. FORUM 2.0 This study builds on FORUM 1.0 and represents the next stage in its scientific development. It aims to further optimise treatment for children, adolescents and young adults with

acute lymphoblastic leukaemia (ALL) who undergo stem cell transplantation.

FORUM 2.0 takes a modern, stratified and personalised approach, tailoring conditioning and treatment to the individual characteristics of each patient. The aim is to improve both short- and long-term transplant outcomes while reducing the need for radiotherapy. The study examines genetic factors, pharmacokinetics, pharmacodynamics and biomarkers to develop and optimise individualised treatment strategies. Three associated projects aim to:

1. identify genetic factors that influence response to transplantation;
2. optimise busulfan and fludarabine doses in children undergoing conditioning without radiotherapy; and
3. model exposure to etoposide in order to determine optimal dosing.

Further complementary studies are currently being developed. These include pharmacogenomic, pharmacokinetic and biomarker research into ruxolitinib; the development of an *ex vivo* drug-testing procedure to predict response to steroids and ruxolitinib in children with graft-versus-host disease (GvHD); and the monitoring of the long-term toxicity associated with transplant treatments.

3. DETeCT This innovative approach aims to identify new genetic mutations associated with the side effects of conditioning treatments, helping to further personalise therapy for children. By reproducing these treatments in the laboratory using both cancerous and healthy cells, researchers can analyse how the cells respond, with the aim of tailoring doses more precisely and reducing toxicity. Traditional genetic studies are often limited by the relatively small number of patients available for research. DETeCT addresses this challenge through an unbiased approach based on cellular models. By combining functional genetics with gene-expression analysis, the project can identify new mechanisms involved in treatment response, with the ultimate goal of helping clinicians select the most appropriate drug and dose for each patient. This innovative project has recently received funding through a highly competitive grant from the Swiss National Science Foundation (SNSF).

4. MyeChild 01 is a large international study involving the United Kingdom, France, Australia and New Zealand, Ireland and Switzerland. Focusing on acute myeloid leukaemia (AML) in children, it aims to improve the effectiveness of anti-leukaemia treatments while reducing their toxicity by exploring the relationship between genetics and response to treatment. The study evaluates several chemotherapy strategies and includes a dose-finding study for one of the drugs being investigated. As part of MyeChild 01, the CANSEARCH Research Platform is conducting a pharmacogenetic (PGx) sub-study to investigate the genetic factors that influence treatment response. Our researchers are seeking to identify genetic variations associated both with a lack of response to treatment and with individual susceptibility to the different therapies used in the study, beginning with the drugs used in preparation for haematopoietic stem cell transplantation.

To carry out this research, we have access to clinical and pharmacokinetic data, as well as genetic material from all MyeChild participants who have consented to PGx genetic analysis. We are currently coordinating the transfer of clinical data and genetic samples so that sequencing and subsequent analysis can begin.

5. SCRIPT AML is a new study comparing two conditioning regimens for stem cell transplantation in children with acute myeloid leukaemia (AML). Its aim is to improve treatment effectiveness while reducing the risks of relapse and toxicity.

The treatments used to prepare children for transplantation are highly toxic and carry a significant risk of side effects. The toxicity associated with conditioning is closely linked to the amount of medication administered. At the same time, children with AML face a 20–30% risk of relapse, making it essential to avoid underdosing, which could reduce the effectiveness of treatment.

Responses to these medicines can also vary considerably from one child to another, making it particularly challenging to determine the optimal dose for each patient.

SCRIPT AML therefore includes pharmacokinetic and pharmacogenetic sub-studies designed to better understand these differences in treatment response and enable doses to be tailored more precisely to each child. The findings will complement those of the MyeChild 01 study.

6. BuGenes 01 is a prospective, multicentre, randomised clinical trial designed to improve the precision of busulfan dosing according to each patient's genetic profile. Busulfan is a key drug used in preparation for stem cell transplantation, and more precise dosing could help reduce toxicity while improving treatment effectiveness.

In a randomised trial, patients are assigned at random to different treatment groups, allowing outcomes to be compared objectively. BuGenes 01 aims to recruit more than 260 patients across 21 centres in more than ten countries.

The study is one of the first in Europe to systematically incorporate genetic markers into determining the dose of a chemotherapy drug in children. It compares the standard approach,

based on clinical parameters, with an innovative approach that also incorporates pharmacogenetic data, particularly variations in the GSTA1 gene.

The aim is to determine whether incorporating genetic information can make busulfan dosing more precise, reducing toxicity while maintaining or improving treatment effectiveness and paving the way for truly personalised chemotherapy.
If the pharmacogenetic approach proves to be more accurate and safer, the findings could help shape international recommendations for busulfan dosing before transplantation and contribute to more personalised treatment, with fewer side effects and complications for young patients.

7. FLEX01 – Fludarabine is a chemotherapy drug that inhibits DNA synthesis, preventing cancer cells from dividing and multiplying. Once activated in the body, it blocks enzymes that are essential for DNA replication, disrupting the cell cycle and ultimately causing tumour cells to die. Fludarabine dosing is currently based primarily on factors such as a patient's weight or height. However, these measures do not always accurately reflect the amount of the drug to which an individual patient is actually exposed, creating a risk of either excessive toxicity or insufficient treatment.

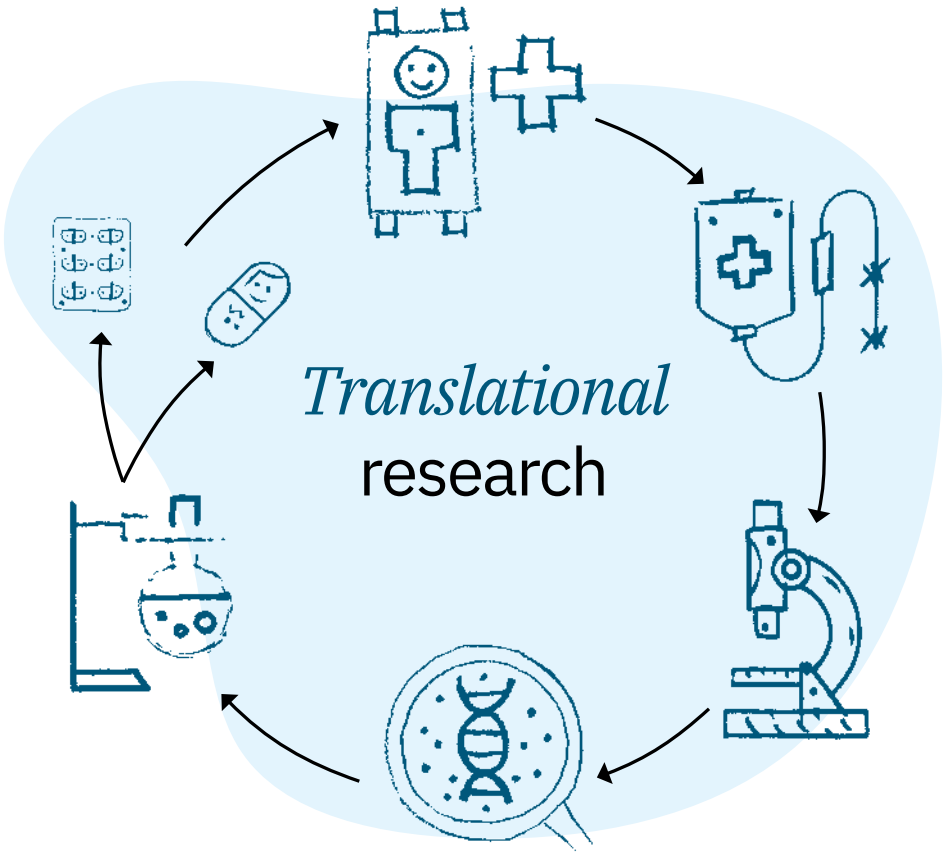
The FLEX01 study aims to determine the optimal level of fludarabine exposure by taking into account genetic factors and interactions with other medicines. The goal is to improve treatment effectiveness while reducing side effects. The project also includes the development of algorithms to enable doses to be tailored more precisely to each patient.

In 2025, the study received the necessary ethical approvals and a method for measuring fludarabine levels was developed. A model for predicting fludarabine concentrations in children is now also available.

8. PK Modelling – DDI This research project uses pharmacokinetic (PK) models to predict and prevent drug–drug interactions (DDIs) in children with cancer. It focuses on specific enzymes and key medicines, including busulfan and fludarabine, with the aim of making treatment safer and more effective.

