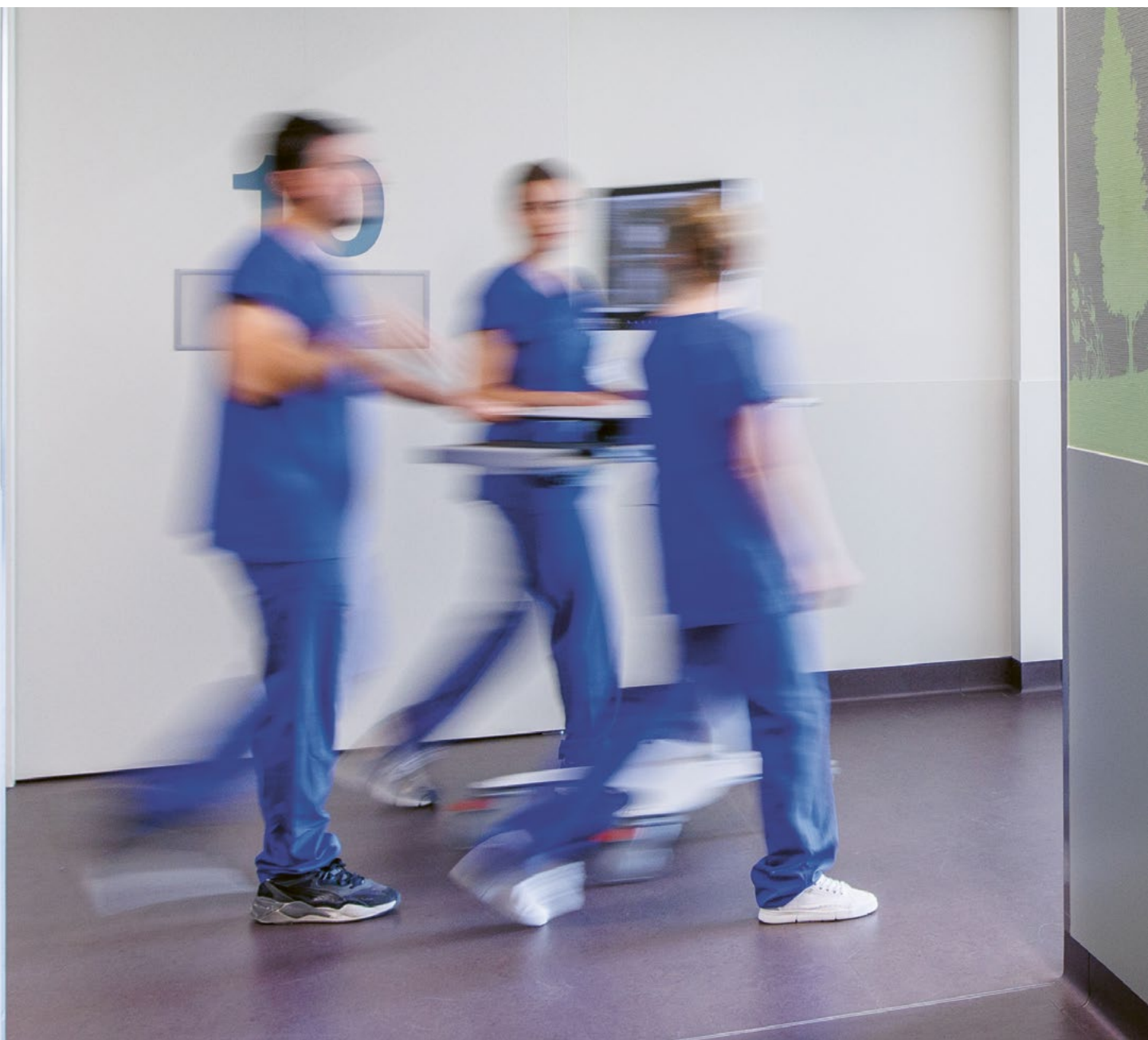




Klinik für Medizinische Onkologie und Hämatologie (MOH)

Jahresbericht 2024/2025

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1 Editorial



Prof. Dr. med. Markus G. Manz
Klinikdirektor MOH
Lehrstuhl Hämatologie UZH
**Chair Comprehensive Cancer
Center Zürich (CCCZ)**

Die vergangenen zwei Jahre waren geprägt von bedeutenden Fortschritten in der Krebsmedizin. Neue diagnostische Verfahren, innovative molekulare Immun- und Zelltherapien sowie datengetriebene Ansätze der Präzisionsonkologie verändern die Behandlung von Krebserkrankungen grundlegend. Im vorliegenden Zweijahresbericht möchten wir Ihnen einen Einblick in die wichtigsten Entwicklungen, Initiativen und Erfolge der MOH in den Jahren 2024 und 2025 geben und aufzeigen, wie wir diese zum Nutzen unserer Patient:innen weiter vorantreiben.

Ein sichtbares Beispiel dafür ist die Entwicklung unseres Ambulatoriums mit interdisziplinärer Tagesklinik. Seit seiner Eröffnung im Jahr 2023 hat es sich zu einem zentralen Pfeiler der ambulanten Krebsversorgung am Universitätsspital Zürich entwickelt. Heute betreuen wir dort täglich bis zu 250 Patient:innen und konnten in den vergangenen zwei Jahren multiple neue Therapieprotokolle einführen. Gleichzeitig haben wir unser Angebot an zellulären Therapien weiter ausgebaut und innovative Behandlungsansätze erfolgreich in die klinische Versorgung integriert.

Auch in der Forschung konnten wir wichtige Impulse setzen. Die MOH ist federführend an zahlreichen nationalen und internationalen Initiativen beteiligt, welche die Zukunft der Präzisionsonkologie, Immuntherapie und datengetriebenen Krebsmedizin mitgestalten. Neue wesentlich durch die MOH entwickelte Forschungsprogramme – wie das Center for Engineered Immunotherapy, das Zurich Precision Oncology Consortium INTeRCePT3.0 oder das AI Tumor Board – stärken den Innovationsstandort Zürich und schaffen die Grundlage für die nächste Generation personalisierter Krebstherapien.

Ein weiterer Schwerpunkt liegt auf der aktiven Einbindung von Patient:innen. Durch Informationsveranstaltungen und Mitarbeit des CCCZ Patient:innen-Beirates fördern wir den Dialog zwischen Betroffenen, Angehörigen und Fachpersonen und tragen dazu bei, Wissen verständlich zugänglich zu machen.

All diese Entwicklungen wären ohne das ausserordentliche Engagement unserer Mitarbeitenden nicht möglich. Mein herzlicher Dank gilt allen Kolleg:innen aus Medizin, Pflege, Forschung, Diagnostik und Administration. Mit ihrem täglichen Einsatz leisten sie einen entscheidenden Beitrag dazu, unseren Patient:innen eine moderne und ganzheitliche Medizin auf höchstem Niveau zu bieten.

Ich wünsche viel Freude beim Lesen.

Markus G. Manz

2 Werte



Patientenversorgung

Wir bieten Patient:innen mit Tumorerkrankungen, Bluterkrankungen und Gerinnungsstörungen eine ganzheitliche und interdisziplinäre Versorgung nach höchsten wissenschaftlichen und klinischen Standards.



Forschung und Innovation

Wir erforschen und entwickeln innovative diagnostische und therapeutische Konzepte. Gemeinsam arbeiten wir daran, die Entstehung und Pathobiologie von Erkrankungen besser zu verstehen. Unser gemeinsames Ziel sind personalisierte, wirksamere Behandlungsmöglichkeiten für unsere Patient:innen.



Aus- und Weiterbildung

Wir engagieren uns in der Aus- und Weiterbildung von Ärzt:innen und Wissenschaftler:innen sowie weiterer Gesundheitsberufe und schaffen ein Umfeld, das die fachliche und persönliche Entwicklung unserer Mitarbeitenden gezielt fördert.



Zusammenarbeit

Wir pflegen einen respektvollen Umgang sowie eine offene und transparente Kommunikation. Klare Verantwortlichkeiten und definierte Strukturen bilden die Grundlage für eine effiziente, vertrauensvolle und interprofessionelle Zusammenarbeit innerhalb unserer Klinik.



MOH
2024/2025

3 Übersicht / Overview

Über die Klinik

- Die Klinik für Medizinische Onkologie und Hämatologie (MOH) bietet für Patient:innen mit Krebserkrankungen aller Organsysteme, gutartigen Bluterkrankungen und Blutgerinnungsstörungen eine ganzheitliche Diagnostik und Versorgung nach höchsten wissenschaftlichen und klinischen Standards.
- Die MOH vereint die Bereiche für Medizinische Onkologie und Hämatologie am USZ und ist ein integraler Bestandteil des Universitären Krebszentrums, Comprehensive Cancer Center Zürich (CCCZ).
- In unserer Klinik arbeiten rund **430** Mitarbeitende: **>70** Ärzt:innen (MOH), **>170** Pflgende (USZ Pflege/MTTB), **>55** Mitarbeitende aus dem Bereich Medizin/Labortechnik (USZ MTTB), **>80** Mitarbeitende aus den Bereichen Forschung & Studienmanagement (MOH) sowie **>25** Mitarbeitende aus den Bereichen Dokumentation, Disposition und Administration (MOH).

Klinische Versorgung

- Unser interdisziplinäres Ambulatorium verzeichnet pro Jahr **>54.000** Patientenbesuche.
- In unserer Tagesklinik werden pro Jahr **>14.500** ambulante Therapien durchgeführt.
- In 2025 wurden **69** autologe und **99** allogene Blutstammzelltransplantationen durchgeführt sowie **44** CAR-T-Zelltherapien verabreicht.
- Täglich betreuen wir rund **60** stationäre Patient:innen, darunter etwa **16** auf unserer hochspezialisierten Station für zelluläre Therapien.
- In 2025 verzeichneten wir **2.069** Patientenaustritte.

Diagnostik & Labore

- Die MOH gewährleistet im 24-Stunden-Betrieb die gesamte Routine- und Spezialdiagnostik in den Bereichen zelluläre, molekulare hämatologische und gerinnungsphysiologische Diagnostik am USZ. Jährlich werden dabei mehr als **400.000** Laboraufträge durchgeführt. In der wöchentlichen hämato-pathologischen Konferenz werden die Diagnosen fachübergreifend mit dem Institut für Pathologie abgeglichen.
- Das immunhämatologische Labor/die Transfusionsmedizin der MOH führt immunhämatologische Abklärungen durch und stellt die Versorgung des gesamten USZ mit Blutprodukten sicher, welche vom Blutspendedienst Zürich bezogen werden. Pro Jahr erfolgten rund **3.000** Antikörperabklärungen und die Ausgabe von über **25.000** Blutprodukten.
- In der Apherese-Einheit der MOH wurden im Jahr 2025 **50** unverwandte, **31** verwandte und **69** autologe Blutstammzellsammlungen durchgeführt. Die Anzahl der Lymphozytenapheresen zur CAR-T-Zelltherapie betrug **53** und die Gesamtzahl der stationären und ambulanten Plasmaaustauschtherapien **663**.
- Das MOH Biobanklabor sowie das von der MOH und dem Institut für Pathologie koordinierte CCCZ Sample Processing Lab gewährleisten die standardisierte Verarbeitung, Asservierung und Lagerung von Gewebe- und Blutproben für Forschungszwecke. Jährlich werden mehr als **4.800** Proben verarbeitet und eingelagert.

Forschung und klinische Studien

- Als universitäre Klinik verbinden wir patientennahe Versorgung mit translationaler und klinischer Forschung, um diagnostische und therapeutische Verfahren kontinuierlich weiterzuentwickeln. Im Jahr 2025 wurden in der MOH über **100** Patient:innen innerhalb von mehr als **80** klinischen Studienprotokollen betreut, wodurch unseren Patient:innen Zugang zu innovativen Therapieansätzen ermöglicht werden konnte.

- Aktuell sind an der MOH **12** Forschungsgruppen und klinische Forschende aktiv, darunter **7** Professuren in Doppelanstellung zwischen USZ und UZH. Alle Gruppen verfolgen das gemeinsame Ziel, wissenschaftliche Innovationen direkt zum Nutzen unserer Patient:innen voranzubringen.
- Im Jahr 2024/2025 wurden von MOH Forschenden insgesamt Drittmittel in Höhe von ca. **CHF 4.8/5.2 Mio.** eingeworben und rund **115** wissenschaftliche Publikationen mit MOH-Beteiligung veröffentlicht.
- Darüber hinaus waren MOH Research Group Leaders wesentlich an der Einwerbung von über **CHF 35.9 Mio.** an Fördermitteln für institutionenübergreifende Forschungsnetzwerke beteiligt. Die geförderten **12** Projekte laufen über den Zeitraum von 2021 bis 2030 und unterstützen sowohl die Forschung der MOH als auch die ihrer Kollaborationspartner (siehe Kapitel 10).

About the Department

- *The Department of Medical Oncology and Hematology (MOH) provides comprehensive diagnostics and care for patients with cancers of all organ systems, benign hematological disorders, and blood coagulation disorders, adhering to the highest clinical and scientific standards.*
- *The MOH combines the disciplines of Medical Oncology and Hematology at the University Hospital Zurich (USZ) and is an integral part of the Comprehensive Cancer Center Zurich (CCCZ).*
- *The department employs approximately **430** staff members, including **>70** physicians (MOH), **>170** nurses (USZ Nursing/MTTB), **>55** laboratory and medical technical staff (USZ MTTB), **>80** research and clinical trial management professionals (MOH), and **>25** employees in documentation, scheduling, and administration (MOH).*

Clinical Care

- *Our interdisciplinary outpatient clinic provides more than **54.000** patient visits annually.*
- *More than **14.500** outpatient treatments are administered each year in our day clinic.*
- *In 2025, **69** autologous and **99** allogeneic hematopoietic stem cell transplantations were performed, and **44** CAR T-cell therapies were administered.*
- *We care for approximately **60** inpatients daily, including around 16 patients on our highly specialized cellular therapy unit.*
- *MOH recorded **2.069** patient discharges in 2025.*

Diagnostics & Laboratories

- *MOH provides 24/7 routine and specialized diagnostic services in cellular, molecular hematological, and coagulation diagnostics for the entire USZ. More than **400.000** laboratory orders are processed annually. Diagnoses are reviewed in an interdisciplinary weekly hematopathology conference together with the Institute of Pathology.*
- *The Immunohematology and Transfusion Medicine Laboratory performs immunohematological investigations and ensures the supply of blood products for the entire USZ via the Zurich Blood Transfusion Service. Annually, approximately **3.000** antibody investigations are conducted and more than **25.000** blood products are issued.*
- *In 2025, the MOH Apheresis Unit performed **50** unrelated donor, **31** related donor, and **69** autologous stem cell collections. In addition, **53** lymphapheresis procedures for CAR T-cell therapy and **663** inpatient and outpatient plasma exchange treatments were carried out.*
- *MOH Biobanking and the CCCZ Sample Processing Lab, jointly coordinated by the MOH and the Institute of Pathology, ensure the standardized processing, preservation, and storage of tissue and blood samples for research purposes. More than 4.800 samples are processed and stored annually.*

Research and Clinical Trials

- As a university department, MOH integrates patient care with translational and clinical research to continuously advance diagnostic and therapeutic approaches. In 2025, more than **100** patients were enrolled across over **80** clinical trial protocols, providing access to innovative treatment options.
- MOH currently hosts **12** research groups and clinical investigators, including **7** joint professorships between USZ and UZH. Together, they pursue the common goal of translating scientific discoveries into tangible benefits for patients.
- In 2024/2025, MOH researchers secured ca. **CHF 4.8/5.2 Mio.** in competitive third-party funding and published **>115** scientific articles.
- In addition, MOH Research Group Leaders played a leading role in securing more than **CHF 35.9 million** in funding for collaborative research networks. The resulting **12** projects, running between 2021 and 2030, support both MOH research activities and those of its academic collaborators (see chapter 10).



PATIENTENVERSORGUNG

>54.000 ambulante Patientenbesuche
2.069 stationäre Patientenaustritte
>14.500 Ambulante Therapien
663 Plasmaaustauschtherapien
69/99 autologe/allogene Stammzelltransplantationen
44 CAR-T-Zelltherapien
>165 Mio. CHF Ertrag



FORSCHUNG

12 Forschungsgruppen/klinische Forschende
7 Professuren
12 Zürich Verbundprojekte mit MOH Beteiligung
>115 Publikationen
>5.2 Mio. CHF Drittmittel
>35.9 Mio. CHF federführend eingeworbene Fördermittel für 12 institutionenübergreifende Forschungsprojekte
>80 offene klinische Studienprotokolle



DIAGNOSTIK

24/7/365 Betrieb
>400.000 häm. Laboraufträge
>25.000 Blutproduktausgaben
>190 Blutstammzell- und Lymphozytenprodukte
>4.800 Biobanking-Proben



ZUSAMMENARBEIT & NACHWUCHSFÖRDERUNG

>430 Mitarbeitende
>70 Ärzt:innen
>80 Wissenschaftler:innen
>55 Medizin-technische Mitarbeiter:innen
>170 Pflegende
>20 erzielte Qualifikationen und Titel
>270 Fort- und Weiterbildungen

MEDICAL CARE

>54.000 outpatient visits
2.069 hospitalizations
>14.500 outpatient therapies
663 plasma exchange therapies
69/99 autologous/allogeneic stem cell transplants
44 CAR-T-Cell therapies
>165 Mio. CHF revenue

RESEARCH

12 research groups/clinical researchers
7 professorships
12 Zurich research networks with MOH expertise
>115 publications
>5.2 Mio. CHF third-party funding
>35.9 Mio. CHF in competitive funding secured by MOH PIs for 12 cross-institutional research projects.
>80 open clinical trials

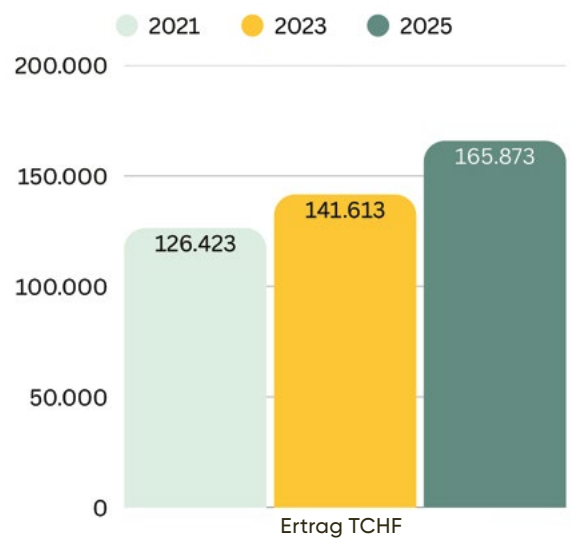
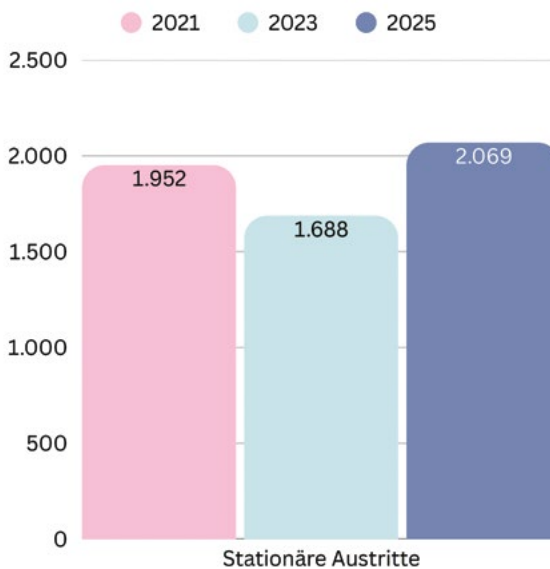
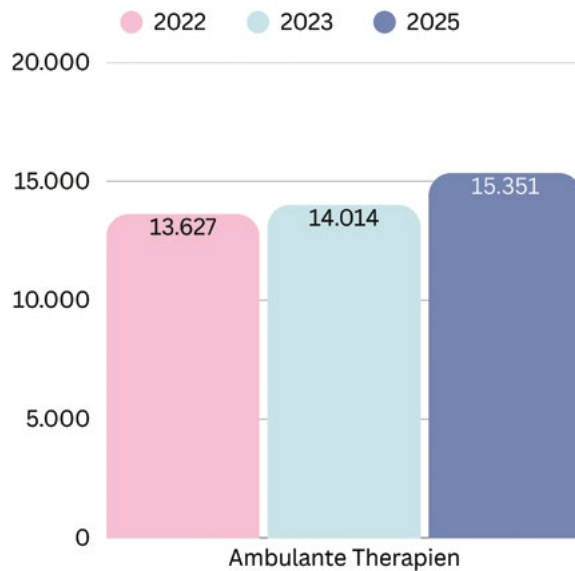
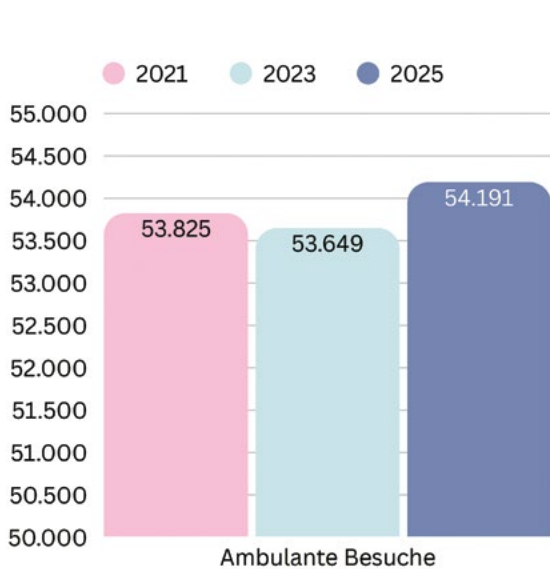
DIAGNOSTICS

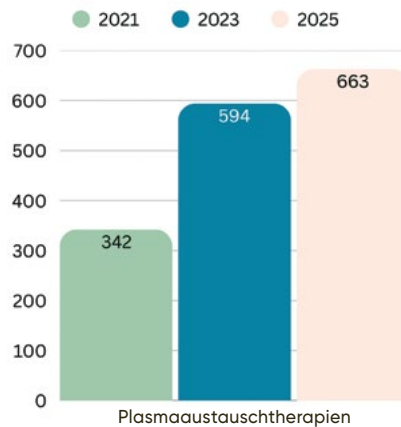
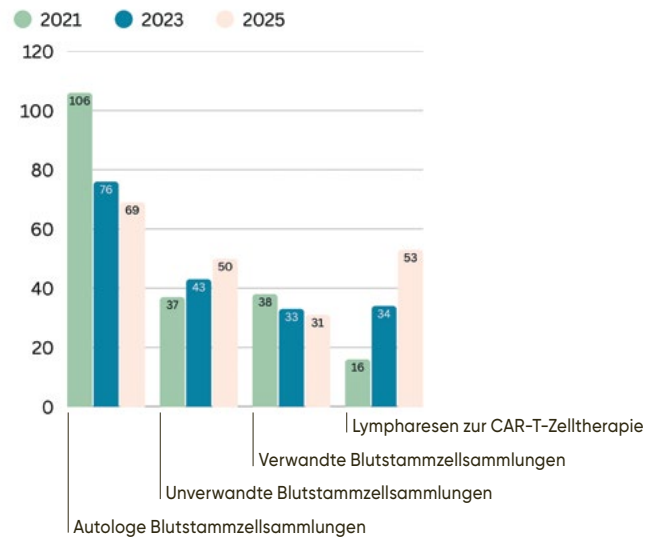
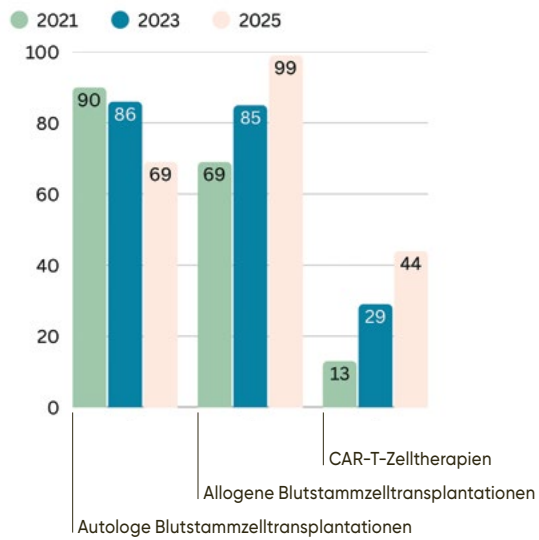
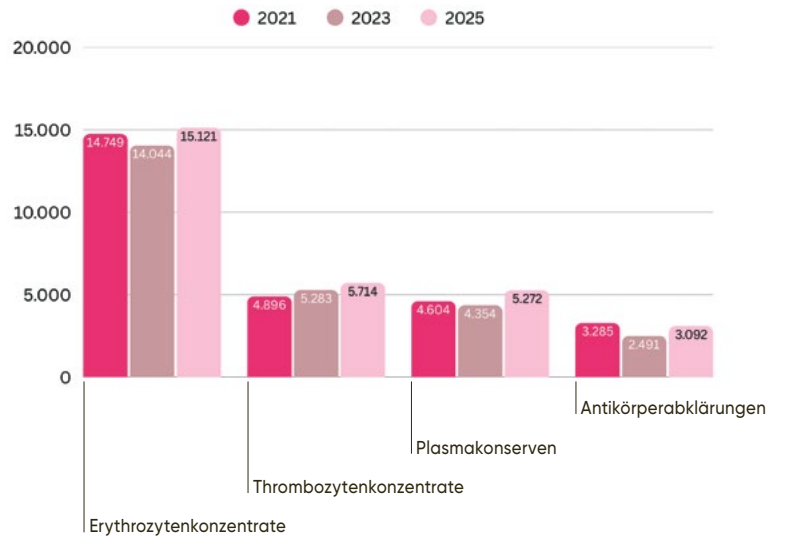
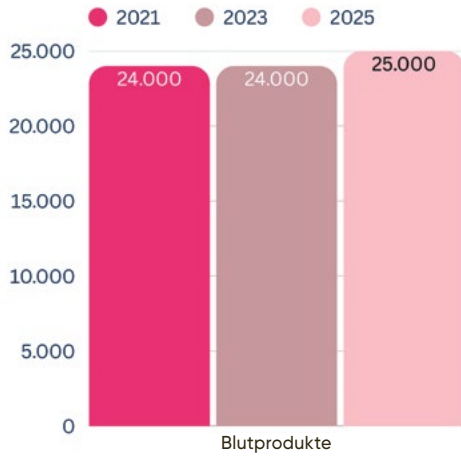
24/7/365 service
>400.000 hematological lab orders
>25.000 blood products provided
>190 blood stem cell and lymphocyte products
>4.800 biobanked samples

WORKING TOGETHER & PROMOTING TALENTS

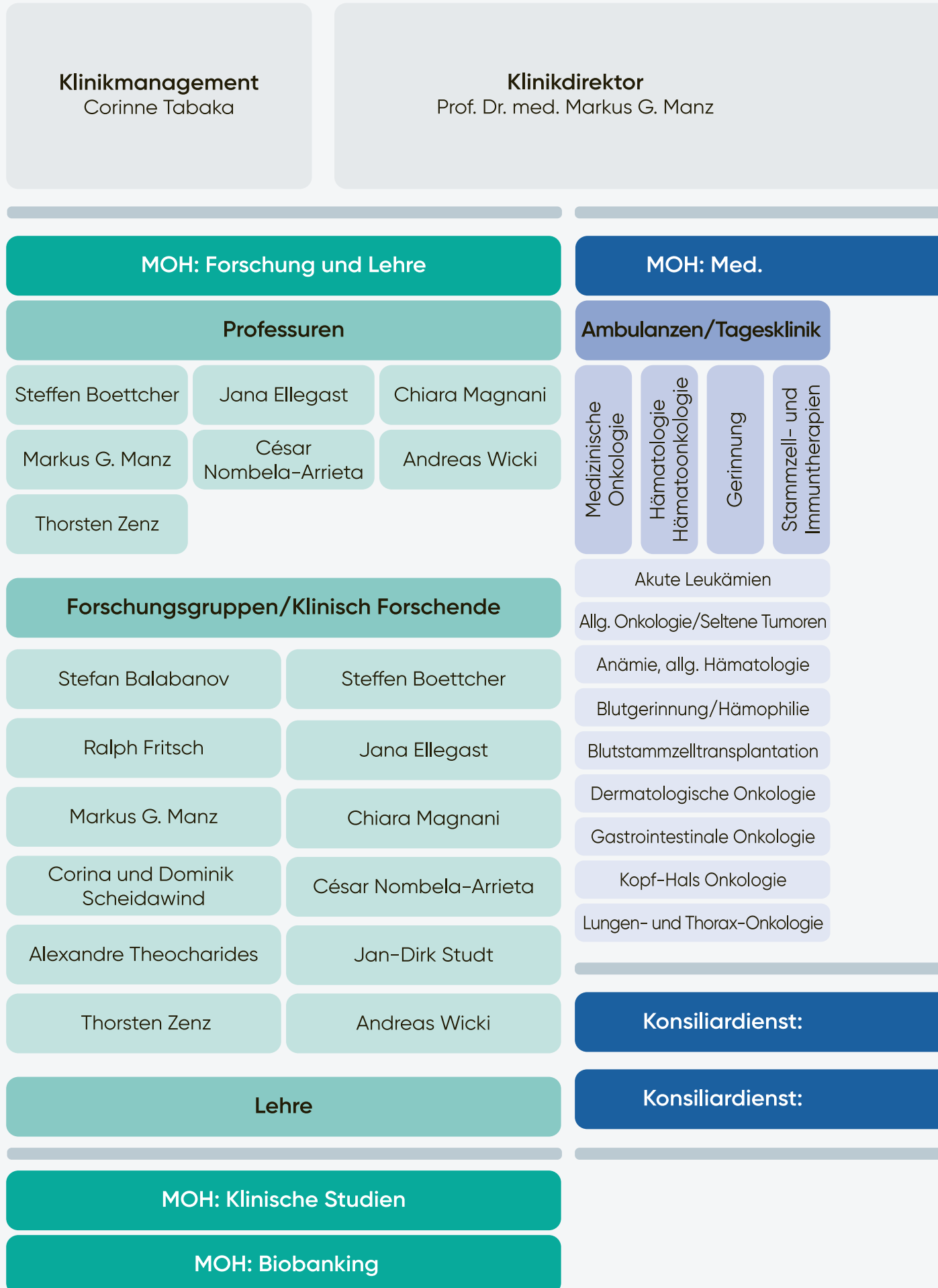
>430 staff members
>70 physicians
>80 scientists
>55 laboratory technicians
>170 nurses
>20 completed qualifications/titles
>270 education and training seminars

Kennzahlen





4 Organigramm Klinik für Medizinische Onkologie und Hämatologie (MOH)



Klinikleitung

Prof. Dr. med. Dr. rer. nat. Stefan Balabanov,
Michael Barbrock, Anna Dück, Evelyne Giabbani,
Prof. Dr. med. Anja Lorch, Prof. Dr. med. Markus G.
Manz, Corinne Tabaka, Prof. Dr. med. Dr. phil.
Andreas Wicki, Prof. Dr. med. Thorsten Zenz

Direktionssekretariat

Madeleine Pohl,
Marina Martin

Versorgung

Stationen/Abteilungen

Medizinische
Onkologie

Hämatologie
Hämatonkologie

Stammzell- und
Immuntherapien

Lymphome

Mamma- und Gyn. Onkologie

Myelodysplastische Syndrom

Myeloproliferativen Neoplasien

Neuroendokrine Onkologie

Neuroonkologie

Plasmazell-Erkrankungen

Sarkome

Urogenitale Onkologie

MOH: Diagnostik & Zelluläre Therapien

Hämatologie &
Gerinnung Routine

Immunhämatologie
Transfusionsmedizin

Spezialanalytik
Gerinnung, Zytologie,
Immunphenotypisierung,
Molekularbiologie

Stammzell- und
Immunzell-Labor

Med. Onkologie

Hämatologie



«Das Klinikmanagement verbindet medizinische Anforderungen mit wirtschaftlichen und organisatorischen Rahmenbedingungen. Das breite Aufgabenspektrum reicht von Budgetierung und Investitionsplanung über Leistungs- und Ressourcenmanagement bis zur Weiterentwicklung kliniknaher Prozesse. Entscheidend sind dabei die interdisziplinäre Zusammenarbeit, ein fundiertes Verständnis komplexer Zusammenhänge und die Fähigkeit, neue Rahmenbedingungen unter Berücksichtigung unterschiedlicher Perspektiven in tragfähige Lösungen für den Klinikalltag zu übersetzen.»

Corinne Tabaka
Klinikmanagerin MOH

5 Highlights 2024/2025



Patientenversorgung

Ambulatorium

Seit der Eröffnung im März 2023 hat sich das von der MOH geführte Ambulatorium mit interdisziplinärer Tagesklinik zu einem zentralen Pfeiler der ambulanten onkologischen Versorgung am USZ/CCCZ entwickelt. Das Angebot wurde in den vergangenen zwei Jahren kontinuierlich erweitert und den wachsenden Anforderungen angepasst. Heute werden täglich bis zu 250 Patient:innen ambulant betreut und behandelt. Unsere rund 950 Therapieprotokolle werden kontinuierlich aktualisiert und orientieren sich konsequent am neuesten Stand der wissenschaftlichen und medizinischen Evidenz. Innovative therapeutische Entwicklungen werden zeitnah in die klinische Versorgung integriert.

Ausbau der CAR T-Zell Therapie

- Die Applikation von CAR T-Zell Therapien wurde in der Klinik weiter ausgebaut. Von 2019 bis 2025 wurde diese neue Therapieform bei >180 Patienten mit B-Zell Neoplasien angewandt.
- Carvykti (Cilta-cel) ist eine CAR-T-Zelltherapie gegen das Multiple Myelom und ergänzt seit 2024 als mittlerweile sechstes Zelltherapeutikum das Behandlungsportfolio der MOH im Bereich der hämatologischen Neoplasien.
- Seit Juni 2025 rekrutiert die prospektive INTERCEPT2.0 Studie Patient:innen mit B-Zelllymphomen und CAR-T Therapie.

5 Jahre Zelluläre- und Immuntherapiestation SUEDE

Die hochmoderne Isolierstation zur Durchführung von Blutstammzelltransplantationen und zellulären Therapien SUEDE feiert im 2024 ihr fünfjähriges Bestehen.