9. GECCOS – Genetic Effects in Childhood Cancer Outcomes and Survivorship The GECCOS research programme aims to identify genetic factors that may increase the risk of long-term complications among childhood cancer survivors in Switzerland. Its initial research focuses on lung, hearing and heart-related toxicities, as well as the risk of developing secondary tumours.

9a. Ototoxicity (GECCOS) This project investigates the genetic factors associated with ototoxicity, which refers to irreversible hearing damage caused by certain treatments, partic-





ularly platinum-based chemotherapy drugs such as cisplatin and carboplatin, which can affect the inner ear. The inner ear contains the cochlea, a structure essential for hearing, as well as structures involved in balance. Ototoxicity can therefore lead to three main symptoms: hearing loss, tinnitus and dizziness. Although these cancer treatments are highly effective, they can frequently cause irreversible hearing damage, with considerable variation from one patient to another. Hearing loss is particularly concerning in young children, as it can occur at a crucial stage in the development of speech and communication skills. The study aims to identify the genetic variations and drug interactions – particularly those involving vincristine – that contribute to this toxicity. It combines genetic analyses, cohort studies and experimental models to better understand the mechanisms underlying ototoxicity, with the ultimate aim of adapting treatment and reducing long-term effects. A systematic review and cohort analyses have already been completed, and a genome-wide study is currently under way. The project is supported by the Swiss National Science Foundation (SNSF) and also provides funding for a PhD student working within the CANSEARCH Research Platform. The findings could contribute to more personalised chemotherapy for children. In the future, identifying genetic risk factors and gaining a better understanding of drug interactions could help clinicians adapt treatment strategies – for example, by adjusting cisplatin doses – to treat cancer effectively while minimising the risk of long-term hearing loss.

10. CsA (Ciclosporin) is an immunosuppressive molecule that inhibits the activation of T cells, thereby reducing the body's immune response. In children undergoing stem cell transplantation, it is used to help prevent graft-versus-host disease (GvHD). The CsA project investigates how ciclosporin can be used most effectively in children following transplantation while minimising its side effects. Determining the optimal dose is particularly challenging because ciclosporin interacts with many other medicines – including antifungal drugs such as fluconazole – and because switching from intravenous to oral administration can result in considerable variation in drug exposure. Using pharmacokinetic models, the study can predict ciclosporin concentrations and help adjust doses according to each child's clinical circumstances. This research is contributing to recommendations designed to make the use of ciclosporin in children safer and more personalised.

11. MTX (Methotrexate) – PGx FORUM This project aims to improve the prevention of graft-versus-host disease (GvHD) following stem cell transplantation by investigating the genetic factors that influence response to methotrexate (MTX), a key preventive treatment. Leukaemia affects the normal production and function of blood cells. Haematopoietic stem cell transplantation (HSCT) replaces the patient's diseased blood-forming cells with healthy stem cells from a donor, allowing normal blood cell production to be restored. GvHD can occur when immune cells from the donor recognise the recipient's tissues as foreign and attack them. Despite the routine use of preventive treatments, GvHD remains a relatively common complication following transplantation.

Using data from patients participating in the FORUM study, this project aims to identify genetic variants associated with an insufficient response to methotrexate. By gaining a better understanding of the mechanisms involved, researchers hope to tailor preventive treatment more precisely to each patient.

12. MPGx IndALL The IndALL project aims to improve the treatment of children with acute lymphoblastic leukaemia (ALL) in India, where survival rates – currently around 50% – remain considerably lower than those reported in Europe. The study seeks to identify genetic markers associated with treatment response and toxicity, enabling therapies to be better tailored and patients to be monitored more effectively. The research examines both germline genetic variations, which are inherited from a child's parents, and somatic genetic variations, which occur in the cancer cells themselves. By identifying these variations, we hope to provide clinicians with tools to recognise patients at greater risk of complications and who may therefore require closer monitoring. This is particularly important in India, where limited healthcare resources need to be used as effectively as possible. Ultimately, the study aims to improve treatment strategies in resource-limited settings and help bring survival rates for children with ALL in India closer to those achieved in Europe. The study is currently under way, with approximately half of the planned patients recruited. An initial phase of genetic sequencing involving more than 100 patients has been completed, and the resulting data are now being analysed to identify genetic markers for further validation. Professor Rao Uppugunduri and Professor Marc Ansari have received funding from the Swiss National Science Foundation (SNSF) for the IndALL project. Building on this collaboration, plans are progressing for the opening of a CANSEARCH satellite research platform in Pondicherry, India, during 2026.

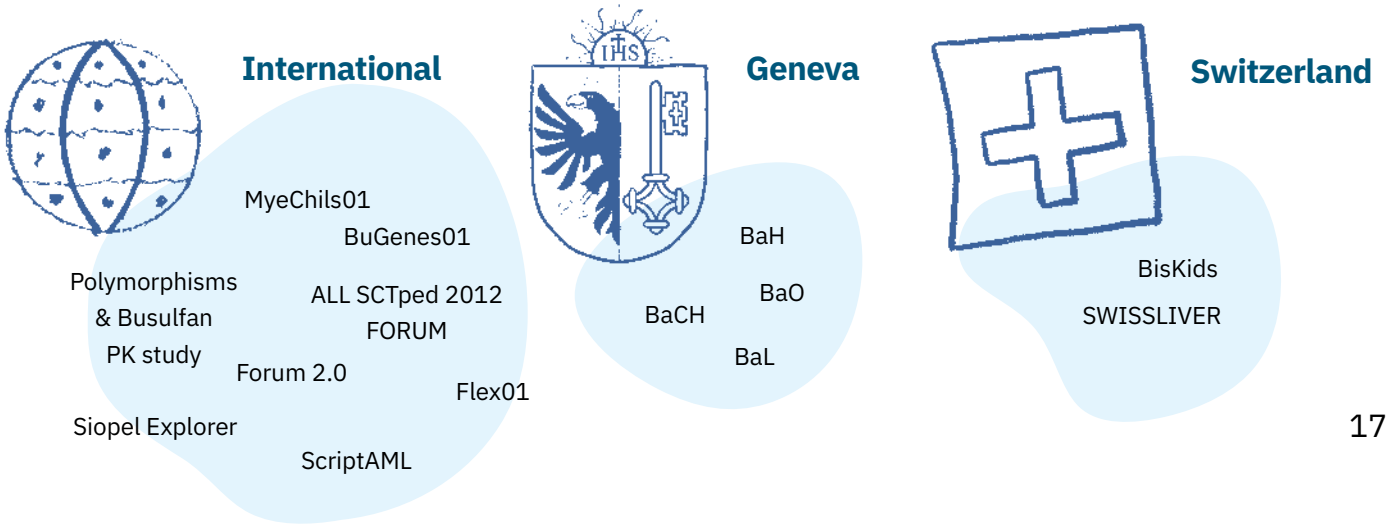
13. CBF AML This project focuses on a rare and aggressive form of paediatric acute myeloid leukaemia (AML) associated with the CBFA2T3::GLIS2 gene fusion, which has a particularly poor prognosis. The aim is to gain a better understanding of the molecular mechanisms underlying the disease and identify new therapeutic targets. Preliminary research conducted at the Dana-Farber Cancer Institute in Boston by our researcher, Dr Fanny Gonzalez, has shown that this form of leukaemia is highly dependent on the JAK2 signalling pathway. This has opened up a promising therapeutic avenue involving inhibitors that are already available for clinical use. However, resistance mechanisms involving the MAPK pathway have also been identified, suggesting that combinations of treatments may be more effective. The potential effectiveness of these combinations has already been demonstrated in preclinical models. The study is now seeking to better understand the specific roles played by the genes involved in cell differentiation. A deeper understanding of these underlying mechanisms could make it possible to target these genes more precisely and ultimately pave the way for treatments that are more effective and better tolerated by young patients.

II. Biobanks: Essential Pillars of Research

Biobanks play a vital role in cancer research by enabling high-quality biological samples to be stored alongside accurate and reliable clinical data.

BaHOP: In 2015, the Paediatric Oncology and Haematology Unit at the HUG established BaHOP, Geneva's first biobank dedicated to research in paediatric oncology and haematology. Over the past ten years, BaHOP has become an essential resource for research and innovation in paediatric oncology, providing researchers and clinicians with valuable material to better understand and treat serious childhood cancers and blood disorders. By making high-quality biological samples available for research, it contributes to advances in the prevention, diagnosis and treatment of these diseases.

The table below provides an overview of the studies made possible by BaHOP and our other biobanks.