Leistungsauftrag allogene Blutstammzelltransplantation

Das USZ erhält im 2024 im Bereich der hochspezialisierten Medizin erneut den Leistungsauftrag «Allogene hämatopoetische Stammzelltransplantationen bei Erwachsenen» für die kommenden sechs Jahre.



Etablierung Patientenpfad Lungentumor

Mit dem Rollout des durchgängigen Patientenpfads Lungentumor wird die klinikübergreifende Versorgung von Patientinnen und Patienten weiter gestärkt. Der Pfad betrifft mehrere Kliniken und Berufsgruppen und zielt darauf ab, Schnittstellen zu verbessern, Abläufe zu vereinfachen und die Zusammenarbeit entlang des gesamten Behandlungsprozesses noch besser zu koordinieren. Eine zentrale Neuerung ist die Einführung von Nurse Practitioners als feste Ansprechpersonen. Diese neu geschaffene Rolle unterstützt die kontinuierliche Begleitung der Patientinnen und Patienten und entlastet zugleich die beteiligten Fachbereiche. So können sich alle Beteiligten noch stärker auf ihre jeweiligen Kernkompetenzen konzentrieren. Die MOH ist dabei ein wichtiger Teil dieses interprofessionellen und klinikübergreifenden Versorgungspfads.



www.lungentumor.usz.ch

Patient Engagement

An den CCCZ Patientenakademien informieren und engagieren wir Betroffene über die neuesten Therapiemöglichkeiten und Forschungsergebnisse bei Krebserkrankungen. In den Jahren 2024/2025 wurden durch die MOH folgende Patientenveranstaltungen koordiniert und unterstützt:

- 22.06.2024: CCCZ Cancer Survivors Day
- 07.09.2024: Patiententag für stammzelltransplantierte Patient:innen
- 12.12.2024: Patientenakademie Kopf-Hals-Tumore
- 9.01.2025: Patientenakademie Blasenkrebs
- 28.06.2025: CCCZ Cancer Survivors Day
- 18.09.2025: Patientenakademie Akute Myeloische Leukämie und Myelodysplastische Neoplasien
- 10.11.2025: Patientenakademie Neuroendokrine Tumore
- 26.11.2025: Patientenakademie Multiples Myelom

**Patientenveranstaltungen zum Nachschauen –
Jederzeit online in der CCCZ Playlist:**





Diagnostik & Labore

Erweiterung des Angebots in der Molekulargenetik

Im MOH Diagnostiklabor konnten wir unser Angebot in der NGS Analytik erweitern. Hervorzuheben ist dabei insbesondere die Einführung der Transkriptomanalyse in die Routinediagnostik. Diese Methode stellt einen grossen Fortschritt in der molekulargenetischen Diagnostik von akuten Leukämien dar. Wir sind damit das erste Labor in der Schweiz, welches diese Analyse anbietet. Genetische Veränderungen, welche wir mit der Transkriptomanalyse identifizieren, dienen in vielen Fällen als Grundlage für die Etablierung von patientenspezifischen Assays zur sensitiven Verlaufskontrolle von Patienten mittels digitaler PCR.

Mehr erfahren zu allen CCCZ Leuchtturmprojekten:



krebszentrum-zurich.ch/de/forschung/praezisionsonkologie-projekte



Forschung & Innovation

(mehr erfahren in Kapitel 10)

Das CCCZ fördert das Leuchtturmprojekt «MACROCURE – Phagozyten gegen Krebs» mit CHF 1.75 Mio. für die Jahre 2026–2029.

PI and MOH Projektteammitglieder:

Anne Müller (PI), Institute of Molecular Cancer Research, UZH, Markus G. Manz, MOH, Alexandre Theocharides, MOH, Tobias Weiss, Neurologie USZ

Ziel:

Das Konsortium untersucht mittels neuartiger hochauflösender Technologien die Rolle tumorinfiltrierender Makrophagen in Hirntumoren, Leukämien und Lymphomen und entwickelt darauf aufbauend innovative Therapien, die diese Immunzellen gezielt umprogrammieren, um die körpereigene Tumorabwehr zu stärken.

CCCZ, TPC und The LOOP Zurich fördern zum ersten Mal gemeinsam das «Zurich Precision Oncology Consortium INTERCEPT3.0: Dynamische, individualisierte Risikovorhersage zur Verbesserung der Behandlung von Lymphomen» mit CHF 4.05 Mio. für die Jahre 2026–2030.

PI:

Thorsten Zenz, MOH

Ziel:

INTERCEPT3.0 möchte Risiken & Chancen von Lymphompatient:innen kontinuierlich quantifizieren, um Patientenperspektive und -wunsch optimal umzusetzen und wirksame Therapieverfahren möglichst erfolgreich einzusetzen.



Der SNSF fördert PARTACER-Suisse (SAKK 41-23) – eine schweizweite multizentrische prospektive translationale Studie zum BRAF V600E-metastasierten Kolorektalkarzinom und begann 11/2025 mit der Rekrutierung.

Initiator und PI:

Ralph Fritsch, MOH

Ziel:

Die Studie zielt darauf ab eine umfassende Charakterisierung genomischer und nicht-genomischer Resistenzalterationen, sowie die Entwicklung neuer therapeutischer Strategien, erworbene Therapieresistenz zu durchbrechen.

Die Krebsliga Zürich fördert das Projekt «Rolle des pragmatischen Geriatrischen Assessments (pGA) zur Vorhersage der Toxizität und der Ergebnisse bei älteren Patienten, bei denen eine bispezifische Antikörpertherapie (bsAb) oder eine chimäre Antigenrezeptor-T-Zell-Therapie (CAR-T-Zell-Therapie) geplant ist» – GA-ACT mit 375000 CHF über die Jahre 2025–2029.

PI:

Dominik Schneidawind, Wiebke Rösler, MOH

Ziel:

Das Projekt wird erstmals klinische Daten aus dem Bereich geriatrischer Assessments und deren prognostischer Bedeutung auf die Therapie mit innovativen zellulären Therapieformen in einer prospektiven Studie erfassen. Die Studie wird gemeinsam mit dem Inselspital Bern durchgeführt.

Die Universitäre Medizin Zürich fördert das Tumor Profiler Center (TPC) im Bereich der Präzisionsonkologie mit CHF 4,5 Mio. für die Jahre 2025–2029.

PI:

Andreas Wicki, MOH, Bernd Bodenmiller, DQBM, Viola Heinzelmann, USB

Ziel:

TPC betreibt innovative Plattformen («Multi-Omics-Technologien») und KI-gestützte Analysen zur Unterstützung personalisierter Therapieentscheidungen in der Präzisionsonkologie. Die Förderung ermöglicht die Weiterführung und Weiterentwicklung des Projektes mit der Initiierung randomisierter klinischer Studien.



Forschung & Innovation

(mehr erfahren in Kapitel 10)

Die Universität Zürich fördert das TRANSFORM Projekt «Center for Engineered Immunotherapy» (CEI).

Lead-PIs:

Markus G. Manz (MOH, USZ), Michael Weller (Neurologie, USZ)

Ziel:

Das CEI ist ein neues interfakultäres Zentrum mit der Zielsetzung innovative Immuntherapien aus der Forschung zu Patient:innen zu bringen.

The Loop Zurich fördert das Inkubator-Projekt «AI Tumor Board» mit CHF 1 Mio. für die Jahre 2025–2028.

Co-PI:

Andreas Wicki, MOH

Ziel:

Das AI-Tumor Board entwickelt für das USZ und Kispi eine KI-gestützte Plattform, die Onkolog:innen wichtige Informationen für personalisierte Behandlungsentscheidungen bei Krebspatient:innen liefert.



Zusammenarbeit, Lernen & Auszeichnungen

MOHomecoming – MOH Poster-Retreat

Am 29.08.2025 fand der 2. MOH-Poster-Retreat unter dem Motto «MO-Homecoming» mit rund 75 Teilnehmenden aus allen Bereichen der MOH statt. In über 20 kurzen Poster-Pitches wurde die gesamte Breite der Forschung an der Klinik deutlich.

In den Jahren 2024 und 2025 waren Mitarbeitende der MOH erneut aktiv im Program Committee der **CCCZ Precision Oncology und Immuno-Oncology Symposien** vertreten und wirkten massgeblich an der inhaltlichen Gestaltung und Organisation der Veranstaltungen mit. Die beiden Symposien verzeichneten in 2025 mit über 800 Teilnehmenden vor Ort und online eine Rekordbeteiligung.

CCCZ Veranstaltungen für Fachpersonen in der Onkologie:



[krebszentrum-zurich.ch/
education/events](https://krebszentrum-zurich.ch/education/events)

Thorsten Zenz erhält den renommierten Ellermann-Preis – SGH-SSH am SOHC 2025.

In KAPITEL 12 finden Sie alle Preise und Auszeichnungen unserer Mitarbeitenden in den Jahren 2024 und 2025.



CCCZ Fachveranstaltungen jederzeit ansehen:



Am 27.11.2025 wurde das **3. Swiss Histiocytosis Symposium** unter der Koordination von Wiebke Rösler durchgeführt. Die Veranstaltung brachte Expert:innen aus Klinik und Forschung zusammen, förderte den interdisziplinären Austausch und trug zur Weiterentwicklung der Versorgung von Patient:innen mit Histiocyosen bei.



www.histiozytose.ch



Im Rahmen der ersten Ausschreibung des **CCCZ Fellow Programms** wurden 2025 drei Nachwuchstalente der MOH mit einem kompetitiv vergebenen Fellowship ausgezeichnet. Die Förderung ging an **Julia Trepl**, **Sebastian Stolz** und **Krithika Rajeeth**, die damit die Möglichkeit erhielten, ihre wissenschaftlichen Projekte an der Schnittstelle von Forschung und klinischer Onkologie weiterzuentwickeln. Die Auszeichnung unterstreicht die starke Nachwuchsförderung und wissenschaftliche Exzellenz der MOH.



6 Zusammen lernen

Die Förderung des klinischen und wissenschaftlichen Nachwuchses sowie die kontinuierliche fachliche und persönliche Weiterentwicklung unserer Mitarbeitenden sind zentrale Anliegen der MOH. Durch ein breites Angebot in Lehre, Weiterbildung und wissenschaftlicher Förderung schaffen wir ein Umfeld, das Lernen, Innovation und interdisziplinären Austausch unterstützt.

Universitäre Lehre

- Die MOH engagiert sich umfassend in der universitären Lehre und beteiligt sich an sämtlichen Lehrveranstaltungen der Onkologie und Hämatologie im Bachelor- und Masterstudiengang Humanmedizin der UZH. Darüber hinaus wirken Mitarbeitende der MOH am Bachelorstudiengang Humanmedizin der ETH Zürich mit.
- Gemeinsam mit den weiteren internistischen Kliniken des USZ bietet die MOH ein strukturiertes Curriculum für Unterassistent:innen im Wahlstudienjahr an und ermöglicht Studierenden eine fundierte klinische Ausbildung in Innerer Medizin, Onkologie und Hämatologie.

Weiterbildung und Qualifikation

- Die Klinik ist vom Schweizerischen Institut für ärztliche Weiter- und Fortbildung (SIWF) weiterhin als A-Weiterbildungsstätte für Medizinische Onkologie sowie als A-, D1-, D2- und D3-Weiterbildungsstätte für Hämatologie anerkannt. Seit 2025 befindet sich die MOH gemeinsam mit dem Stadtspital Zürich (Triemli/Waid) im Aufbau eines SIWF-anerkannten Weiterbildungsverbunds für Medizinische Onkologie und Hämatologie. Ein gemeinsames strukturiertes Weiterbildungscurriculum wurde bereits umgesetzt. Der Verbund soll die strukturierte fachärztliche Weiterbildung sowie die standortübergreifende Zusammenarbeit stärken.
- Zusätzlich ermöglicht die MOH die Weiterbildung von Spezialist:innen für hämatologische Labordiagnostik im Rahmen der FMH- und FAMH-Programme.
- Unsere Klinik bietet ein strukturiertes Programm für Mentoring und Supervision für Assistenzärzt:innen.
- Die Vereinbarkeit von Beruf, Forschung und familiären Verpflichtungen ist für die MOH ein wichtiges Anliegen. Unsere Klinik setzt sich aktiv für Chancengleichheit und flexible Entwicklungsmöglichkeiten ein.

Kennzahlen

- In 2025 befanden sich 40 Assistenzärzt:innen in der Weiterbildung zur Fachärzt:in für Hämatologie (22) oder Medizinische Onkologie (18).
- Von 2009–2025 haben 126 Assistenzärzt:innen in der MOH ihre Weiterbildung bzw. einen Teil ihrer Weiterbildung absolviert, davon 88 in der Hämatologie und 38 in der Onkologie.
- In den Jahren 2024/2025 konnten wir **12** Mitarbeitende befördern: **2** zu Leitenden Ärzt:innen, **3** zu Leitenden Oberärzt:innen, **4** zu Oberärzt:innen und **3** zu Oberärzt:innen in Vertretung (siehe Seite 23).

Wissenschaftliche Karriereförderung

- Die Förderung wissenschaftlicher Tätigkeit ist ein wesentlicher Bestandteil unseres Ausbildungs- und Weiterbildungsverständnisses. Neben der klinischen Weiterbildung unterstützt die MOH gezielt Ärzt:innen mit akademischer Ausrichtung und fördert die Entwicklung von Physician Scientists.

Kennzahlen

- Von 2009–2025 arbeiteten rund 23 Assistenzärzt:innen für 1–2 Jahre in der MOH als Physician Scientist mit 50% «protected research time». 11 Assistenzärzt:innen gingen mit kompetitiven, von der Krebsliga oder dem SNF geförderten postdoctoral Fellowships für einen Forschungsaufenthalt ins Ausland.
- Das CCCZ Fellow Programm ist ein Exzellenz- und strukturiertes Nachwuchsförderprogramm für forschende Ärzt:innen und Wissenschaftler:innen im Gebiet der Onkologie. Das Programm fördert ambitionierte Talente in ihrer akademischen Laufbahn und Forschung. Nachwuchstalente erhalten Freiräume (protected research time), um eigene Forschungsprojekte unter Anleitung von etablierten PIs umzusetzen und ein breites Verständnis für die Krebsforschung und Translation zu entwickeln. 5 MOH Nachwuchstalente konnten in den kompetitiven Ausschreibungsverfahren in den Jahren 2024 und 2025 ein Fellowship gewinnen: Julia Trepl (2025), Sebastian Stolz (2025) und Krithika Rajeeth (2025–2026), Emanuel Rom (2026) und Chiara Brandas (2026).



CCCZ Fellow Programm:

krebszentrum-zurich.ch/education/fellow-program



«Das CCCZ Fellowship bietet mir die Möglichkeit, meine klinische Tätigkeit mit der Grundlagenforschung zu verbinden und ein translationales Forschungsprojekt zu entzündlichen Signalwegen bei Sarkomen voranzutreiben. Der interdisziplinäre Ansatz stärkt meine Entwicklung als Physician Scientist und hilft mir, wissenschaftliche Erkenntnisse in klinische Anwendungen zu überführen. Langfristig möchte ich so zur Entwicklung innovativer Therapiestrategien für Patientinnen und Patienten beitragen.»

Julia Trepl
Assistenzärztin und Physician Scientist



Lernkultur und Wissensaustausch

- Ein zentraler Bestandteil unserer Lernkultur sind zahlreiche interne Fortbildungs- und Austauschformate. Dazu gehören unter anderem die MOH Basics Onkologie und Hämatologie, Journal Clubs, diagnostische Fallkonferenzen gemeinsam mit der Pathologie sowie die CCCZ Seminar Series.
- Ergänzt werden diese Angebote durch regelmässige Retreats und interdisziplinäre Meetings, welche den wissenschaftlichen Austausch und die Zusammenarbeit innerhalb der MOH stärken.
- In den Jahren 2024 und 2025 waren Mitarbeitende der MOH erneut aktiv im Program Committee der CCCZ Precision Oncology und Immuno-Oncology Symposien vertreten und wirkten massgeblich an der inhaltlichen Gestaltung und Organisation der Veranstaltungen mit. Die beiden Symposien verzeichneten 2025 mit über 800 Teilnehmenden vor Ort und online eine Rekordbeteiligung.

Qualifikationen

2024

Facharztprüfung/Titel Hämatologie

Jan Bögeholz
Simon Broghammer
Christian Koch
Judith Konrat
Tharshika Thavayogarajah

Facharztprüfung/Titel Onkologie

Cathrin Cheridito
Tabea Ibach-Bilgeri
Jacopo Roggero

Habilitation

Jeremy Deuel
Fabienne Meier-Abt

Eingereichte Dissertationen/Titel Dr. med.

Rebecca Zuber

PhD Thesis Defenses/Titel PhD

Thi Huong Lan Do

Master Arbeiten

Miles Robert Burri
Renske Funhoff
Niclas Harrer
Steven Pierre Hiltgen
Nils Kristian Konrad
Mia Roth

Beförderungen

Marta Chodup, OAe i.V.
Judith Konrat, OAe i.V.
Jan Köppel, OA
Franca Lisy, OAe
Max Rieger, LOA

2025

Facharztprüfung/Titel Hämatologie

Kevin Hofer
Francesco Manfredi
Sibylle Zimmermann

Facharztprüfung/Titel Onkologie

Judith Konrat
Anja Lorch

Habilitation

Stefanie Fischer (KS St. Gallen)

Eingereichte Dissertationen/Titel Dr. med.