BaHOP is organised into three sections – international, local and national – and now holds more than 13,000 samples from over 2,300 patients. Certified by the Swiss Biobanking Platform, it is also recognised at European level. In 2024, its contribution to research was highlighted by a major scientific publication produced in collaboration with EPFL.

BISKIDS: At national level, this project aims to establish Switzerland's first paediatric biobank. Based in Geneva but designed to support research both locally and nationally, BISKIDS was established in 2018 to preserve germline DNA from survivors of cancers diagnosed during childhood – a population currently numbering around 7,000 people in Switzerland. The biobank will also be able to receive samples from abroad, broadening the scope of future research. This resource will be made available to the wider scientific community and has the potential to play an important role in advancing our understanding and treatment of childhood cancers. To develop the national dimension of BISKIDS, the CANSEARCH Research Platform is collaborating with the Swiss Childhood Cancer Registry and the Institute of Social and Preventive Medicine (ISPM) in Bern.

BioLink The national collection of biological samples forms part of a broader and ambitious initiative known as BioLink. Initially supported by the Swiss National Science Foundation (SNSF), the project aims to link germline and tumour samples with the corresponding clinical data held by the Swiss Childhood Cancer Registry. BioLink brings significant added value by connecting the BaHOP biobank in Geneva and the SPHO Biobank in Zurich (Swiss Pediatric Hematology Oncology Biobank) with the Childhood Cancer Research Group (CCRG) at the ISPM in Bern. This combined resource strengthens research into the long-term consequences of childhood cancer and its treatment, including treatment-related toxicities. The project is laying the foundations for a unique, interconnected Swiss paediatric biobanking platform, bringing together clinical data from the Swiss Childhood Cancer Registry with detailed genetic profiles of tumours and germline DNA. By combining these resources, researchers can more effectively investigate the genetic and environmental factors that may contribute to childhood cancer. Inspired by successful models in Australia and New Zealand, BioLink is creating a high-quality resource supported by comprehensive clinical data. It will help advance paediatric cancer research across Switzerland while strengthening international scientific collaboration. By bringing together resources and expertise across institutions, BioLink provides a strong foundation for Swiss childhood cancer research to contribute at the highest international level.

III. Neuroblastoma

Neuroblastoma (NB) is the most common solid tumour outside the brain and skull in children. It accounts for approximately 7–8% of all childhood cancers and 15% of cancer-related deaths in children. It is the most frequently diagnosed cancer in infancy, with a median age at diagnosis of around 19 months. Approximately 90% of patients are under the age of five, while neuroblastoma is very rare in children over ten. Around half of patients have metastatic disease at diagnosis.

Children with very low-risk neuroblastoma have an expected long-term survival rate of 99–100%. By contrast, long-term survival among children with high-risk neuroblastoma remains below 50%. In these patients, the disease can spread to other organs and may prove fatal despite intensive multimodal treatment combining surgery, high-dose chemotherapy with autologous stem cell transplantation, radiotherapy and immunotherapy. There is therefore an urgent need for new treatments for children with high-risk disease.

One of the hallmarks of this aggressive form of neuroblastoma is the amplification of a gene called MYCN. This gene acts like an accelerator, driving cancer cells to multiply uncontrollably. Because these cells can adapt and develop resistance to treatment, it is unlikely that a single drug alone will be sufficient to eradicate the disease.

Our research aims to gain a deeper understanding of the biological mechanisms within high-risk neuroblastoma cells and identify what makes them so aggressive. By understanding how these different mechanisms interact, we hope to identify new therapeutic approaches and improve existing treatment protocols, ultimately offering better treatment options and greater hope to children and their families.

IV. Paediatric Liver Tumour Projects

a. International Scientific Collaborations

The CANSEARCH Research Platform in Paediatric Oncology and Haematology is currently conducting research into paediatric liver cancers, including hepatoblastoma and hepatocellular carcinoma. These are very rare cancers, accounting for only around 1% of all childhood cancers. To advance this research, Professor Ansari works closely with researchers across Europe, Japan and the United States. The Paediatric Liver Tumour Group at the HUG has national responsibility for the care of children with liver cancer in Switzerland, helping to centralise expertise and treatment for these



rare diseases. This centralisation has been supported by international research collaborations, including PHITT (Paediatric Hepatic International Tumour Trial), an international clinical trial investigating the treatment of childhood liver tumours, as well as research conducted through the SIOPEL group, for which Professor Ansari also serves as an international lead investigator. This research has received support from the European Union's Horizon 2020 programme and the Swiss Cancer League.

b. RELIVE

The RELIVE project is developing an international registry of children whose liver cancer has relapsed or progressed. Although advances in treatment have resulted in cure rates of 80–90%, the prognosis becomes significantly poorer when a tumour relapses or progresses. With each subsequent relapse, the chances of long-term survival decrease further. RELIVE aims to identify the most promising treatment combinations for these patients. It is the first project of this scale to collect clinical, treatment and biological data internationally from children with refractory or relapsed liver tumours, including hepatoblastoma, hepatocellular carcinoma and HCN NOS. The project examines the treatments these children receive – including chemotherapy, surgery and local interventions – and their short- and long-term outcomes, with the aim of identifying the most effective strategies. Based on the largest cohort of patients with relapsed or refractory hepatoblastoma to date, the study has shown that several factors – including the type and timing of relapse, the child's age and previous treatments such as cisplatin and doxorubicin – have a significant influence on overall survival. The findings highlight the urgent need for new therapies, particularly for children whose disease progresses or relapses early. By bringing together this extensive body of data, RELIVE will help inform future international treatment protocols and support the development of new therapies for children with liver cancer. Hospitals in 15 countries are already participating: Switzerland, Spain, France, Belgium, the Netherlands, Poland, Germany, the United Kingdom, Ireland, the United States, Canada, Japan, Australia, New Zealand and Hong Kong. Together, they are analysing patient records spanning the past 30 years. Analysis of the RELIVE registry is expected to help harmonise and improve treatment for these high-risk patients, with results expected in 2026.

Find out more
https://relive-international.net/

c. SWISSLIVER – Swiss National Registry of Paediatric Patients with Malignant Liver Tumours

Liver tumours are the third most common group of intra-abdominal tumours in children, after neuroblastoma and kidney tumours. Malignant paediatric liver tumours are rare and primarily include hepatoblastoma (HB), hepatocellular carcinoma (HCC), hepatocellular neoplasm not otherwise specified (HCN NOS) and undifferentiated embryonal sarcoma of the liver (UESL). The prospective SWISSLIVER national registry aims to systematically collect clinical, biological, histological, genetic, pharmacokinetic and radiological data from patients under the age of 18 diagnosed with a malignant liver tumour in Switzerland. It also collects biological samples, including blood and urine, as well as tumour and non-tumour tissue obtained through biopsies or surgery. These samples are stored in the BaHOP biobank in Geneva.

By recording the incidence and different subtypes of these tumours, together with sociodemographic information and biological samples, SWISSLIVER will provide valuable data to improve our understanding of these rare childhood cancers. The project involves all nine centres of the Swiss Paediatric Oncology Group (SPOG): Aarau, Bern, Basel, Bellinzona, Geneva, Lausanne, Lucerne, St Gallen and Zurich. A national tumour board has also been established to discuss each case and harmonise treatment decisions in ac-

cordance with international standards, drawing in particular on data from the PHITT study. The project aims to describe the epidemiology and clinical outcomes of paediatric liver tumours; evaluate and further develop treatment practices; expand the biobank to support the identification of biomarkers associated with prognosis and treatment toxicity; and strengthen the national coordination of specialised paediatric care. The protocol was approved by the Swiss Paediatric Oncology Group (SPOG) General Assembly in November 2025and is currently undergoing the necessary regulatory and administrative procedures. The HUG now serves as the sponsor and national coordinating centre for paediatric liver tumours.

d. PHITT Radiology Review IT System (Paediatric Hepatic International Tumour Trial), an International Trial on Paediatric Liver Tumours

The Paediatric Hepatic International Tumour Trial (PHITT) is the largest clinical trial ever conducted in paediatric liver cancer, including hepatoblastoma (HB), hepatocellular carcinoma (HCC) and hepatocellular neoplasm not otherwise specified (HCN-NOS). Conducted in collaboration between Europe, the United States and Japan, the trial opened in Europe in 2017. It aims to optimise treatment by adapting its intensity according to the level of risk, in order to improve survival while reducing toxicity. Patient stratification relies heavily on imaging (PRETEXT stage), but limited agreement between local and central radiological assessments highlights the need for a harmonised central review at international level.

This project proposes a retrospective central radiology review of 1,825 imaging examinations from European patients using a dedicated cloud-based platform (QP-Insights). Expert radiologists from the international SIOPEL network will analyse the images at key time points in order to compare local and central assessments, validate the international CHIC stratification system and address the radiological objectives of PHITT. The platform will enable the creation of a unique repository of paediatric imaging data, supporting international exploratory projects incorporating artificial intelligence, particularly for automated image analysis and improvements in the management of paediatric liver cancers.

Artificial intelligence (AI) will be used as part of exploratory projects drawing on the unique repository of paediatric imaging data created from PHITT data. Once the imaging examinations have been compiled and centrally reviewed by experts, the validated datasets will be used to assess the



performance of AI tools for automated image analysis. AI will be tested for the automatic detection of lung nodules, in order to assess its ability to identify metastatic lesions, improve detection sensitivity and reduce inter-observer variability. These approaches may also support quantitative image analysis and complement human expertise, without replacing central radiological review.

The integration of AI will take place at a later stage of the project, once the data have been structured and harmonised. It aims to strengthen radiological analysis, generate new research hypotheses and prepare for the future integration of decision-support tools into international clinical trials. Funding for this platform will enable the central radiology review to be completed in full, which is essential for analysing the results of PHITT, refining risk stratification, optimising treatment and supporting future research projects into paediatric liver cancers, including the integration of AI tools.

e. EXPLORER Study

Despite significant advances, the prognosis for children with metastatic hepatoblastoma remains poor. Neoadjuvant chemotherapy with the PLADO regimen results in complete remission in approximately 79% of patients, with complete surgical resection achieved in 74% of cases. The SIOPEL Explorer Phase Ib–II study is evaluating the addition of panobinostat, a histone deacetylase inhibitor, to the PLADO regimen in order to target epigenetic alterations in hepatoblastoma. The study will assess the pharmacokinetic and pharmacodynamic profiles of panobinostat and cisplatin, as well as their combined effect on antitumour efficacy and toxicity. The scientific protocol is currently being drafted. Pharmacogenetic analyses and testing using patient-derived models aim to identify predictive markers of treatment response and toxicity, with the goal of personalising treatment. This research will help define safe and effective doses, optimise treatment and potentially improve survival while reducing side effects in this high-risk paediatric population.

V. HGG

The CANSEARCH Research Platform has a strong interest in identifying under-researched areas of medicine. Because of their rarity, paediatric cancers are among these, particularly paediatric high-grade glioma (HGG). This disease is extremely rare in young children under the age of three to five, which has led to the creation of an international registry of HGG in young children to document these cases. The aim of the project is to systematically collect epidemiological, clinical and molecular data from young children with HGG in order to significantly improve our understanding of the disease in infants.

To build on our preliminary knowledge, we conducted a retrospective study using available data from patients with infant-type hemispheric glioma (IHG). Our retrospective study, entitled *"Individual Patient Data Meta-analysis of Infant-Type Hemispheric Glioma (IHG)"*, examined the characteristics of IHG, a distinct form of paediatric brain tumour characterised by specific genetic alterations. We analysed data from 164 patients with IHG – the largest study of this disease to date – and found that, despite generally favourable survival, these patients often experience early disease progression, highlighting the need to define the optimal treatment approach. Complete surgical resection appears to play a crucial role in initial treatment. Further evaluation of salvage treatment options is still needed to better understand their impact on overall survival.

One of the limitations of retrospective data is that they are often incomplete, making interpretation difficult and highlighting the need for an international registry to collect patient data. We are therefore in the process of establishing a well-documented international registry that will provide more comprehensive data and enable more informed conclusions to be drawn.

To find out more about our projects, please scan the QR code for access to detailed descriptions.





About 2/3 of childrens

develop long-term aftereffects in adulthood.

DNA Sequencing

A Key Tool in Our Precision Medicine Research

DNA sequencing is now one of the most powerful tools in precision medicine. In paediatric oncology, it can identify genetic abnormalities present in tumour cells and help tailor treatment to the specific biological profile of each patient. At the CANSEARCH Research Platform, these technologies play a central role in improving our understanding of childhood cancers and their treatment.

Consider two patients: the same diagnosis, the same age and the same treatment. Yet one responds extremely well, while the other does not. Why? One may have a mutation that activates a gene, while another may have a mutation that blocks a defence mechanism. These differences can change everything. In some cases, they can guide the choice of a targeted drug or help adjust its dose, avoiding treatments that may be unnecessary or excessively toxic. This is the promise of precision medicine: no longer simply treating a cancer, but treating each child's individual cancer.

Research for the Benefit of Patients

For CANSEARCH researchers, DNA sequencing is an essential tool for advancing our understanding of paediatric cancers. Each sequence provides another piece of a puzzle that is still far from complete. By combining genetic data with clinical and biological information, our teams can better understand why some patients respond differently to treatment and develop increasingly personalised therapeutic approaches. Ultimately, this research contributes to a central goal: to understand the mechanisms of the disease in order to offer every child with cancer treatment that is more effective, more targeted and less toxic.

From Biological Sample to Genetic Analysis

The process begins with the collection of a biological sample. Depending on the type of cancer being studied, this may be a blood or bone marrow sample, or a tumour sample obtained during a biopsy. Researchers then extract the DNA – the molecule containing the cells' genetic information. The DNA is then prepared for analysis. Because the molecule is extremely long – the human genome contains approximately three billion base pairs – it is first broken down into small fragments. Molecular adapters are added to these fragments so that they can be recognised and amplified by sequencing machines.

Reading the Genetic Code

Sequencing involves determining the exact order of the chemical bases that make up DNA: adenine (A), thymine (T), cytosine (C) and guanine (G). Today, high-throughput sequencing platforms can read millions of DNA fragments simultaneously, generating vast quantities of data within hours or days. The resulting sequences are then assembled and compared with a reference sequence of the human genome. Using advanced bioinformatics tools, researchers can identify genetic variations such as point mutations, deletions, insertions and chromosomal rearrangements.

Identifying the Genetic Alterations Responsible for Disease

The analysis of sequencing data aims to distinguish normal genetic variations from those that may play a role in disease. In cancer, certain mutations can activate genes involved in cell proliferation or disable mechanisms that protect against tumour development.

Identifying these alterations not only helps us better understand the biological mechanisms underlying cancer, but can also help guide treatment decisions. Certain mutations may, for example, indicate that a patient is likely to respond to a targeted drug or a specific treatment strategy. Within every DNA sequence analysed may lie the key to the next breakthrough.



Focus: The Cost of DNA Sequencing

The cost of DNA sequencing has fallen considerably over the past 20 years. While sequencing the first human genome in the early 2000s cost nearly US$3 billion, today's technologies make it possible to sequence a complete genome for approximately CHF 1,000–3,000. In clinical practice, the total cost – including sample preparation, sequencing and bioinformatics analysis – can reach CHF 3,000–6,000 per patient. This dramatic reduction in cost has paved the way for the development of precision medicine, enabling treatments to be tailored to each patient's genetic profile.

Focus: In the case of Tom, Age 6 – The Stages of DNA Sequencing

Every tumour cell has a story to tell – a series of errors, mutations and disruptions that have led to the disease. Sequencing allows us to read that story, letter by letter, like deciphering a coded message.



1. The sample
Tom comes to the hospital for a blood test (or, in some cases, a biopsy). This quick and carefully controlled procedure provides cells containing his DNA.



2. DNA extraction
In the laboratory, scientists isolate the DNA from Tom's cells. This is where his genetic information is found, including the genetic information relating to his tumour.



3. Preparation
The DNA is broken down into millions of small fragments and then prepared so that it can be read by sequencing machines.



4. Sequencing
Highly sophisticated machines read these fragments like an enormous text, letter by letter – A, T, C and G.



5. Analysis
Within a few days, a vast amount of data is generated. Computer-based tools compare the data obtained with a reference sequence to identify the abnormalities specific to Tom's cancer. This provides a detailed map of these genetic alterations.



6. More Targeted Treatment Decisions
Doctors use these results to tailor Tom's treatment as closely as possible to his individual needs, with the aim of making it more effective and less toxic. Within just a few days, Tom's DNA can help doctors better understand *his* particular cancer and offer him treatment tailored specifically to him.

Erwan: an Extraordinary Patient Journey

Interview with Prof. Marc Ansari, at the Heart of Precision Medicine.