Surema Pfister
Raphael Heimgartner
Sarvaganthasenay Yohasanan
Ana Luisa Marques Pereira
Alexander Ring
Bianca Linda Addamo-De Nard
Tim Graf
Anina Mäder
Marcel Pohly

PhD Thesis Defenses/Titel PhD

Serena Fazio
Ana Luisa Marques Pereira
Ye Vin Mun

Master Arbeiten

Delia Cella
Olivia Hoffmann
Laetitia Lacoste

Beförderungen

Adrian Bachofner, LOA
Jan Bögeholz, OA i.V.
Tabea Ibach, OAe
Michael Liu, OA
Rouven Müller, LA
Wiebke Rösler, LOAe
Rahel Schwotzer, LAe

7 Medizinische Versorgung

Wir sind spezialisiert auf die Diagnostik und Behandlung von Tumorerkrankungen aller Organsysteme sowie von benignen Erkrankungen des Blutes und des Gerinnungssystems. Mit Hilfe modernster diagnostischer Verfahren und hochspezialisierter Labormedizin ermöglichen wir präzise und individualisierte Diagnosen.

Unser therapeutisches Spektrum umfasst innovative medikamentöse Therapien, zielgerichtete Systemtherapien, Immuntherapien sowie autologe und allogene Blutstammzelltransplantationen und moderne zelluläre Immuntherapien.

Als universitäre Klinik verbinden wir klinische Versorgung mit translationaler und klinischer Forschung. Unser Ziel ist es, Prävention, Diagnostik und Behandlung kontinuierlich weiterzuentwickeln und unseren Patient:innen Zugang zu den modernsten und wirksamsten Therapien zu ermöglichen.

MOH: Fachbereiche

Hämatologie

ALLGEMEINE
HÄMATOLOGIE
Stefan Balabanov

LEUKÄMIEN
Steffen Böttcher (AML)
Max Rieger (ALL)

MYELOPROLIFERATIVE
NEOPLASIEN
Alexandre Theodorides

MYELOYDYS-PLASTISCHES
SYNDROM
Stefan Balabanov

LYMPHOME
Thorsten Zenz

MULTIPLES MYELOM
Rouven Müller

AMYLOIDOSE
Rahel Schwotzer

HÄMOSTASE/
BLUTGERINNUNG
Jan-Dirk Studt

HISTIOZYOSEN
Wiebke Rösler

Onkologie

KOPF-HALS ONKOLOGIE
Thomas Brezina

LUNGEN- UND
THORAXONKOLOGIE
Andreas Wicki

MAMMA- UND
GYNÄKOLOGISCHE
ONKOLOGIE
Tamara Rordorf

GASTROINTESTINALE
ONKOLOGIE
Ralph Fritsch

UROGENITALE
ONKOLOGIE
Anja Lorch

NEUROONKOLOGIE
Andreas Wicki

NEUROENDOKRINE
ONKOLOGIE
Ralph Fritsch

SARKOME
Lorenz Bankel
Jana Ellegast

SELTENE TUMORE
Anja Lorch

MOH: Querschnittsbereiche

BLUTSTAMMZELL-
TRANSPLANTATION &
ZELLULÄRE THERAPIEN
Dominik Schneidawind

LEUKAPHERESE &
PLASMAPHERESE
Adrian Bachofner

TRANSFUSIONS-
MEDIZIN
Adrian Bachofner

HÄMATOLOGISCHE
DIAGNOSTIK
Stefan Balabanov

KLINISCHE STUDIEN
Anja Lorch
Alexandre Theodorides

SAMPLE PROCESSING &
BIOBANKING
Thorsten Zenz

MOLEKULARES TUMOR
BOARD
Andreas Wicki

Ambulante und Stationäre Patientenversorgung

Ambulante Versorgung

- In unseren spezialisierten Ambulatorien und Tageskliniken bieten wir Patient:innen mit Tumorerkrankungen aller Organsysteme sowie mit gutartigen Veränderungen des Blutes und des Blutgerinnungssystems eine umfassende Diagnostik, Beratung und Therapie auf universitärem Niveau. Im Jahr 2025 wurden an der MOH über **54.000 ambulante Patient:innenkontakte** verzeichnet.
- Unsere spezialisierten Sprechstunden decken das gesamte Spektrum der medizinischen Onkologie, malignen und benignen Hämatologie sowie der Gerinnungsmedizin ab. Darüber hinaus führen wir zahlreiche spezialisierte diagnostische und therapeutische Interventionen durch, darunter Knochenmarkpunktionen, Lumbalpunktionen sowie Pleura- und Aszitesdrainagen.

Tageskliniken und ambulante Therapien

- Die medizinische Betreuung in unseren Tageskliniken erfolgt durch spezialisierte Tagesklinikärzt:innen in enger Zusammenarbeit mit Pflege, Administration und Disposition. Zusätzlich betreut die MOH Patient:innen anderer Kliniken des USZ, unter anderem aus Dermatologie, Rheumatologie und Innerer Medizin.
- Ein zentralisierter Anmelde- und Planungsprozess ermöglicht eine koordinierte und effiziente Versorgung unserer Patient:innen. In den Jahren 2024/2025 wurden jeweils **>14.500 ambulante Therapien** durchgeführt.
- Das therapeutische Spektrum der MOH umfasst sämtliche modernen Verfahren der medizinischen Onkologie und Hämatologie – von Polychemotherapien bis zu Immuntherapien, zellulären Therapien und komplexen Blutgerinnungstherapien.



«Die Gewährleistung von Sicherheit sowie die Förderung von Lebensqualität, Wohlbefinden und individueller Begleitung stehen auf unserer Tagesklinik im Mittelpunkt. Unsere Patient:innen werden während des gesamten Behandlungsprozesses umfassend betreut. Gleichzeitig bietet die Tagesklinik Pflegenden ein modernes Arbeitsumfeld mit vielfältigen Entwicklungsmöglichkeiten. Die Entwicklung unserer Tagesklinik in den vergangenen zwei Jahren erfüllt mich mit grosser Freude. Besonders stolz bin ich auf unser engagiertes Team, das täglich eine bestmögliche Betreuung unserer Patient:innen ermöglicht.»

Anna Dück
Abteilungsleiterin Tageskliniken USZ

Ambulante und Stationäre Patientenversorgung

Stationäre Versorgung

- Patient:innen mit stationärem Behandlungsbedarf werden auf unseren vier Bettenstationen – West J (interdisziplinäre Privatstation), West H, West G und Süd2 E – durch interprofessionelle Teams betreut.
- Täglich betreuen wir rund **60 stationäre Patient:innen**, darunter etwa **16 auf unserer hochspezialisierten Station für zelluläre Therapien**.
- In den Jahren 2024/2025 verzeichneten wir **1.954/2.069 Patientenaustritte**.

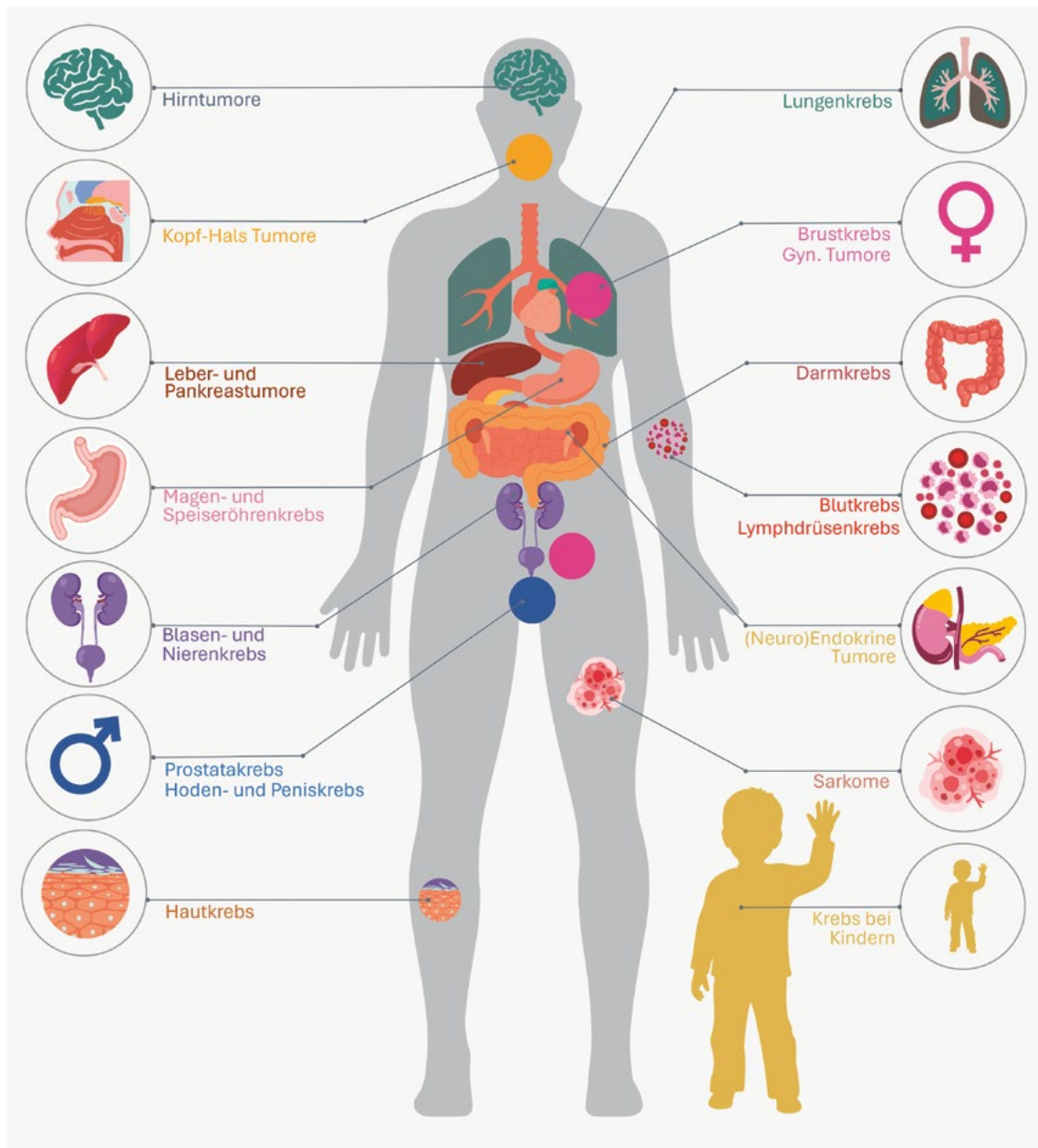
Stammzelltransplantation und Zelltherapien

- Allogene Blutstammzelltransplantationen sowie CAR-T-Zelltherapien werden auf unserer spezialisierten Stamm- und Immunzelltherapiestation Süd2 E durchgeführt. Zur optimalen Infektionsprophylaxe stehen dort 16 Zimmer mit Überdruck- und Luftfiltersystemen zur Verfügung. In 2025 wurden **69 autologe** und **99 allogene Blutstammzelltransplantationen** durchgeführt. Seit der Einführung der **CAR-T-Zelltherapie** im Jahr 2019 konnte diese innovative Therapieform bereits bei **185 Patient:innen** mit B-Zell-Neoplasien eingesetzt werden.

Hämophiliezentrum und Gerinnungsmedizin

- Das Hämophiliezentrum der MOH betreut regelmässig Patient:innen mit angeborenen und erworbenen Gerinnungsstörungen und bildet gemeinsam mit dem Universitäts-Kinderspital Zürich das grösste Hämophiliezentrum der Schweiz. Dazu gehören etwa **50 Patient:innen** mit schwerer, **20** mit mittelschwerer und **60** mit milder Hämophilie A sowie **5** Patient:innen mit schwerer, **15** mit mittelschwerer und **30** mit milder Hämophilie B. Zusätzlich werden Konduktorinnen einer Hämophilie A oder B betreut, bei denen die Faktor-VIII- beziehungsweise Faktor-IX-Restaktivität auf dem Niveau einer milden Hämophilie reduziert ist. Darüber hinaus versorgt das Zentrum Patient:innen mit weiteren seltenen Gerinnungsstörungen, darunter kongenitale Afibrinogenämie, schwerer Faktor-XIII-Mangel sowie Patient:innen mit einem von-Willebrand-Syndrom Typ 3 oder schwer ausgeprägtem Typ 2.

Die MOH bringt ihre Expertise in alle Organzentren des CCCZ ein – Für eine ganzheitliche Krebsmedizin, spezialisiert auf jede Krebsart, individuell für jeden Menschen



Qualitätssicherung durch Kollaboration und Akkreditierung

- Die medizinische Betreuung unserer Patient:innen erfolgt in enger **interdisziplinärer Zusammenarbeit** mit der Klinik für Radio-Onkologie, dem Institut für Diagnostische und Interventionelle Radiologie, der Klinik für Nuklearmedizin, dem Institut für Pathologie und Molekularpathologie sowie zahlreichen chirurgischen und internistischen Fachdisziplinen. Dieser kontinuierliche fachübergreifende Austausch stärkt die Qualität der Diagnostik und Therapie und ermöglicht eine umfassende, koordinierte Patient:innenversorgung.
- Die MOH ist ein **integraler Bestandteil des CCCZ** und bringt ihre Expertise in sämtliche 17 Organzentren ein. Darüber hinaus leitet die MOH das Zentrum für Hämatologische Neoplasien (HAEZ), das Darmtumorzentrum, das Zentrum für endokrine und neuroendokrine Tumoren sowie das Sarkomzentrum. Mitarbeitende der MOH sind zudem wesentlich an der Organisation und Durchführung von 16 interdisziplinären Tumorboards beteiligt.
- Markus G. Manz (Klinikdirektor, MOH) ist seit 2020 **Chair des CCCZ Direktoriums**. Andreas Wicki (Stv. Klinikdirektor, MOH) ist **Leiter des klinischen Programms** und Alexandre Theodorides (Leitender Arzt, MOH) **Leiter des klinischen Studienprogramms** des CCCZ.
- Die MOH pflegt eine enge **Zusammenarbeit** mit zahlreichen Spitälern und Zuweisungsinstitutionen der **Region**. Diese Kooperationen umfassen insbesondere komplexe hämatologisch-onkologische Diagnostik, molekulare Präzisionsonkologie, zelluläre Therapien sowie die gemeinsame Betreuung von Patient:innen. Darüber hinaus werden externe Partner aktiv in die interdisziplinären Tumorboards des CCCZ eingebunden. Zudem besteht mit dem Stadtspital Triemli ein strukturierter Austausch im Rahmen der Akkreditierung entsprechend JACIE (The Joint Accreditation Committee ISCT-Europe & EBMT).
- Die MOH verfolgt in allen Bereichen höchste **Qualitätsstandards** und unterzieht sich regelmässig nationalen und internationalen Zertifizierungs- und Akkreditierungsverfahren. Diese kontinuierlichen Qualitätskontrollen tragen wesentlich zur Sicherung und Weiterentwicklung unserer klinischen, diagnostischen und wissenschaftlichen Leistungen bei.
- Die Klinik wurde in 2025 im Ranking „**World's Best Specialized Hospitals**“ als beste Schweizer Fachklinik evaluiert. Wir freuen uns sehr über diese Anerkennung, welche die Leistung und das grosse Engagement unseres Teams in der Behandlung der Patientinnen und Patienten unterstreicht.