An insight into the extraordinary journey of Erwan, a patient with relapsed acute myeloid leukaemia. Professor Marc Ansari reflects on a course of treatment that was both remarkable and exceptionally challenging. From stem cell transplantation and rare complications to highly precise treatment adjustments, Erwan's story illustrates the power of precision medicine – but also its limitations when faced with the unpredictable. It is a story in which every decision can be life-changing, and one that demonstrates more clearly than ever the vital role of research.

Erwan had leukaemia when you first met him?

Marc Ansari Yes. He had acute myeloid leukaemia (AML), diagnosed at the age of 13, which had relapsed. In this situation, the only potentially curative option was cellular therapy involving a haematopoietic stem cell transplant. We identified a donor with an exceptionally high degree of HLA (Human Leukocyte Antigen) compatibility – referring to the similarity between the HLA molecules of two individuals – which provided a highly favourable immunological basis. On paper, everything was in place. In practice, what followed would demonstrate that even under ideal conditions, biology can defy expectations. His case was particularly complex because the disease was not completely under control at the time of transplantation.

His journey was marked by an unusually high number of complications...

M. A. He experienced a succession of rare toxicities and complications. His medical history reads almost like an inventory of transplant-related complications: severe infections, extensive mucositis, haemorrhagic complications, an intracardiac thrombus, significant cutaneous GvHD (graft-versus-host disease) and, most notably, an extremely rare pulmonary thrombotic microangiopathy.

The diagnosis was complex and required detailed analysis of biological parameters such as lactate dehydrogenase (LDH) – a non-specific marker that is frequently elevated in leukaemia, both acute and chronic, and can reflect cell destruction and a high tumour burden – as well as testing for schistocytes in a blood smear and investigation of the complement system. His journey illustrates the extent to which paediatric oncology and haematology can still be confronted with the unpredictable, even when highly advanced precision medicine approaches are used.

What made his treatment particularly challenging?

M. A. One of the major challenges was the conditioning regimen before transplantation. The standard protocol, which is particularly intensive, was too toxic for him. We therefore opted for a reduced-intensity approach, while adding immunosuppressive treatment to limit the risk of rejection and GvHD – more specifically, graft-versus-host disease.

Yet despite extremely precise adaptation – including real-time pharmacokinetic monitoring, dose adjustments and pharmacogenetic analysis of busulfan metabolism – he developed severe toxicities. This demonstrates that, however precise our approach may be, some individual patient responses remain unpredictable.





What makes his case unique?

M. A. The rarity and combination of the complications he experienced. In addition to their severity, some were particularly difficult to diagnose, such as the pulmonary microangiopathy. Situations of this kind require considerable expertise and highlight the importance of specialised cellular therapy centres capable of rapidly identifying unusual mechanisms.

Was research a determining factor in his treatment?

M. A. Without research, Erwan would probably not have survived. The treatments he received – transplantation, pharmacological adjustments and immunotherapy – are the result of decades of research. Without the advances made over the past 15 to 20 years, Erwan would probably not be alive today. At the HUG, we now have survival rates of 94%. But beyond these results, research also enables us to better understand treatment failures, complications and toxicities. That is where the future lies.

How did precision medicine change his treatment?

M. A. It played a central role. Chemotherapy doses were adjusted according to the concentrations measured in his blood, in order to remain within a narrow therapeutic window: high enough to control the disease, but sufficiently safe to limit toxicity. At the same time, genotyping helped us anticipate how his body would metabolise certain medicines. Yet despite this level of sophistication, he was among the small percentage of patients who develop major toxicities. It is a stark reminder that precision does not guarantee perfection.

What were the most difficult decisions during his treatment?

M. A. Stopping ciclosporin was a critical decision. This drug, essential for preventing graft rejection, was implicated in a serious complication: microangiopathy. Stopping it meant exposing him to potentially fatal GvHD. But continuing it would have placed his life at even greater risk. We chose to stop the treatment. This is precisely where medicine becomes a discipline of extremely difficult decisions, taken with as little uncertainty as possible – but never without risk.

Did Erwan benefit from the latest advances in treatment?

M. A. Yes, absolutely. He benefited from optimised transplant protocols, individualised pharmacological adjustments and innovative treatments resulting from research. Survival rates have increased considerably in recent

years and, although toxicities remain, they are now better controlled. This reflects the tangible impact of research.

What role do new therapies such as CAR-T cells play?

M. A. CAR-T cells represent a major breakthrough. They make it possible to reprogramme a patient's own immune cells to target the cancer directly. However, at the time Erwan might have needed them, these treatments were not yet available or sufficiently developed for his particular case. Today, they represent a major advance and a very active area of research, and CAR-T cell therapy is now available within our Paediatric Oncology Unit at the HUG.

Is his case helping to advance medicine?

M. A. Yes, and this is essential. Erwan has participated in several clinical studies and research projects. His data are helping us better understand infections, refine treatment doses and improve protocols. Every patient is unique, but it is the accumulation of data that builds a body of knowledge that can benefit everyone and enable treatments to be further refined. Medicine also advances thanks to stories like his.

What do you take away from his journey?

M. A. Above all, a great deal of humility. Even with the most advanced medicine, there will always be areas of uncertainty. His story also demonstrates that research saves lives. Today, it enables us to cure children who, 15 or 20 years ago, would not have survived. And it is paving the way for treatments that will be even more effective and less toxic in the future.

But some biological mechanisms still remain beyond our understanding. Why do two patients with similar profiles respond differently? We do not yet have all the answers. And that is precisely why research is indispensable and must continue.

Erwan is now in remission. What does his story symbolise?

M. A. Above all, it is a victory, but it is also a symbol of what research can achieve. His story embodies a simple idea: every scientific advance can translate directly into lives saved. Research is not a luxury. It is essential to the survival of children today – and of those in the future.



Nearly 400 new cancer cases

diagnosed in Switzerland each year



Delivering the *Unthinkable News*, Hoping for *Delivering the Treatment*

Testimony from Dr Fanny Gonzales



Dr. Fanny Gonzales and Liam, age 6

Telling a family that their child has cancer remains one of the most difficult moments a doctor can face. Between the hope of a cure and the fear of treatment, words can do little to soften the shock. Yet behind these moments of profound uncertainty, one goal continues to guide doctors: to offer every child treatment that is more targeted, more effective and less burdensome.

Telling parents that their child has cancer is a terrible moment. There are no right words, no right tone; we do the best we can, but it remains terrible.

We explain the disease: what it is, why it has happened, how it works... Then we come to the treatment. The word *treatment* often brings parents a great deal of hope. And rightly so: today, in paediatric oncology, treatments are fortunately effective against the disease for many children and for the majority of childhood cancers.

But these treatments also have many side effects. So we go through that list with the parents. And however we present it, whatever order we choose, whatever words we use, however much reassurance we try to offer... that list, too, is terrible.

My heart often aches at that moment when I think of the pain of the parents sitting opposite me, of the bond they have with their child, and how distressing it must be to hear the list of side effects and everything that could harm their child's little body.

I chose to care for children with cancer, so I cannot complain; this is my profession.

I tell families that their child has cancer. I say those painful words and explain the disease and why it has happened – that, I know how to do. I try to answer their questions, even those for which there are no answers. I talk about the treatments, the hope of a cure and what they can expect in the days and weeks ahead...

But afterwards, there is always that moment when everything seems to stand still. The moment when I wish so much – so very much – that I could tell them that we are going to find *the* treatment for their child: the one that will be both the most effective and the least toxic. The one that will cure without causing harm, leaving as few lasting effects as possible.

But sometimes, all I can tell them is that we are going to use a very intensive treatment that works in *most* cases but has many side effects. What I would like to be able to tell them instead is that we are going to find the right treatment for *their* child – one that is both as effective and as minimally toxic as possible.

That is my hope for the future: to be able to tailor treatment to each individual child, according to their disease, their genetics, their condition at diagnosis and their response to treatment.
That, ultimately, is what individualised therapy means: to cure without causing harm – or at least, to cause as little harm as possible. And it is that hope that keeps me moving forward.

Follow Liam's YouTube channel, Jimmy le Renard, where he shares his journey with leukemia

CANSEARCH Research Platform: 2025 in *Review*



January

- Dr Frédéric Baleydier was awarded the academic title of Privat-Docent. This title recognises academics who are qualified to teach and lecture at university level, acknowledging their expertise and commitment to teaching and research. His appointment as Privat-Docent reflects his academic excellence, commitment to research and dedication to training the next generation of doctors.

March - april

- At the 51st Annual Meeting of the European Society for Blood and Marrow Transplantation (EBMT) in Florence, researchers from the CANSEARCH Research Platform – Professor Marc Ansari, Dr Fanny Gonzales, Dr Yvonne Gloor, Dr Vid Mlakar and Mourad Mseddi – presented their work to the international scientific community. A film showcasing the work of the Platform's clinicians and researchers was also screened for researchers from around the world – a wonderful recognition of their commitment and the quality of their research.

Mars - May

- Mourad Mseddi participated in the 24th International Pharmaceutical Forum (FPI) in Tunis, Tunisia.

- Montserrat Alvarez and Valentine Pradet participated in European Biobank Week (EBW) in Bologna, Italy.

- Dr Vid Mlakar gave a presentation at the 18th HUG Clinical Research Day in Geneva, Switzerland.

- Mourad Mseddi participated in the DESU postgraduate programme in physiologically based pharmacokinetic (PBPK) modelling in Marseille, France (session 1/2).

- Dr Vid Mlakar gave a presentation at the annual congress of the Advances in Neuroblastoma Research Association (ANR) in Washington, USA.

- Dr Lara Chavaz participated in the congress of the Translational Research Centre in Onco-Hematology (CRTOH) in Annecy, France.



June

- Professor Angelo Paci, Head of the Pharmacology Department, Department of Medical Biology and Pathology at Gustave Roussy, Paris, France, gave a presentation as part of a CANSEARCH Seminar.

- Mourad Mseddi participated in the DESU postgraduate programme in physiologically based pharmacokinetic (PBPK) modelling in Marseille, France (session 2/2).

- At the Childhood Cancer Switzerland (Kinderkrebs Schweiz) General Assembly in Bern, Dr Lara Chavaz – one of the CANSEARCH Research Platform's talented young researchers – gave a presentation during the ceremony for the 2024 Childhood Cancer Switzerland Research Award. She received the award for her project on hearing loss following chemotherapy.

- Dr Yvonne Gloor participated in training organised by the Paediatric Diseases Working Party (PDWP) in Wrocław, Poland.

September

- Mélissa Nunes de Sousa, a new Master's student in biology, began a one-year internship at the CANSEARCH Research Platform.

October

- Dr Brice Fresneau, a paediatric oncologist at Gustave Roussy in Villejuif, began spending one week per month at the CANSEARCH Research Platform in Paediatric Oncology and Haematology at the University of Geneva, for a period of one year. An INSERM researcher, he will contribute to several CANSEARCH projects, including the ototoxicity component of the GECCOS project – a Swiss national study aimed at identifying genetic variants associated with complications in children and adolescents who have had cancer. This approach could help prevent and limit treatment-related side effects affecting organs, hearing and vision, as well as reduce the risk of secondary cancers.

- International Society of Paediatric Oncology (SIOP) Congress, Amsterdam, the Netherlands. Two of our physician-researchers, Professor Marc Ansari and Dr Danai Papangelopoulou, attended the SIOP Congress. Participation in international meetings such as this is essential for sharing our discoveries with experts from around the world and accelerating therapeutic advances. CANSEARCH has recently begun supporting the PHITT Radiology project, in close collaboration with the University of Birmingham, which is developing an AI-based approach to radiological interpretation that could improve diagnostic accuracy. Progress on the PHITT study was also presented at a SIOPEL meeting at the Princess Máxima Center in Utrecht.

November

- Dr Seef Abdalla, a pharmacist, joined the Platform as a postdoctoral researcher.

- At the 8th European Society of Pharmacogenomics and Personalised Therapy (ESPT) Congress in Rotterdam, the Netherlands, Professor Marc Ansari and scientists from the CANSEARCH Research Platform, including Dr Yvonne Gloor and Dr Vid Mlakar, presented the results of their research. The congress provided another opportunity to exchange ideas with researchers from across Europe and share the latest advances in pharmacogenomics (PGx) and personalised therapy, with the aim of supporting their implementation in clinical practice.

- CANSEARCH sponsored the 24th Annual Congress of the Société Francophone de Greffe de Moelle et de Thérapie Cellulaire (SFGM-TC) in Geneva. Professor Marc Ansari and the team of physicians and researchers from the CANSEARCH Research Platform in Paediatric Oncology and Haematology at the University of Geneva – Professor Marc Ansari, Dr Fanny Gonzales, Dr Aurore Britan-Wood, Dr Yvonne Gloor, Dr Vid Mlakar, Dr Lara Chavaz, Dr Seef Abdalla and Valentine Pradet – participated in the congress and presented their research to specialists from across the French-speaking world. Professor Ansari was also a member of the local organising committee.

- Mourad Mseddi participated in the 20th Journées du Groupe de Pharmacologie Clinique Oncologique in Paris, France, where he was awarded first prize for an oral presentation.

December

- At the 67th ASH Annual Meeting and Exposition in Orlando, Florida, Professor Marc Ansari had the honour of giving two oral presentations. Organised by the American Society of Hematology, ASH is a major international congress and provided an important opportunity to share our discoveries with leading experts in paediatric haematology.

- Dr Lara Chavaz, a talented young physician-researcher, was selected to present her research project on ototoxicity (GECCOS) at the Swiss National Science Foundation MD-PhD competition and was awarded the highly competitive SNSF/SAMS MD-PhD fellowship.



CANSEARCH *Initiatives*

These projects, with their strong social focus, benefit young patients and their families, the Paediatric Oncology and Haematology Unit (UOHP) and the CANSEARCH Research Platform.

I. Support for Young Patients and Their Families

1.

CANHELP

A support fund for families to help cover treatment, accommodation, practical arrangements related to hospitalisation, medical equipment and other needs.

2.

CANPALLIATIVE

A paediatric palliative care programme providing support, through a specialist nurse, for children at the end of life or requiring intensive follow-up, as well as for their families.

3.

CANSURVIVE

Medical follow-up for survivors of childhood cancer to prevent and treat the long-term effects of treatment, including fertility preservation.

4.

CANDREPANO

Specialised care for children with sickle cell disease – a genetic disorder that can cause pain and recurrent infections – covering medical, educational, school-related and psychological needs.

5.

CANHYPNOSIS

A programme to strengthen the use of hypnosis within the HUG's UOHP through mentoring by an expert. This approach helps reduce children's stress and pain during medical procedures, while providing ongoing training and support for healthcare professionals.





II. Strengthening Hospital Care and Infrastructure

6.

CANCHIMIO

A secure digital management system introduced for the prescription and administration of chemotherapy within the UOHP.

7.

Fellowship Grant – Clinical Fellow at the UOHP

Talent Management Programme

Recruitment of a paediatrician to further their training in paediatric oncology and haematology and help develop the next generation of specialists.

III. Training Young Doctors, Researchers and Healthcare Professionals

8.

Visiting Doctor Fellowship

Talent Management Programmet

Hosting an international physician-researcher with expertise in paediatric oncology within the UOHP and the CANSEARCH Research Platform, enabling them to share their expertise and contribute to the development of research.

9.

CANMOVE –

(CCANSEARCH Mobility Grant)

Talent Management Programme

Support for a researcher or clinician in paediatric oncology and haematology based in French-speaking Switzerland to undertake training abroad, with a commitment to return and contribute to the scientific development of the Platform.

10.

CANSEARCH Research Grant for French-speaking Switzerland

Talent Management Programme

Awarded every two years to researchers from across French-speaking Switzerland working in fields related to paediatric oncology and haematology. It promotes scientific collaboration within the region. Applications for this competitive grant are reviewed by the Foundation's Scientific Committee and by the Scientific Committee of the Swiss Cancer League.

11.

CANCONNECT

Organisation of congresses and symposia to promote international scientific exchange and the development of research and partnerships.

The *CANHYPNOSIS Initiative*

A New Hypnosis Programme for Children



BIOGRAPHY

Dr Adriana Wolff is an FMH-certified anaesthetist and hypnotherapist and a pioneer in the integration of clinical hypnosis at the Geneva University Hospitals. After graduating in medicine in Geneva, she specialised in anaesthesiology and intensive care before training in medical hypnosis, quickly recognising its potential in the management of patients' pain and anxiety. As co-founder of the HUG Hypnosis Programme, which she led for several years, she helped introduce this approach more widely throughout the institution, training numerous healthcare professionals and developing a genuine culture of therapeutic communication. Convinced that hypnosis is above all a relational tool that enables patients to draw on their own resources, she works to make care more humane and transform the patient's experience, particularly in demanding medical settings. Today, Dr Adriana Wolff leads the CANHYPNOSIS initiative. As a trainer and supervisor within the Unit, she shares an approach that is rigorous, creative and deeply centred on the needs of young patients.