MOH Patientenversorgung in Zahlen (2025)

2.069

Stationäre
Austritte

54.191

Ambulante
Besuche

15.351

Ambulante
Therapien

9.8

Ø Verweildauer
(Tage)

69/99

autologe/allogene
Stammzelltrans-
plantationen

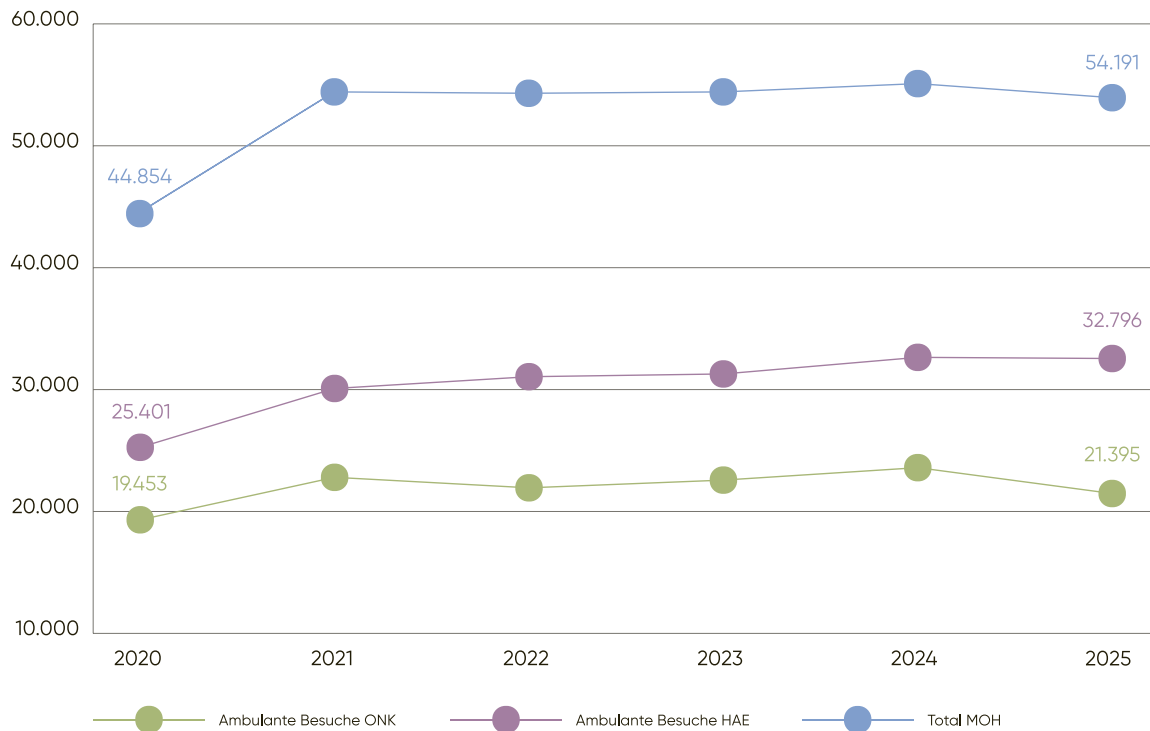
44

CAR-T-Zelltherapien

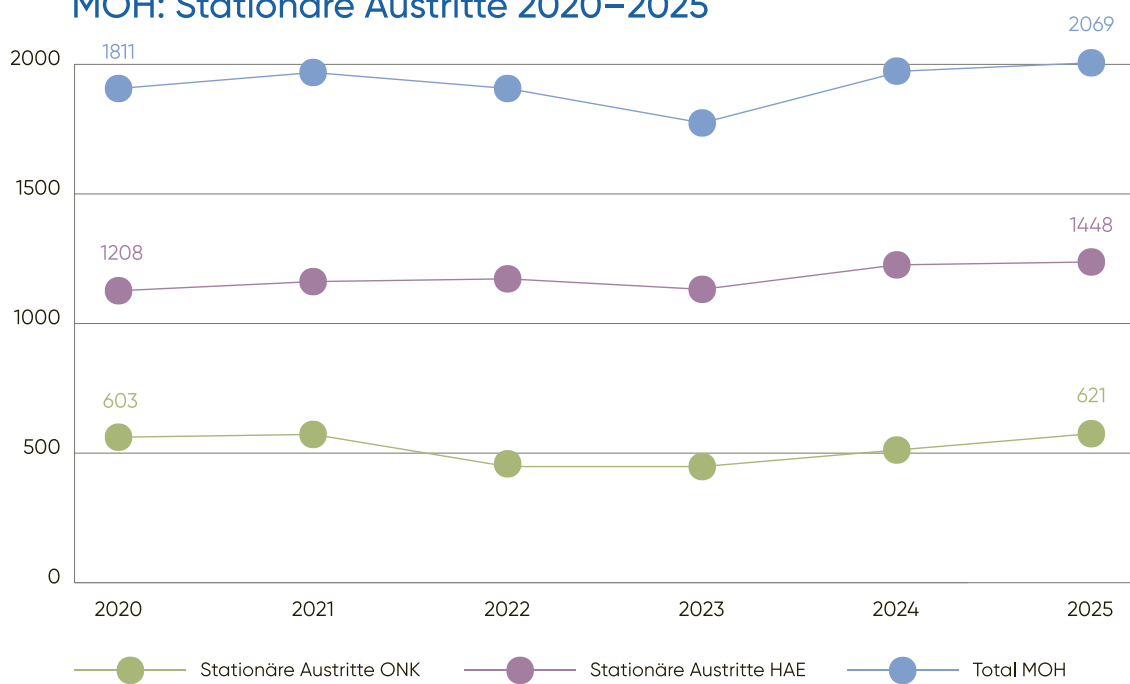
165.873

Gesamtertrag
(in TCHF)

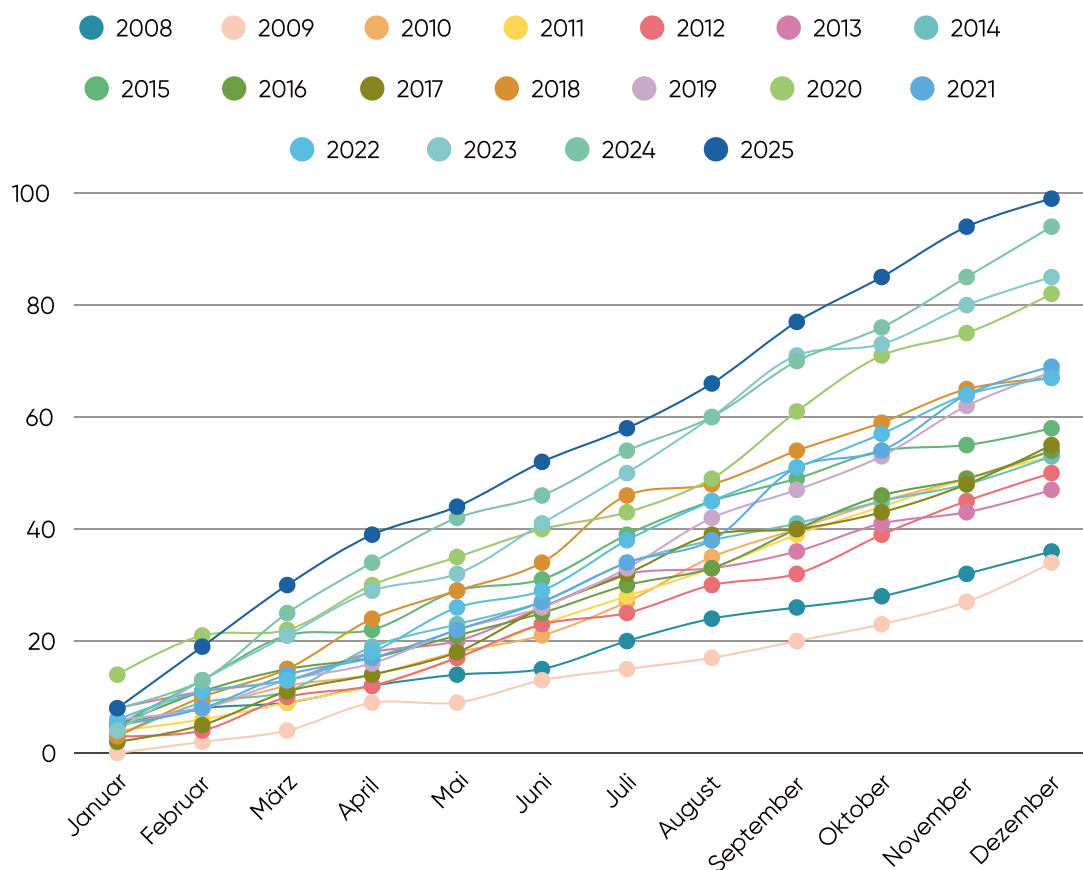
MOH: Ambulante Besuche 2020–2025



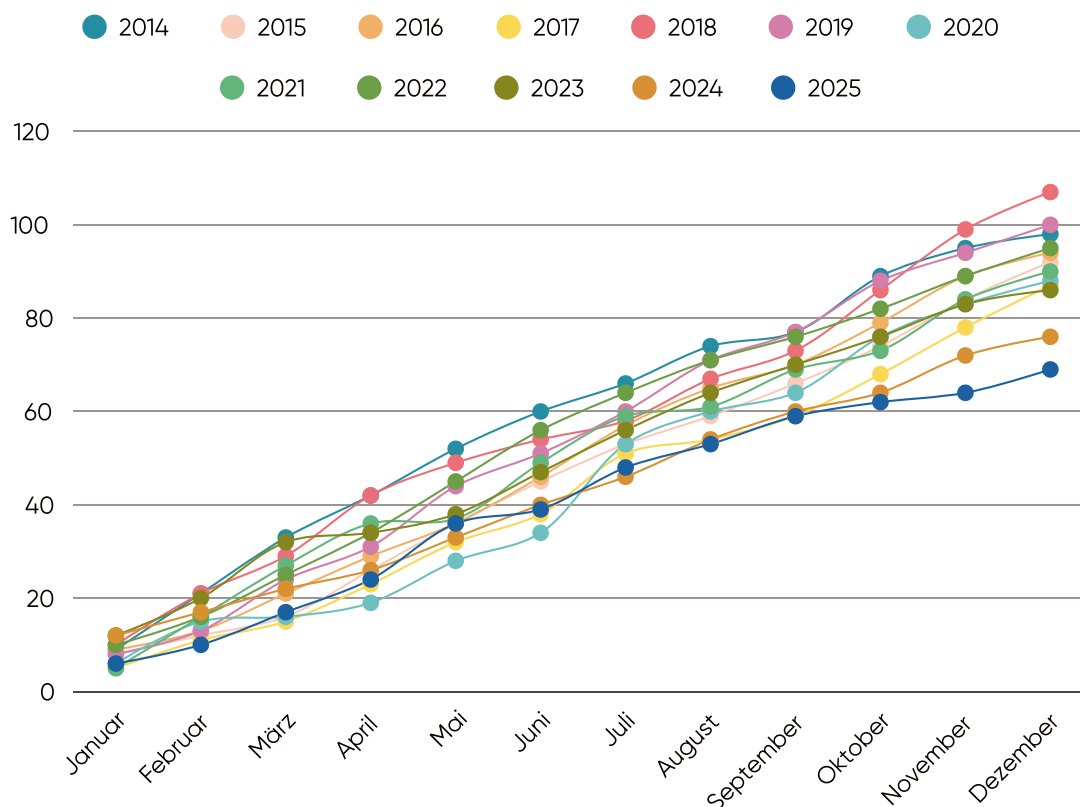
MOH: Stationäre Austritte 2020–2025



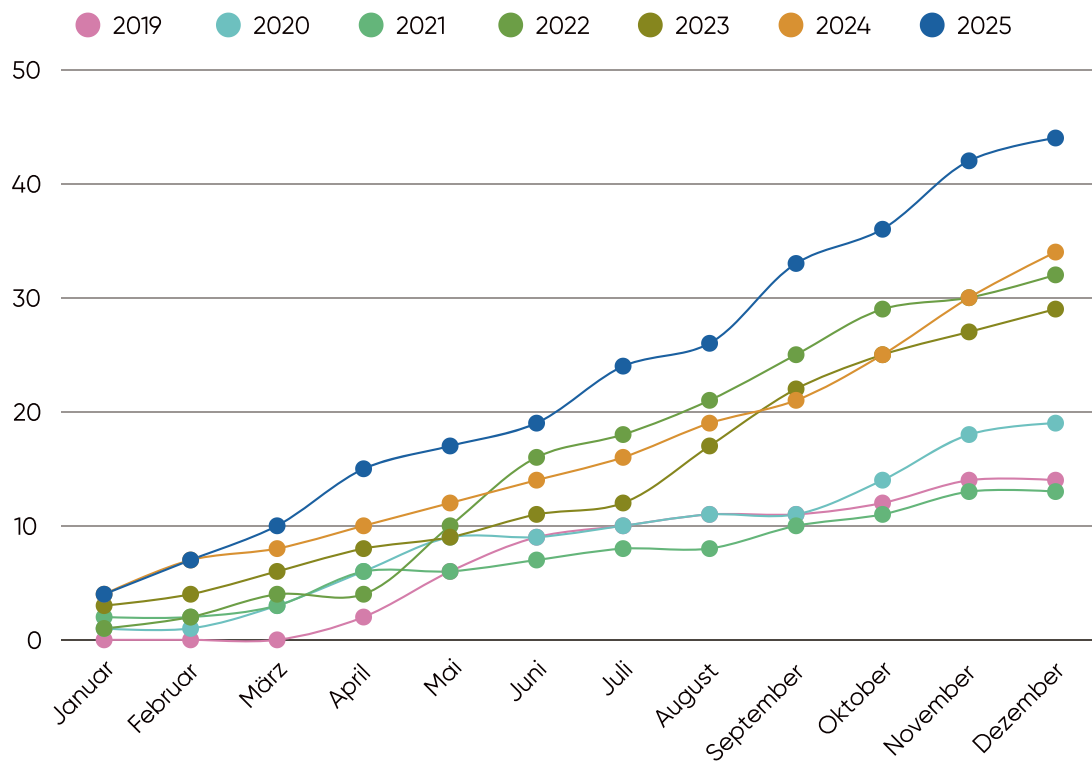
MOH: Allogene Transplantationen kumulativ 2008–2025



MOH: Autologe Transplantationen kumulativ 2014–2025



MOH: Retransfusion Car-T-Zellen kumulativ 2019–2025





8 Diagnostik & Labore

Die MOH ist für die hämatologische Diagnostik am USZ zuständig und bietet ein umfassendes Spektrum an Routine-, Spezial- und Notfallanalysen für interne sowie externe Partner an.

Kennzahlen

- Täglich werden im Diagnostiklabor der MOH bis zu **1.400** Aufträge (jährlich >400.000) verarbeitet. Diese umfassen die Blutbildanalytik einschliesslich mikroskopischer Differenzierung (inklusive digitaler Mikroskopie), allgemeine und spezielle Gerinnungsanalyse, die Untersuchung auf Malaria-Erreger, die Untersuchung von Knochenmarkaspiraten und Gewebeflüssigkeitspunktionen. Neben der Routinediagnostik bieten wir ein breites Spektrum an Spezialanalysen an. Dies beinhaltet die spezielle Gerinnungsdiagnostik, die Molekulargenetik (inkl. NGS) und die Immunphänotypisierung.



«Der Einsatz moderner, innovativer diagnostischer Verfahren in Kombination mit künstlicher Intelligenz bildet die Grundlage für den präzisen und zielgerichteten Einsatz neuester Therapien für unsere Patient:innen. Als hämatologisches Diagnostiklabor sind wir dabei aktiv an vorderster Front an der Entwicklung neuer, digital unterstützter Präzisionsdiagnostik beteiligt. In interdisziplinären Diagnostikkonferenzen unterstützen wir unsere Einsender:innen mit unserer Expertise in der Entscheidungsfindung, um für interne wie externe Patient:innen die bestmöglichen Therapieoptionen zu identifizieren.»

Jeremy Deuel
Oberarzt

Die Apherese-Einheit der MOH führt autologe und allogene Blutstammzellsammlungen durch, gewinnt Lymphozyten für zelluläre Therapien wie CAR-T-Zellbehandlungen und bietet für das gesamte USZ therapeutische Plasmaaustauschverfahren an.

Kennzahlen

- In der Apherese-Einheit der MOH wurden im Jahr 2025 **50** unverwandte, **31** verwandte und **69** autologe Blutstammzellsammlungen durchgeführt. Die Anzahl der Lymphozytenapheresen zur CAR T-Zelltherapie betrug **53**.
- Zusätzlich wurden von der Aphereseinheit **663** Plasmaaustauschtherapien durchgeführt.

Das immunhämatologische Labor/die Transfusionsmedizin der MOH führt immunhämatologische Abklärungen durch und stellt die Versorgung des gesamten USZ mit Blutprodukten sicher, welche vom Blutspendedienst Zürich bezogen werden.

Kennzahlen

- Pro Jahr erfolgen rund **3.000** Antikörperabklärungen und die Ausgabe von über **25.000** Blutprodukten.

Unser Stammzelllabor ist von JACIE und SAS akkreditiert und erfüllt die vorgegebenen höchsten Standards. Das Team bereitet zudem für die Verabreichung von zellulären Produkten, unter anderem für Stammzelltherapien und CAR T-Zell-Behandlungen, die Zellen vor.

Kennzahlen

Jährlich werden:

- **>190** autologe und allogene Blutstammzell- und Lymphozytenprodukte für die Lagerung in Stickstoff aufbereitet.
- **>450** Beutel mit kryokonservierten Zellen für unsere Patient:innen zur Transfusion auf die MOH Station für Blutstammzellen und zellulären Immuntherapien geliefert.

Die MOH betreibt ein spezialisiertes Biobanklabor zur standardisierten Verarbeitung, Aufbereitung und Lagerung von Tumor- und Blutproben für wissenschaftliche Projekte und klinische Studien. Das Labor unterstützt zahlreiche Forschungsaktivitäten innerhalb der MOH sowie nationale und internationale Kooperationsprojekte.

Kennzahlen

- Jährlich werden rund **3.700** Proben verarbeitet und eingelagert.

Im Rahmen einer CCCZ-weiten Infrastrukturinitiative koordiniert die MOH gemeinsam mit dem Institut für Pathologie und Molekularpathologie das zentrale CCCZ Sample Processing Lab (CCCZ SPL). Ziel des CCCZ SPL ist eine standardisierte und qualitätsgesicherte Probenprozessierung nach etablierten SOPs für Forschungsprojekte des CCCZ.

Kennzahlen

- Im Jahr 2025 wurden dort über **1.100** Proben verarbeitet.