Launched in November 2025, the hypnosis programme in paediatric oncology and haematology reflects a desire to offer children a different way of experiencing medical care, based on the belief that hypnotic techniques can enhance therapeutic communication during procedures, particularly those that can be distressing for children because they are invasive and repetitive.

The project has been developed in close collaboration with the clinical teams, evolving through discussions with healthcare professionals and the first encounters with children and their families. This initial phase has above all been a period of listening and observation. It has provided a better understanding of existing distraction and hypnosis practices, the expectations of healthcare professionals, and the organisational or cultural barriers that can limit the integration of hypnosis into everyday care. Gradually, a collaborative approach has begun to emerge.

Through hypnosis – whether conversational or formal – the aim is to transform the child's experience of an invasive procedure, encouraging them to take an active role in order to reduce fear and pain and restore a sense of control during a treatment journey that can often leave them feeling powerless.

The first sessions involving healthcare professionals and children have shown how profoundly a change in the way care is approached can alter the experience of a procedure, both for the child and for the healthcare professional. These initial experiences have also highlighted the wealth of skills and resources already present within the Unit, although they are not always fully recognised or sufficiently used.

The work under way therefore aims both to support children and to help healthcare professionals become familiar with these techniques and incorporate them into their practice. Although the programme is still in its early stages, it has already highlighted several important priorities: raising awareness of hypnotic techniques among children, families and healthcare professionals; establishing an organisational framework for their use; and, above all, encouraging their integration into everyday clinical practice.



Report: Hypnosis at the Bedside

This morning is a first for a young nurse. She is preparing to insert a needle into the port-a-cath (PAC) of a seven-year-old child. A PAC, or implanted port, is a medical device placed under the skin under general anaesthesia. It consists of a small chamber connected to a plastic tube, or catheter, leading to a central vein. It allows blood to be taken and treatments such as chemotherapy and transfusions to be administered over a prolonged period, avoiding repeated painful needle insertions and protecting the peripheral veins.

It is also the first time this child will have a Huber needle inserted into his port.

For the nurse, this precise procedure, supervised by an experienced nurse, will also involve a new approach to communication, guided by Dr Wolff, a hypnotherapist.

The child is attentive but very tense, and so is his mother. Before the procedure begins, time is taken to prepare him. Everything is explained simply and shown to him. He is invited to touch a needle and practise the procedure himself on a mannequin, allowing him to experience and understand with his own hands each step that the nurse will perform. Something already begins to change: his fear is no longer the same. It diminishes because he now understands what is going to happen. He can even take an active role, cooperate and follow what is being done. For example, he is asked to remove the EMLA patch himself and position his body to make the procedure easier. The procedure then begins. The nurse carries it out while checking the pace with the child. At the same time, his attention is focused elsewhere by encouraging him to talk in detail about a tennis match at which he won a cap bearing his club's name. This interaction guides his attention elsewhere – towards another image, another sensation, a different point of focus. The child is more than simply distracted: his mind is elsewhere, and he is no longer afraid. When it is all over, he simply says that it felt "like a mosquito bite."

No panic, no overwhelming distress. Just an experience he has come through and is prepared to repeat. Something has changed for the nurse too. The procedure remains technical, but she has not had to carry it alone. It has become a shared experience.

A little later, another scene unfolds, almost mirroring the first: a five-and-a-half-year-old girl is curled up, her face buried in her hands. Fear has taken over before the procedure has even begun. The nurse hesitates, then agrees to let Dr Wolff guide her towards a different way of establishing contact with the child. This time, the aim is not to explain more, but to change the dynamic – to allow something other than fear to exist in the present moment through the use of objects. The child's attention is gradually captured and she begins to interact. This active distraction makes it possible to carry out the procedure in a calmer atmosphere. Although the child remains curled up and hidden, she is supported throughout. Her mother watches, calmer too. And at the end, something simple is shared throughout the room: a sense of relief. The child agrees to return the following week, almost curious. It has been a different experience, memorable enough to be used again and perhaps, little by little, passed on.

Les CANDOS *"New Gen"*

The Next Generation Driving Research Forward

2025 was a particularly dynamic and positive year, driven by an engaged and enthusiastic new generation. Schoolchildren, secondary school pupils and university students launched their own fundraising initiatives – known as CANDOS – to support other young people. Since the CANSEARCH Foundation was established, many dedicated individuals have generously given their time and energy, turning their passions into fundraising activities through CANDOS initiatives. This year, however, a new wave of hope has emerged, with a younger generation taking action to help alleviate the suffering of others. This spirit of solidarity shines through in the stories of Paul Muller and his Ironman challenge, Samuel Fleet and his cycling adventure to Liechtenstein, Isaac Bernheim and Kimia Corke and their concert, and Maxime Dieudé-Gruel and his charity race. These young philanthropists – children and young adults supporting other children and young adults affected by illness – share their personal motivations and their hopes for a better future for young people facing cancer. Every one of these initiatives is an invaluable source of encouragement and solidarity. By joining forces, we can advance research in paediatric oncology and haematology, united by a common goal: to improve survival and develop increasingly personalised therapies for children and adolescents with cancer.

Paul, Ironman ou l'endurance au diapason des enfants

What motivated you to support the CANSEARCH Foundation?

Paul Muller (P.M.) One day, I learned that the younger sister of one of my best friends had been diagnosed with lymphoma at just 17 years old. Her story affected me deeply, and I wanted to show her and her family, in my own way, that I was standing alongside them in their fight against the disease. As a medical student, I know that medical research is the key to advancing paediatric oncology.



Paul Muller

Why did you choose this particular sporting challenge as a fundraising initiative?

P.M. An Ironman is considered one of the toughest sporting challenges in the world. I wanted to do something ambitious, something that would push me beyond my physical and mental limits. Throughout my nine months of training, there wasn't a single session when I didn't think about the children battling cancer. They were an extraordinary source of strength and motivation for me.

What does this challenge symbolise in relation to children's fight against cancer?

P.M. I wanted to shine a spotlight on these children, show them that they are not alone in their fight and, above all, give them hope. My CANSEARCH Ironman adventure was simply a way of drawing attention to them. Anyone can complete an Ironman with enough training. I'm just an ordinary student who believes that when we're driven by a cause we truly care about, we can achieve extraordinary things!

How did you prepare for your challenge, and which part was the most demanding?

P.M. I went through nine months of preparation, with some incredibly demanding training sessions. Fundraising was another learning experience. I had to learn to deal with both good news and



major disappointments, which could sometimes be quite disheartening. As for the organisation, I was extremely fortunate to have fantastic support from my family and friends, as well as from CANSEARCH!

How did you encourage the people around you to support your CANDO initiative?

P.M. To be completely frank, I was surprised by how much attention my project attracted on social media and within the University of Geneva. Everyone was moved by the cause I was supporting, and I was incredibly fortunate to receive media coverage from RTS, Léman Bleu and One FM, as well as articles in the Tribune de Genève, the University's newspaper and several other media outlets.

Did you ever have moments of doubt during your preparation?

P.M. Yes, and fortunately so! For me, doubt is a way of taking a step back and putting things into perspective. Training for an Ironman is an emotional rollercoaster, but doing it for CANSEARCH gave me an extraordinary, seemingly endless source of motivation that kept me going throughout my preparation and during the race itself.

What would you like people to understand about childhood cancer research and CANSEARCH's role?

P.M. Paediatric oncology remains an underfunded area of medical research. CANSEARCH plays an essential role in advancing scientific knowledge by publishing its research findings and continuing to expand its activities. Its research benefits patients not only in Geneva but also nationally and internationally.

What were the most memorable and most difficult moments of this experience?

P.M. The most difficult moment was the start of the marathon in Nice, in scorching heat, with a temperature that felt like more than 39°C. I seriously doubted whether I would be able to finish my Ironman in such extreme conditions. But once again, I thought about the children battling cancer and found the strength to keep going. I suffered for a few hours, but that is nothing compared with what these children and their families endure.

The most unforgettable moment was the final 100 metres, with my loved ones waiting at the finish line. I had tears in my eyes and had never experienced anything so powerful in my entire life.

Isaac and Kimia: A Symphony of Generosity

My name is Isaac Bernheim. I'm 15 years old and passionate about music, particularly the piano, which I've been playing since I was seven. For personal reasons, I wanted to get involved and support the CANSEARCH Foundation in its fight against childhood cancer. In fact, for my Bar Mitzvah, I chose to forgo presents and ask for donations to the Foundation instead.