>400.000
Diagnostische
Analysen

>25.000

Blutproduktausgaben
für das gesamte USZ

15.200 Erythrozytenkonzentrate
5.800 Thrombozytenkonzentrate
5.300 Plasmakonserven

>660

Plasma-
austausch-
therapien

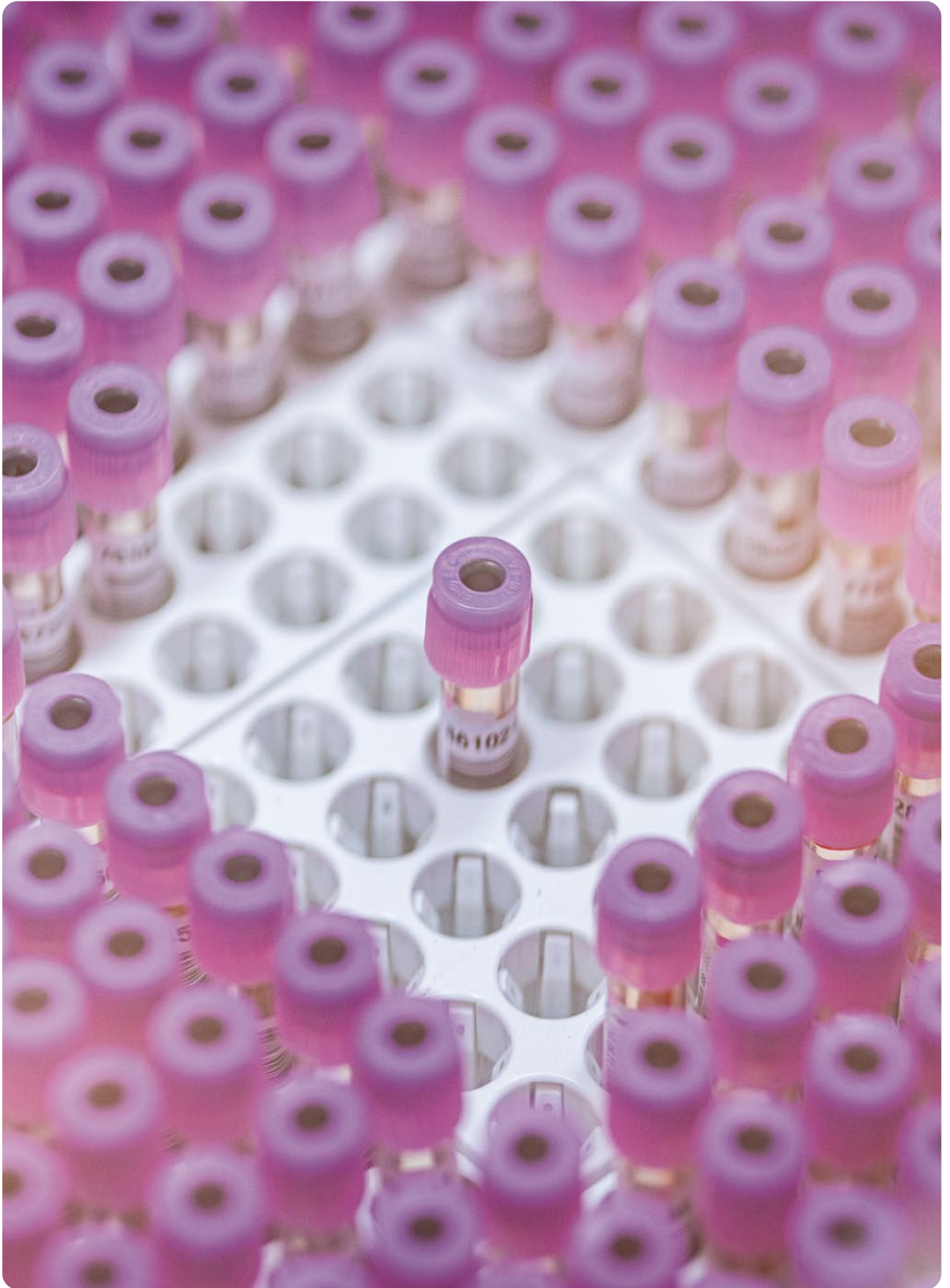
rund **200**

Blut(stamm)zell-
sammlungen,
davon **53** für CAR
T-Zelltherapien



«Dank fortschrittlicher Technologien und kontinuierlicher Weiterentwicklung der diagnostischen Methoden können wir ein breites Spektrum an Analysen auf hohem fachlichem Niveau durchführen. Besonders spannend ist die Möglichkeit, eine integrative Diagnostik anzubieten. Durch die enge interdisziplinäre Zusammenarbeit zwischen Labor, Klinik und weiteren Fachbereichen können diagnostische Fragestellungen ganzheitlich betrachtet und optimal beantwortet werden. Der regelmässige fachliche Austausch ermöglicht es, Laborbefunde in den klinischen Kontext einzuordnen und so einen wichtigen Beitrag zu einer präzisen Diagnosestellung und individuellen Patientenversorgung zu leisten.»

Evelyne Giabbani
Leitung BMA, Diagnostische Hämatologie



9 Klinische Forschung & Studien

Als universitäre Klinik ermöglichen wir unseren Patient:innen durch klinische Studien den Zugang zu neuesten wissenschaftlichen Entwicklungen und innovativen Therapien.

In der MOH Studienkoordination arbeiten mehr als 10 spezialisierte Studienkoordinator:innen, die sämtliche Prozesse von der Studieneröffnung über die Durchführung bis hin zur regulatorischen Dokumentation klinischer Studien der Phase I–IV begleiten. Die etablierte Infrastruktur der Studienkoordination schafft die Grundlage für eine effiziente, qualitativ hochwertige und patient:innennahe klinische Forschung. Im Jahr 2025 wurden an der MOH über 100 Patient:innen innerhalb von mehr als 80 klinischen Studienprotokollen betreut.

Als vom Swiss Cancer Institute (SCI) zertifiziertes Phase-I-Zentrum bieten wir das gesamte Spektrum früher klinischer Studien an – von klassischen Dosisfindungsstudien bis hin zu First-in-Human-Studien mit neuartigen Wirkstoffen und innovativen Therapiekonzepten.

Die MOH arbeitet eng mit der pharmazeutischen Industrie sowie nationalen und internationalen Forschungsnetzwerken zusammen. Dazu zählen unter anderem das Swiss Cancer Institute (SCI), die European Organisation for Research and Treatment of Cancer (EORTC) sowie die European Thoracic Oncology Platform (ETOP).

Rekrutierende, diagnostische und interventionelle klinische Studienprotokolle (2025)

Phase	Anzahl aktiv rekrutierende Studien 2025
Phase I	5
Phase II	9
Phase III	15
Andere	7
Gesamt*	36



«Durch unser umfassendes Studienangebot der Phasen I bis III eröffnen wir Patient:innen Zugang zu modernsten Therapieoptionen und fördern die Entwicklung neuer Behandlungskonzepte in der Onkologie und Hämatologie.»

Anja Lorch
Leitende Ärztin und Stv. Klinikdirektorin Onkologie,
Leiterin MOH Studienzentrale

Clinical Trial Highlights

Nat Commun. 2024 Oct 30;15(1):9402

Single-cell landscape of innate and acquired drug resistance in acute myeloid leukemia.

Wegmann R, Bonilla X, Casanova R, Chevrier S, Coelho R, Esposito C, Ficek-Pascual J, Goetze S, Gut G, Jacob F, Jacobs A, Kuipers J, Lischetti U, Mena J, Milani ES, Prummer M, Del Castillo JS, Singer F, Sivapatham S, Toussaint NC, Vilinovsky O, Wildschut MHE, Thavayogarajah T, Malani D; TumorProfiler Consortium; Aebersold R, Bacac M, Beerenwinkel N, Beisel C, Bodenmiller B, Heinzelmann-Schwarz V, Koelzer VH, Levesque MP, Moch H, Pelkmans L, Rättsch G, Tolnay M, Wicki A, Wollscheid B, Manz MG, Snijder B, Theocharides APA.

Abstract

Deep single-cell multi-omic profiling offers a promising approach to understand and overcome drug resistance in relapsed or refractory (rr) acute myeloid leukemia (AML). Here, we combine single-cell ex vivo drug profiling (pharmacoscopy) with single-cell and bulk DNA, RNA, and protein analyses, alongside clinical data from 21 rrAML patients. Unsupervised data integration reveals reduced ex vivo response to the Bcl-2 inhibitor venetoclax (VEN) in patients treated with both a hypomethylating agent (HMA) and VEN, compared to those pre-exposed to chemotherapy or HMA alone. Integrative analysis identifies both known and unreported mechanisms of innate and treatment-related VEN resistance and suggests alternative treatments, like targeting increased proliferation with the PLK inhibitor volasertib. Additionally, high CD36 expression in VEN-resistant blasts associates with sensitivity to CD36-targeted antibody treatment ex vivo. This study demonstrates how single-cell multi-omic profiling can uncover drug resistance mechanisms and treatment vulnerabilities, providing a valuable resource for future AML research.



«Beyond identifying novel mechanisms of venetoclax resistance and potential therapeutic targets, this work provided an important translational foundation for the RAPID-01 trial, a randomized phase II study investigating whether pharmacoscopy-guided treatment selection can improve clinical outcomes in patients with relapsed or refractory AML.»

Alexandre Theocharides
Leitender Arzt, MOH

Nat Med. 2025 Jul;31(7):2430–2441

Feasibility of multiomics tumor profiling for guiding treatment of melanoma.

Miglino N, Toussaint NC, Ring A, Bonilla X, Tusup M, Gosztonyi B, Mehra T, Gut G, Jacob F, Chevrier S, Lehmann KV, Casanova R, Jacobs A, Sivapatham S, Boos L, Rahimzadeh P, Schuerch M, Sobottka B, Chicherova N, Yu S, Wegmann R, Mena J, Milani ES, Goetze S, Esposito C, Sarabia Del Castillo J, Frei AL, Nowak M, Irmisch A, Kuipers J, Baciú-Drăgan MA, Ferreira PF, Singer F, Bertolini A, Prummer M, Lischetti U; Tumor Profiler Consortium; Aebbersold R, Bacac M, Maass G, Moch H, Weller M, Theodorides APA, Manz MG, Beerenwinkel N, Beisel C, Pelkmans L, Snijder B, Wollscheid B, Heinzlmann V, Bodenmiller B, Levesque MP, Koelzer VH, Räscher G, Dummer R, Wicki A.

Abstract

There is limited evidence supporting the feasibility of using omics and functional technologies to inform treatment decisions. Here we present results from a cohort of 116 melanoma patients in the prospective, multicentric observational Tumor Profiler (TuPro) precision oncology project. Nine independent technologies, mostly at single-cell level, were used to analyze 126 patient samples, generating up to 500 Gb of data per sample (40,000 potential markers) within 4 weeks. Among established and experimental markers, the molecular tumor board selected 54 to inform its treatment recommendations. In 75% of cases, TuPro-based data were judged to be useful in informing recommendations. Patients received either standard of care (SOC) treatments or highly individualized, polybiomarker-driven treatments (beyond SOC). The objective response rate in difficult-to-treat palliative, beyond SOC patients (n=37) was 38%, with a disease control rate of 54%. Progression-free survival of patients with TuPro-informed therapy decisions was 6.04 months (95% confidence interval, 3.75–12.06) and 5.35 months (95% confidence interval, 2.89–12.06) in ≥third therapy lines. The proof-of-concept TuPro project demonstrated the feasibility and relevance of omics-based tumor profiling to support data-guided clinical decision-making.



«Today, therapy decisions in oncology are still based on a small number of biological markers. What happens when we move beyond genomics and generate ten thousands of data points to predict the best therapy in a molecular tumor board? First, of 43 000 biological markers, only 54 were used to make decisions on therapies. If we want to tap into the full potential of data-driven medicine, using machine-learning approaches is mandatory. Second, using multiomics to inform therapies proved to be safe and effective. Thus, this study is proof that there are no fundamental hurdles to introducing multiomics analysis as a key element into the broader concept of data-driven medicine.

Andreas Wicki
Stv. Klinikdirektor, MOH

Nature. 2024 Nov;635(8040):926–934

Clonal dynamics after allogeneic haematopoietic cell transplantation.

Spencer Chapman M, Wilk CM, Boettcher S, Mitchell E, Dawson K, Williams N, Müller J, Kovtonyuk L, Jung H, Caiado F, Roberts K, O'Neill L, Kent DG, Green AR, Nangalia J, Manz MG, Campbell PJ.

Abstract

Allogeneic haematopoietic cell transplantation (HCT) replaces the stem cells responsible for blood production with those from a donor^{1,2}. Here, to quantify dynamics of long-term stem cell engraftment, we sequenced genomes from 2,824 single-cell-derived haematopoietic colonies of ten donor-recipient pairs taken 9–31 years after HLA-matched sibling HCT3. With younger donors (18–47 years at transplant), 5,000–30,000 stem cells had engrafted and were still contributing to haematopoiesis at the time of sampling; estimates were tenfold lower with older donors (50–66 years). Engrafted cells made multilineage contributions to myeloid, B lymphoid and T lymphoid populations, although individual clones often showed biases towards one or other mature cell type. Recipients had lower clonal diversity than matched donors, equivalent to around 10–15 years of additional ageing, arising from up to 25-fold greater expansion of stem cell clones. A transplant-related population bottleneck could not explain these differences; instead, phylogenetic trees evinced two distinct modes of HCT-specific selection. In pruning selection, cell divisions underpinning recipient-enriched clonal expansions had occurred in the donor, preceding transplant—their selective advantage derived from preferential mobilization, collection, survival ex vivo or initial homing. In growth selection, cell divisions underpinning clonal expansion occurred in the recipient's marrow after engraftment, most pronounced in clones with multiple driver mutations. Up-rooting stem cells from their native environment and transplanting them to foreign soil exaggerates selective pressures, distorting and accelerating the loss of clonal diversity compared to the unperturbed haematopoiesis of donors.



«This collaborative study proves with unprecedented depth in long-term observation that blood stem cells face strong selective pressures after transplantation, leading to faster expansion of certain clones and a quicker loss of overall diversity compared to normal ageing.»

Markus G. Manz
Klinikdirektor, MOH

10 Research Networks

Our department cooperates with numerous partners in Zurich, in Switzerland and abroad. Our collaborative networks combine innovative clinical oncology and hematology, research, technologies and medical bioinformatics to develop novel diagnostic and therapeutic concepts.

At a glance

Key Partners

CCCZ · The LOOP Zurich ·
TPC · UMZH · UZH · USZ ·
ETH Zurich · Swiss Cancer
Institute

10 Major Collaborative Research Networks

Large-scale interdisciplin-
ary initiatives spanning
precision oncology, immu-
notherapy, artificial intelli-
gence and translational
cancer research.

2 Disease Registries

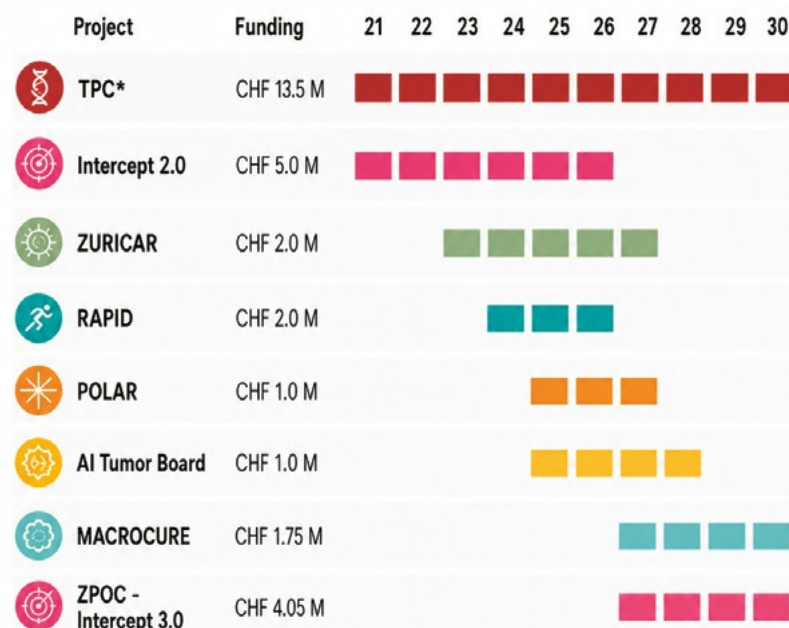
Long-term clinical regis-
tries generating real-world
evidence and supporting
patient-centered research.

> CHF 35 Million Competitive Funding (2021–2030)

Secured through intramural
funding programs, national
funding programs and founda-
tions, with MOH research groups
serving as lead applicants
with key partners.

COLLABORATIVE RESEARCH NETWORKS – FUNDING OVERVIEW 2021–2030⁺

INTRAMURAL FUNDING TOTAL: CHF 30.3 MIO.



THIRD-PARTY FUNDING TOTAL: CHF 5.58 MIO.



■ Project active in year

⁺Funding supports research at MOH and its collaborators.

*Total intramural funding from UMZH, USZ, ETH.

Excludes additional funding from USB, as well as substantial third-party funding.