Kimia Corke et Isaac Bernheim



Later, I felt the need to give my music a greater purpose and use it to support a cause. With my parents' help, the idea of organising a concert in aid of CANSEARCH was born. I wanted to share this adventure with my former classmate and talented violinist, Kimia Corke.

Together, we performed in November 2025 before an audience of nearly 300 people in the Franz Liszt Hall at the Geneva Conservatoire of Music. It was an incredibly moving experience, made all the more special by the extraordinary generosity and support shown towards the CANSEARCH Foundation.

I would love to continue supporting the Foundation in this way, and I hope our concert has inspired other young people to get involved too.

Sam: Cycling Across Switzerland for CANSEARCH

My name is Samuel Fleet, I am 19 years old, and this summer I cycled across Switzerland in 72 hours for the CANSEARCH Foundation. I was deeply motivated to take on this challenge because a friend of mine died from cancer. I believe that childhood cancer remains a subject that is still too often taboo today.

Cycling from Geneva to Vaduz, in Liechtenstein, in 72 hours was, for me, both a way of experiencing suffering and of understanding that suffering can also have a positive purpose. Young people with cancer suffer not just for 72 hours, but for months, sometimes even years. Their fight is far more intense than my cycling challenge, and it made me feel much more grateful for how fortunate I am. I therefore began preparing for the challenge four months in advance. It was a long and difficult process: a knee injury seriously disrupted my training. I started to worry, but I persevered.

At the same time, I created an Instagram page and an online fundraising page, where I shared the story behind my challenge in detail. Social media and the support I received from everyone were central to my project; without them, the challenge would have been much more difficult. This challenge was not mine alone. It was shared by everyone who contributed, whether by sharing a post, giving it a "like", making a donation or simply offering their support.

At the beginning, my aim was to raise as much money as possible. But as the project progressed, I realised that while donations are of course essential to make an initiative like this a success, it is the community behind you that really keeps you going. At first, donations come in very quickly, but then they gradually slow down, and that can quickly affect your morale. What never stopped, however, was the support I received throughout the project.

I hope that, through this project, childhood cancer has become a little less of a taboo subject; that people realise it can affect anyone; and that, when it does, we all need to stand together.



Samuel Fleet sur les route direction Liechtenstein



Maxime Dieudé-Gruel: Running for Hope

For my Maturité project, I wanted to create something that would benefit as many people as possible, while also discovering what goes on behind the scenes of an event rather than simply taking part in one. That is how the idea of organising a running event called “Les Foulées de l’Espoir” – “Running for Hope” came about. Wanting to combine sport and health, I looked at various foundations active in Geneva and chose to support CANSEARCH and its work in childhood cancer research. My aim was to raise public awareness of a cause that is still not well enough known, while also providing tangible financial support.

A 5 km run along the shores of Lake Geneva seemed a good compromise: a distance accessible to runners looking for a challenge, while still being open to those discovering sporting and charity events for the first time. Every step symbolised a collective effort to help advance the fight against cancer. Organising the event was a real challenge. I had to design the route, complete the necessary procedures with the local authorities and the Canton of Geneva regarding permits and safety, recruit volunteers, create a poster, organise communications and set up a registration system. Finding sponsors was the most difficult part, as I needed to finance the logistics, find prizes for the raffle and provide rewards for participants. Word of mouth, social media and posters all helped spread the word about the race.

Despite my doubts and concerns that not enough people would take part, my motivation remained unchanged. The most difficult part was coordinating every aspect of the project at the same time. The most rewarding moment was the day of the race, when I saw participants crossing the finish line with smiles on their faces, talking to one another and feeling proud both to have completed the challenge and to have contributed to research.

Through this project, I would like to remind people that children are also affected by cancer and that research still lacks sufficient funding. If other young people are thinking about launching their own CANDO, or their own project, I would tell them to go for it.



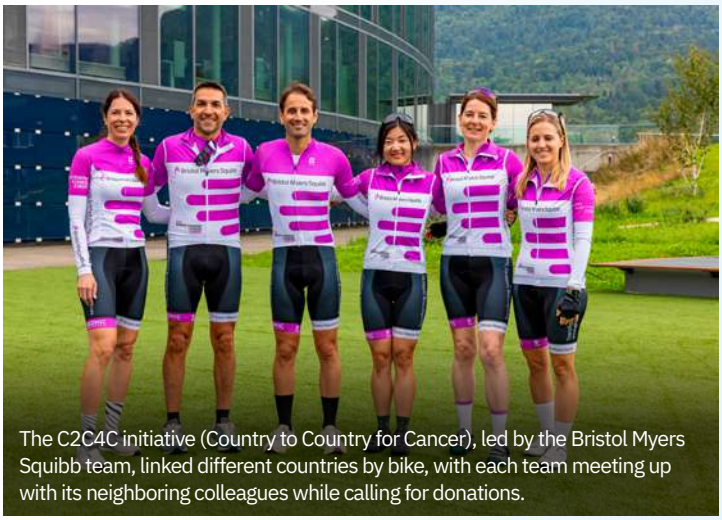
Maxime Dieudé-Gruel avant sa course solidaire



Every day

a child is diagnosed with cancer in Switzerland

CANDOS 2025: A Year in Pictures



The C2C4C initiative (Country to Country for Cancer), led by the Bristol Myers Squibb team, linked different countries by bike, with each team meeting up with its neighboring colleagues while calling for donations.



Dr. Marc Kaplun and his friends took part in the New York Marathon while raising funds for the Foundation.



Our mascot, the giant CANSEARCH teddy bear, welcomed children aboard the Christmas train at the Praille shopping center. Offered to the children by the Praille, it invited families to make a donation in support of CANSEARCH.



The iconic Geneva-based perfume house Mizensir, created by master perfumer Alberto Morillas and co-directed by his daughter Veronique Morillas, generously offered us a collaboration with CANSEARCH, along with exquisitely scented candles.



Valais native Loris Mittaz captivated us with his piano melodies at his private concert at the Pace Gallery.



Valentina Volchkova, director of the Pace Gallery, always puts CANSEARCH in the spotlight, as she did at the Loris Mittaz concert. Pictured here with Valérie Steck, Secretary General of the Foundation.



The children of the municipality of Choully (GE) raised funds during the Feuillu, a popular folk festival held on the first Sunday of May. This festival is part of the intangible heritage of the canton of Geneva.



For Septembre en or (Gold September), the Rohr confectionery sold CANSEARCH teddy bears.



Margaux Crittin's results in her third year at the Collège were so good that she qualified for the extra-muros program. As she no longer had to attend classes in April, she completed a 3-month internship at the CANSEARCH Foundation.



The company Swissroc supports us in a fitting way, with construction site tarpaulins that pay tribute to the Foundation.



Brigitte Crompton, organizer of the CANWALK in Gstaad.



Margaux and Zoé, Brigitte Crompton's granddaughters, who lent a hand to their grandmother as volunteers at the CANWALK in Gstaad.



À Gstaad lors de la CANWALK, le Prof. Marc Ansari, entouré de l'équipe du bureau CANSEARCH : Florence Schmidt et Thanh Mai.



The delicious pastry created by the RENOU pastry shop during Septembre en or in support of CANSEARCH.



Ten years of the Race for Gift charity run: a phenomenal success and record fundraising, particularly for the Swissroc and Praille teams.



Neva-Lou and Elie-Rose, our lovely volunteers at the play *Les Bijoux de la Castafiore* at the Théâtre de Carouge, in support of CANSEARCH.



Dr. Fabienne Gumy Pause, pediatric oncologist-hematologist and researcher, won first place in the women's 5 km race at the Race for Gift.

Our heartfelt thanks to *all our donors*. Thanks to your *generosity* and *trust*, research continues to advance.



Bank account for your donations

Beneficiary: CANSEARCH Fondation
Bank: Banque cantonale de Genève (BCGE) 17 Quai-de-l'Ile, CP 2251, 1211 Genève 2
N° IBAN : CH1000788000050897999
BIC/SWIFT : BCGECHGGXXX
Clearing/CB : 788

For any inquiries

General Secretary
Valérie Steck – valerie@cansearch.ch
Project and Donor Manager
Florence Schmidt – florence@cansearch.ch
Administrative and Financial Manager
Thanh Mai Thi Ngoc – thanh@cansearch.ch

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Graphic design
www.marc-aymon.ch



CANSEARCH Foundation

Rue de la Corraterie 12 – 1204 Genève
T. +41 76 679 45 63
info@cansearch.ch
www.cansearch.ch

To stay updated

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