All amounts in CHF

M = Million, K = Thousand

Overview (chronological order)



Tumor Profiler Center (Multi-omics & Clinical Translation)

2021–2030 | CHF 13.5 Mio. | UMZH, USZ (*UMZH, USZ, ETH)

Excludes additional funding from USB, as well as substantial third-party funding



INTeRCePT 2.0 (Precision Oncology & Multi-omics in Lymphoma)

2021–2026 | CHF 5.0 Mio. | The LOOP Zurich

Investigators: Thorsten Zenz (MOH), Valentina Boeva (ETH), Marco Bühler (USZ), Christoph Messner (Precision Proteomics Center Davos, UZH)



IMMUNO-CAR ZURICH (Cellular Immunotherapies)

2023–2026 | CHF 2.0 Mio. | CCCZ Lighthouse Project

Investigators: Chiara F. Magnani (MOH), Tobias Weiss (USZ), Markus G. Manz (MOH), Bernd Bodenmiller (UZH/ETH)



RAPID Trial (Functional Precision Medicine in AML)

2024–2026 | CHF 2.0 Mio. | ETH PHRT

Investigators: Alexandre Theodorides (MOH), Markus G. Manz (MOH), Berend Snijder (ETH)



iCure-AML Trial (AML Immunotherapy)

2024–2028 | CHF 4.0 Mio. | Horten Health Foundation

Investigators: Dominik Schneidawind (MOH), Chiara F. Magnani (MOH), Markus G. Manz (MOH), Burkhard Becher (UZH), Berend Snijder (ETH), Dario Neri (ETH)



PARTACER-Suisse Trial (SAKK 41-23) (Precision Oncology – Colorectal Cancer)

2024–2027 | CHF 1.2 Mio. | SNSF, SAKK/SCI

Investigators: Ralph Fritsch (MOH), Achim Weber (USZ), Michael Krauthammer (USZ), Michael Scharl (USZ), Andreas Wicki (MOH), Tilman Brummer (University of Freiburg)



POLAR (Proteomics & Lymphoma)

2024–2027 | CHF 1.0 Mio. | The LOOP Zurich

Investigators: Thorsten Zenz (MOH), Valentina Boeva (ETH), Marco Bühler (USZ), Christoph Messner (Precision Proteomics Center Davos, UZH)



AI Tumor Board (Artificial Intelligence)

2025–2028 | CHF 1.0 Mio. | The LOOP Zurich

Investigators: Andreas Wicki (MOH), Michael Krauthammer (UZH/USZ), Jean-Pierre Bourquin (Kinderspital Zürich)



MACROCURE – Phagocytes against Cancer (Cancer Immunology)

2026–2029 | CHF 1.75 Mio. | CCCZ Lighthouse Project

Investigators: Anne Müller (UZH), Markus G. Manz (MOH), Melanie Greter (UZH), Alexandre Theodorides (MOH), Burkhard Becher (UZH), Tobias Weiss (USZ)



INTeRCePT 3.0 – Dynamic Individualized Risk Modeling to Improve Lymphoma Treatment

2026–2030 | CHF 4.05 Mio. | CCCZ, The LOOP Zurich & Tumor Profiler Center

Investigators: Thorsten Zenz (MOH), Burkhard Becher (UZH), Niko Beerenwinkel (ETH), Valentina Boeva (ETH), Marco Bühler (USZ), Wolfgang Huber (EMBL), Andreas Moor (ETH), Virginie Uhlmann (UZH)



Swiss Amyloidosis Registry

2018–2029 | CHF 350.000 | Industry Multi-Sponsorship

PI: Rahel Schwotzer (MOH)



Histiocytosis Registry

2022–2024 | CHF 30.000 | Novartis / SAKK Together for Patients Award

PI: Wiebke Rösler (MOH)

Tumor Profiler Center

Lead Investigators: Andreas Wicki (MOH), Bernd Bodenmiller (UZH/ETH), Viola Heinzelmann (USBI)

Funding: CHF 4,5 Mio. (2025–2029), Universitäre Medizin Zürich (UMZH)

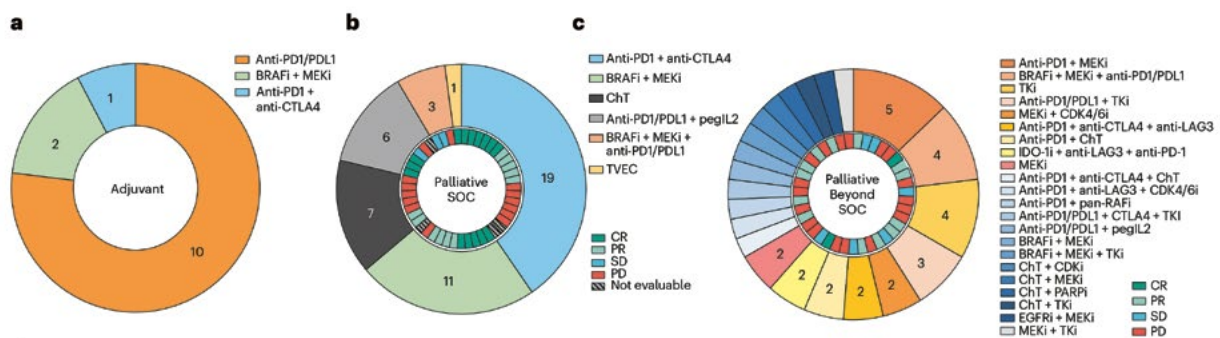
Keywords: Oncology, Precision Medicine, Therapy Prediction, Functional and Multi-Omics Testing

Overview

The Tumor Profiler Center (TPC) is a cancer-specific research consortium and competence hub of the universities (UZH, ETH) and university hospitals in Zurich and Basel. State-of-the-art single-cell analysis platforms are used to assess tens of thousands of biomarkers from solid or liquid patient samples within the time-frame of two weeks. The generated data are used to compile a clinical report. This report is used to support therapy decisions at the molecular tumor board (fast diagnostic loop). All data are mined through machine-based learning and artificial intelligence for diagnostic, prognostic and predictive information (exploratory loop). TPC includes cohorts of patients with specific diagnoses. In the current funding period (2023–2026), this includes ovarian cancer, melanoma, colorectal cancer, lung cancer and breast cancer. These cohorts are run as two separate HFV projects (OvPredict project and SPO NDS project) and under a specific informed consent. All patients from the University Hospital Zurich participating in TPC cohorts are also discussed at the regular molecular tumor board. From 2018 to 2021, 240 patients with melanoma, ovarian cancer and acute myeloid leukemia (AML) were included and analyzed by TPC.

Research Highlight

TPC analyses inform therapy decisions in both the standard of care (when multiple treatment options are available) as well as beyond standard of care setting. Note the highly individualized TP-based therapies in the beyond standard of care setting (individual segments of the donut plot in the figure below). **a–c**, TPC-based treatments applied in the adjuvant ($n=13$) (**a**), palliative SOC ($n=47$) (**b**) and beyond SOC ($n=39$) (**c**) groups. Outer circle, therapies received; inner circle, best responses per patient categorized as CR (dark green), PR (light green), SD (light blue), PD (red) or not evaluable. Miglino et al. *Nat. Med.* 2025.



«This study is a major step toward data-based medicine. It paves the way for new clinical trials that don't test individual drugs, but actually predict the most effective therapy.»

Andreas Wicki
Stv. Klinikdirektor, MOH

Selected Publications

Feasibility of multiomics tumor profiling for guiding treatment of melanoma. Miglino N, Toussaint NC, Ring A, Bonilla X, Tusup M, Gosztanyi B, Mehra T, Gut G, Jacob F, Chevrier S, Lehmann KV, Casanova R, Jacobs A, Sivapatham S, Boos L, Rahimzadeh P, Schuerch M, Sobottka B, Chicherova N, Yu S, Wegmann R, Mena J, Milani ES, Goetze S, Esposito C, Sarabia Del Castillo J, Frei AL, Nowak M, Irmisch A, Kuipers J, Baciú-Drăgan MA, Ferreira PF, Singer F, Bertolini A, Prummer M, Lischetti U; Tumor Profiler Consortium; Aebersold R, Bacac M, Maass G, Moch H, Weller M, Theoharides APA, Manz MG, Beerenwinkel N, Beisel C, Pelkmans L, Snijder B, Wollscheid B, Heinzelmann V, Bodenmiller B, Levesque MP, Koelzer VH, Räscher G, Dummer R, Wicki A. **Nat Med.** 2025 Jul;31(7):2430–2441.

Single-cell landscape of innate and acquired drug resistance in acute myeloid leukemia. Wegmann R, Bonilla X, Casanova R, Chevrier S, Coelho R, Esposito C, Ficek-Pascual J, Goetze S, Gut G, Jacob F, Jacobs A, Kuipers J, Lischetti U, Mena J, Milani ES, Prummer M, Del Castillo JS, Singer F, Sivapatham S, Toussaint NC, Vilinovsky O, Wildschut MHE, Thavayogarajah T, Malani D; TumorProfiler Consortium; Aebersold R, Bacac M, Beerenwinkel N, Beisel C, Bodenmiller B, Heinzelmann-Schwarz V, Koelzer VH, Levesque MP, Moch H, Pelkmans L, Räscher G, Tolnay M, Wicki A, Wollscheid B, Manz MG, Snijder B, Theoharides APA. **Nat Commun.** 2024 Oct;15(1):9402.

Comparative cost analysis of a diagnostic multi-omics platform for decision support in advanced cancer – results from the Tumor Profiler Melanoma project. Mehra T, Menges D, Gosztanyi B, Miglino N, Ring A, Boos L, Sobottka B; Tumor Profiler Consortium; Koelzer VH, Moch H, Toussaint NC, Levesque M, Ramelyte E, Mangana J, Dummer R, Wicki A. **NPJ Precis Oncol.** 2025 Dec;10(1):35.

UMZH Podcast with Andreas Wicki –
Krebs ist nicht gleich Krebs:



Intercept 2.0

Project Team: Thorsten Zenz (MOH), Burkhard Becher (UZH), Jean-Pierre Bourquin (KISPI), Niko Beerenwinkel (UZH), Andreas Moor (ETH), Stefanie Kreutmair (MOH), Wolfgang Huber (EMBL), Berend Snijder (ETH)

Funding: CHF 4.999.500 (2021–2026), The LOOP Zurich

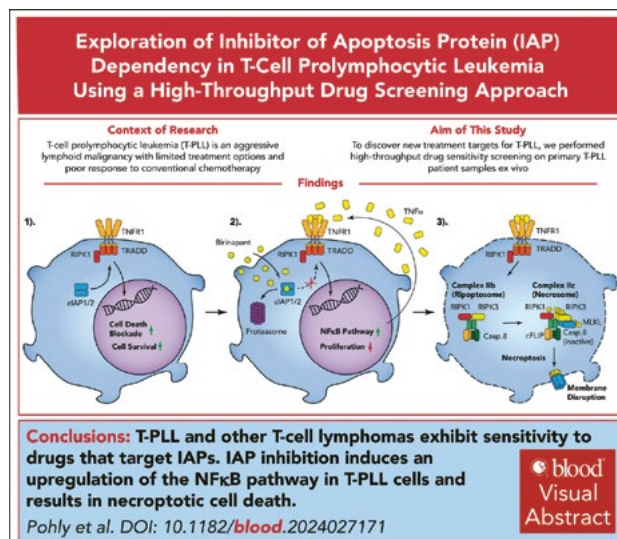
Keywords: Lymphoma, Single Cell Technology, Drug Perturbation, Precision Oncology

Overview

To improve outcomes for refractory lymphoma and acute lymphoblastic leukemia (ALL), we develop a precision medicine approach based on longitudinal single-cell profiling of tumors and immune cells under clinically relevant drug pressure. Relapsing and refractory patients treated at Zurich University Hospital and Kispi are enrolled in an Innovation Clinic registry trial, with repeated sampling before each treatment. Focusing on ALL and diffuse large B-cell lymphoma (DLBCL), we will integrate molecular profiling, drug-response assays, imaging, minimal residual disease monitoring, and liquid biopsies to characterize treatment response over time. By analyzing genetic, transcriptional, proteomic, and functional changes at single-cell resolution, we will map interactions among tumor clones, pre-malignant cells, and the immune system. Computational models will predict treatment outcomes, identify drivers of resistance, and reveal mechanisms of clonal evolution. The resulting dynamic single-cell atlas will guide development of a scalable profiling platform tested in a trial aiming to increase response rates through personalized treatment allocation.

Research Highlight

T-cell prolymphocytic leukemia (T-PLL) is a highly aggressive blood cancer with few treatment options. Screening over 2,800 compounds in 30 patient samples revealed resistance to most therapies but identified vulnerabilities to autophagy, nuclear export, and IAP inhibitors. Birinapant induced TNF- α -dependent necroptosis, highlighting promising repurposing opportunities and novel therapeutic strategies for T-PLL. IAP dependency of T-cell prolymphocytic leukemia identified by high-throughput drug screening Pohly et al. **Blood**. 2025.



Selected Publications

Fluctuating DNA methylation tracks cancer evolution at clinical scale. Gabbutt C, Duran-Ferrer M, Grant HE, Mallo D, Nadeu F, Househam J, Villamor N, Müller M, Heath S, Raineri E, Krali O, Nordlund J, Zenz T, Gut IG, Campo E, Lopez-Guillermo A, Fitzgibbon J, Barnes CP, Shibata D, Martin-Subero JI, Graham TA. **Nature**. 2025 Sep;645(8081):764–773.

IAP dependency of T-cell prolymphocytic leukemia identified by high-throughput drug screening. Pohly MF, Putzker K, Scheinost S, Ben Taarit L, Walther T, Kummer S, Wertheimer T, Lin M, Do THL, Handler K, Michler J, Kivioja J, Bach K, Kisele S, Kim J, Dietrich S, Bornhauser B, Wong WW, Becher B, Moor A, Lewis J, Ficht X, Lu J, Huber W, Zenz T. **Blood**. 2025 May;145(20):2336–2352.

CCCZ Lighthouse Project – IMMUNO-CAR ZURICH (ZURICAR)

Project Team: Chiara F. Magnani (MOH), Tobias Weiss (USZ), Markus G. Manz, (MOH), Bernd Bodenmiller (UZH/ETH)

Funding: CHF 2 Mio. (2023–2026), CCCZ

Keywords: Cancer Immunotherapy, Chimeric Antigen Receptor, Non-viral Gene Transfer

Overview

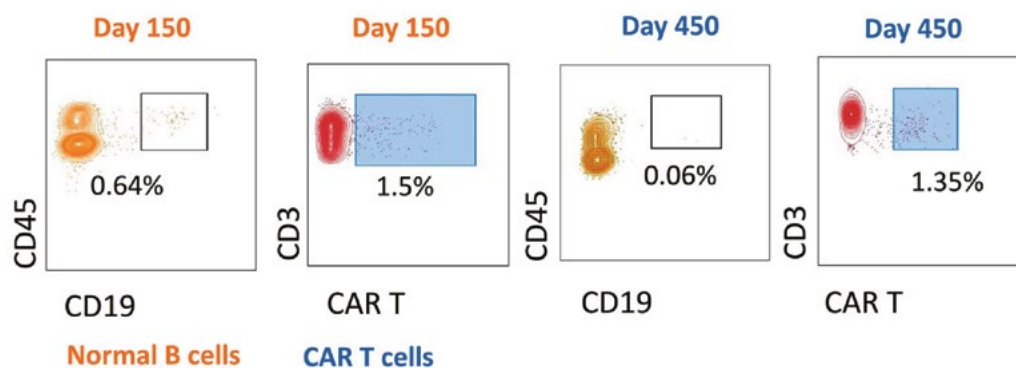
CAR T cell immunotherapy is a new perspective of precision medicine which uses gene transfer technology to generate T cells with improved anti-tumor activity. Despite their success in B-cell neoplasm, efficacy of CAR T-cell therapy is still limited in myeloid and solid tumors due to immunosuppressive tumor microenvironments, heterogeneous diseases, and poor tumor infiltration. Furthermore, most CAR T-cell therapies depend on viral vectors, which are associated with logistical complexity and high costs. The goal of the project is to establish and apply in the clinic two complementary, innovative next-generation clinical CAR immune cell platforms which rely on virus-free technology. This will be accompanied by research on CAR immunomonitoring and efficacy improvement.

«This project aims to develop and apply in the clinic innovative concepts of advanced medicine using gene therapy and cell transfer of CAR immune cells with increased efficacy, and safety for individuals with late-stage cancers who have limited other treatment options. Through the strict collaboration of scientists, doctors, and physician-scientists belonging to the Comprehensive Cancer Center, this project will facilitate the formation of a platform of cell therapies in Zurich and increase their applicability in oncology.»

Chiara F. Magnani, MOH
Tobias Weiss, Neurology, USZ

Research Highlight

Non-viral CAR T-cell manufacturing using the Sleeping Beauty system enables us to lower costs and expand patient access to therapy. In our study, 36 relapsed leukemia patients, this approach showed safety and effectiveness, with remission rates and responses. Findings are among the first to demonstrate SB-engineered CAR T cells are safe and clinically effective. CAR T cells are detected in the blood of patients after more than a year and are still able to fight CD19+ cancer. Magnani and Lussana et al. **Blood Cancer J.** 2025.



Selected Publications

Acquisition of an Immunosuppressive Microenvironment after CAR-T therapy is associated with T-cell dysfunction and resistance in Acute Lymphoblastic Leukemia. Ponzo M, Drufuca L, Buracchi C, Sindoni M, Nucera S, Bugarin C, Bason R, Rossetti G, Bonnal R, Rambaldi B, Moretti A, Pellegrino C, Manz MG, Galimberti S, Valsecchi MG, Biondi A, Gaipa G, Pagani M, Magnani CF. *J Immunother Cancer*. 2025 Oct;13(10):e011768.

Adoptive cell therapy with macrophage–drug conjugates facilitates cytotoxic drug transfer and immune activation in glioblastoma models. Sun M, Bialasek M, Mayoux M, Lin MS, Buck A, Marszałek I, Taciak B, Bühler M, Górczak M, Kucharzewska P, Kurpiel D, Siemińska M, Nowakowska J, Brancewicz J, Gabrusiewicz K, Lipiński W, Pfammatter S, Pascolo S, Hutter G, Bodnar L, Snijder B, Regli L, Weller M, Baumgartner M, Tugues S, Rygiel TP, Krol M, Weiss T. *Sci Transl Med*. 2025 Jun 18;17(803):eadr4058.

Donor-Derived CD19 CAR-T Cells Engineered with Sleeping Beauty in pediatric and adult Acute Lymphoblastic Leukemia relapsed post alloHSCT. Magnani CF*, Lussana F*, Gritti G, Gaipa G, Galimberti S, Belotti D, Napolitano S, Buracchi C, Borleri G, Rambaldi B, Rizzuto G, Grassi A, Paganessi M, Meli C, Tettamanti S, Cazzaniga G, Ferrari S, Capelli C, Gotti E, Introna M, Balduzzi A, Valsecchi MG, Dastoli G, Rambaldi A, Biondi A, *Blood Cancer J*. 2025 Apr;315(1):54.

Efficient combinatorial adaptor-mediated targeting of acute myeloid leukemia with CAR T-cells. Volta L, Myburgh R, Pellegrino C, Koch C, Maurer M, Manfredi F, Hofstetter M, Kaiser A, Schreiber F, Müller J, Buehler MM, De Luca R, Favalli N, Magnani CF, Schroeder T, Neri D, Manz MG. *Leukemia*. 2024 Dec;38(12):2598–2613.

Peptide-guided adaptor–CAR T-Cell therapy for the treatment of SSTR2-expressing neuroendocrine tumors. Pellegrino C, Favalli N, Volta L, Benz R, Puglioli S, Bassi G, Zitzmann K, Auernhammer CJ, Nölting S, Magnani CF, Neri D, Beuschlein F, Manz MG. *Oncoimmunology*. 2024 Oct;313(1):2412371.

Pharmacoscopy-guided Clinical Standard-of-care in r/r AML (RAPID)

Project Team: Alexandre Theocharides (MOH), Markus G. Manz (MOH), Berend Snijder (ETH)

Funding: CHF 2 Mio. (2024–2026), ETH PHRT

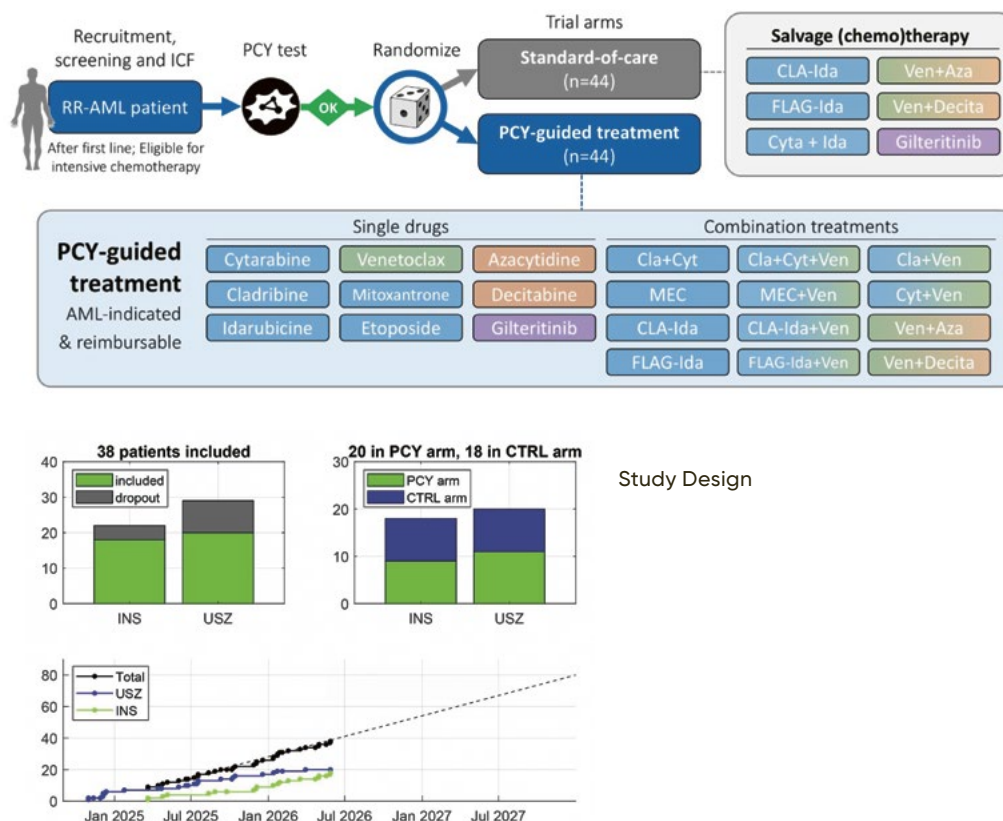
Keywords: Acute Myeloid Leukemia, Pharmacoscopy, Precision Medicine

Overview

With an overall survival of below 12 months, the outcome of relapsed/refractory acute myeloid leukemia (rr-AML) is poor, making it a critical challenge to identify effective therapies at this stage. The RAPID trial aims to show that Pharmacoscopy (PCY), an ETH-developed functional precision medicine platform, helps improve therapy selection for patients suffering from rr-AML, for the first time in a randomized and controlled multicenter (Zurich, Bern, Basel) clinical trial. In doing so, we aim to validate PCY for precision oncology in AML, improve the lives of rr-AML patients, and further develop the PCY platform, optimized for distributed drug testing in clinical centers in Switzerland.

Research Highlight

Patient recruitment status in the RAPID_01 trial. INS, Inselspital Bern; USZ, University Hospital Zurich. Left panel: Number of patients included in the trial and dropouts. Right panel: Number of patients randomized to the Pharmacoscopy (PCY) and to the Control (CTRL) arm. Lower panel: Total recruitment, recruitment at USZ, and at INS over time; Dashed line, predicted total recruitment.



«While several treatment options for patients with relapsed/refractory acute myeloid leukemia exist, none of them have been compared in a randomized trial, which makes clinical decision making difficult. RAPID is the first prospective, randomized clinical trial to integrate drug screening data into the treatment decision process in order to identify the best possible treatment option for relapsed/refractory acute myeloid leukemia patients.»

Alexandre Theocharides
Leitender Arzt, MOH

Immunological Approaches to Cure Acute Myeloid Leukemia (iCure-AML)

Project Team: Dominik Schneidawind (MOH), Chiara F. Magnani (MOH), Markus G. Manz (MOH), Burkhard Becher (UZH), Berend Snijder (ETH), Dario Neri (ETH)

Funding: CHF 4 Mio. (2024–2028), Helmut Horten Foundation

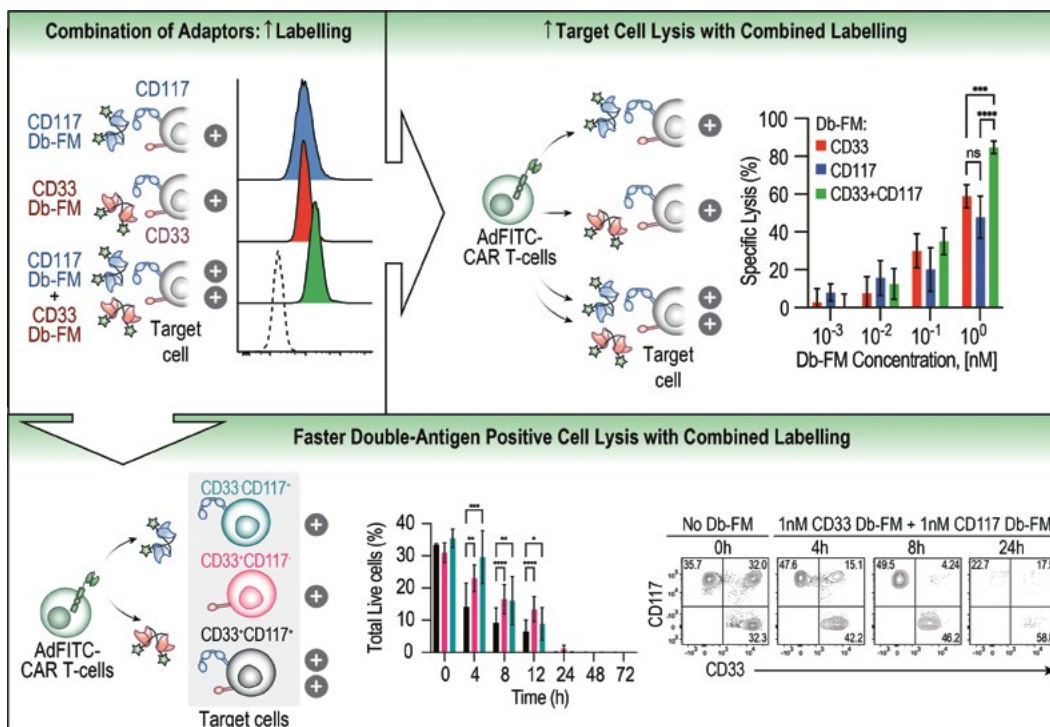
Keywords: Acute Myeloid Leukemia, Adaptor CAR T Cells, Sleeping Beauty Transposon, Small Molecule Adaptors

Overview

Acute myeloid leukemia (AML) and high-risk myelodysplastic neoplasia (hrMDS) are aggressive hematologic malignancies with a particular poor prognosis. We hypothesize that our Sleeping Beauty Adaptor-FITC (SB Ad-FITC) CAR T-cell platform coupled with anti-CD117 binders can facilitate the academic translation of innovative approaches to eradicate AML/hrMDS cells and, concomitantly, serve as a non-cytotoxic conditioning before allogeneic hematopoietic stem cell transplantation. This will in best case fundamentally change current clinical practice and improve outcomes, first in patients with AML/hrMDS relapse after allogeneic hematopoietic stem cell transplantation, and subsequently in patients at earlier treatment stages with acceptable toxicity. Finally, we envision establishing a pipeline for the discovery of further highly effective target binders that can be coupled with our sleeping beauty adaptor CAR T-cells.

Research Highlight

Acute myeloid leukemia (AML) is an aggressive cancer that is difficult to treat with CAR T-cell therapy due to side effects and heterogeneity. This study establishes an innovative platform featuring a switchable CAR T-cell approach that targets multiple markers, enhances tumor killing, improves safety, and enable curative stem cell transplantation. Adaptor-CAR T cells enable combinatorial targeting, enhancing AML cell killing and specificity. Volta et al., *Leukemia*. 2024



Selected Publications

Enhancement of CD117-Targeted Bispecific T-cell Engagement by CD33-Targeted Bispecific T-cell Costimulation in Acute Myeloid Leukemia. Hofstetter M, Volta L, Koch C, Rey MG, Maurer M, Gönüllü N, Pellegrino C, Gobbi C, Schneiter F, Manfredi F, Magnani CF, Elsayed A, Schroeder T, Neri D, Manz MG. **Cancer Res Commun.** 2026 Apr;6(4):946–960.

A bispecific anti-fluorescein x anti-CD3 T-cell engager in combination with fluoresceinated adaptors enables lysis of AML cells. Volta LG, Gobbi C, Koch C, Harrer N, Hofstetter M, Maurer M, Schneiter F, Manfredi F, Pellegrino C, Magnani CF, Schroeder T, Neri D, Manz MG. **Mol Cancer Ther.** 2026 Mar 17;10:1158/1535.

Efficient combinatorial adaptor-mediated targeting of acute myeloid leukemia with CAR T-cells. Volta L, Myburgh R, Pellegrino C, Koch C, Maurer M, Manfredi F, Hofstetter M, Kaiser A, Schneiter F, Müller J, Buehler MM, De Luca R, Favalli N, Magnani CF, Schroeder T, Neri D, Manz MG. **Leukemia.** 2024 Dec;38(12):2598–2613.

Peptide-guided adaptor-CAR T-Cell therapy for the treatment of SSTR2-expressing neuroendocrine tumors. Pellegrino C, Favalli N, Volta L, Benz R, Puglioli S, Bassi G, Zitzmann K, Auernhammer CJ, Nölte S, Magnani CF, Neri D, Beuschlein F, Manz MG. **Oncoimmunology.** 2024 Oct 3;13(1):2412371.

Anti-CD117 CAR T cells incorporating a safety switch eradicate human acute myeloid leukemia and hematopoietic stem cells. Magnani CF, Myburgh R, Brunn S, Chambovey M, Ponzo M, Volta L, Manfredi F, Pellegrino C, Pascolo S, Miskey C, Ivics Z, Shizuru JA, Neri D, Manz MG. **Mol Ther Oncolytics.** 2023 Jul 19;30:56–71.

Anti-CD117 immunotherapy to eliminate hematopoietic and leukemia stem cells. Russkamp NF, Myburgh R, Kiefer JD, Neri D, Manz MG. **Exp Hematol.** 2021 Mar;95:31–45

«Our Sleeping Beauty Adaptor-FITC CAR T-cell platform in combination with the generation of new small-molecule target-binders will serve as a blueprint for a unique pipeline, which would allow highly personalized and extremely versatile therapies within a short period of time.»

Dominik Schneidawind
Leitender Arzt, MOH

Primary and Acquired Resistance to BRAF-directed Combination Treatment in Colorectal Cancer (PARTACER-Suisse, SAKK 41-23)

PI and investigators: Ralph Fritsch (MOH), Achim Weber (USZ), Michael Krauthammer (USZ), Michael Scharl (USZ), Andreas Wicki (MOH), Tilman Brummer (University Freiburg)

Funding: CHF 1.2 Mio. (2024–2027), SNSF, SAKK/SCI

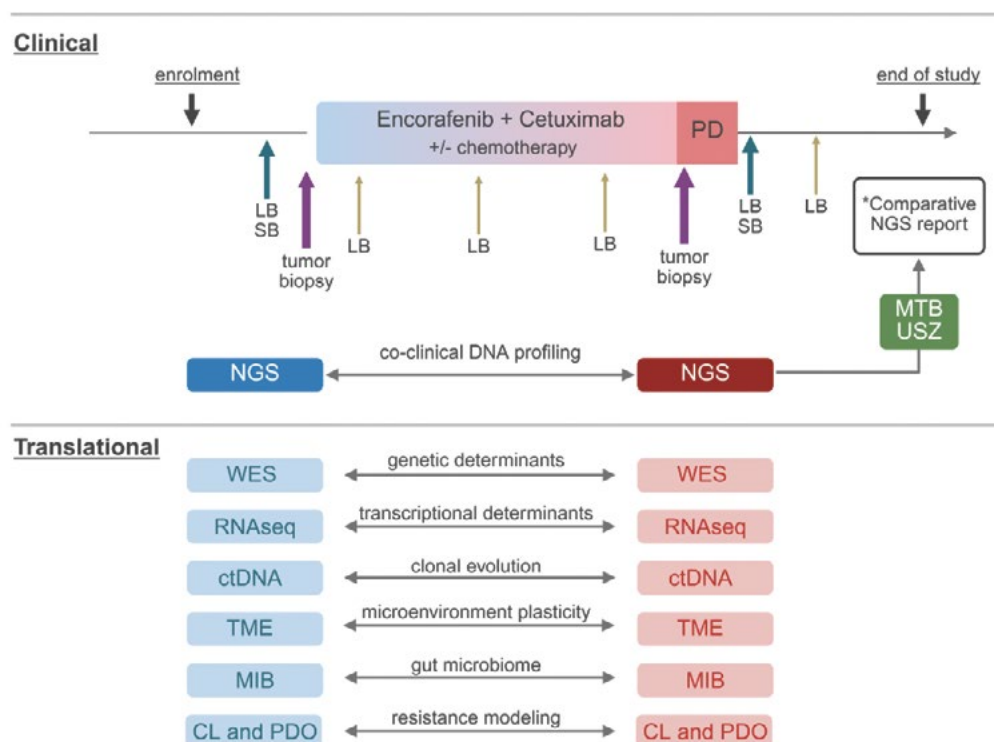
Keywords: Acquired Drug Resistance, BRAF V600E, Metastatic Colorectal Cancer, Patient-Derived Organoid Modelling

Overview

PARTACER-Suisse is a prospective multicenter co-clinical and translational study, prospectively enrolling patients undergoing clinically approved BRAF-directed combination treatment for BRAF V600E-mutated mCRC. Patients undergo pre- and post-treatment tumor tissue, blood and stool sampling. Comparative NGS reports are evaluated at USZ molecular tumor board and returned to the study sites. Paired patient samples are subjected to in-depth molecular analyses to uncover genomic and non-genomic alterations associated with acquired drug resistance. Patient-derived organoids generated from tissue biopsies are employed for in vitro treatment and resistance modelling. Genomic and pharmacologic perturbation studies serve to identify novel biomarkers of primary response, and to develop novel treatment strategies to reverse drug resistance.

«PARTACER-Suisse will provide a comprehensive molecular landscape of primary and acquired drug resistance in BRAF V600E-mutated mCRC. Co-clinical organoid modelling will allow us to functionally validate biomarkers of treatment response, and to establish novel strategies to reverse acquired drug resistance, aiming to resolve a long-standing and clinically crucial question of precision oncology.»

Ralph Fritsch
Leitender Arzt, MOH



ProteOmics for Lymphoma and Prognostication (POLAR)

Project Team: Thorsten Zenz (MOH), Valentina Boeva (ETH), Marco Bühler (Pathology, USZ), Christoph Messner (UZH)

Funding: CHF 1 Mio. (2024–2027), The LOOP Zurich

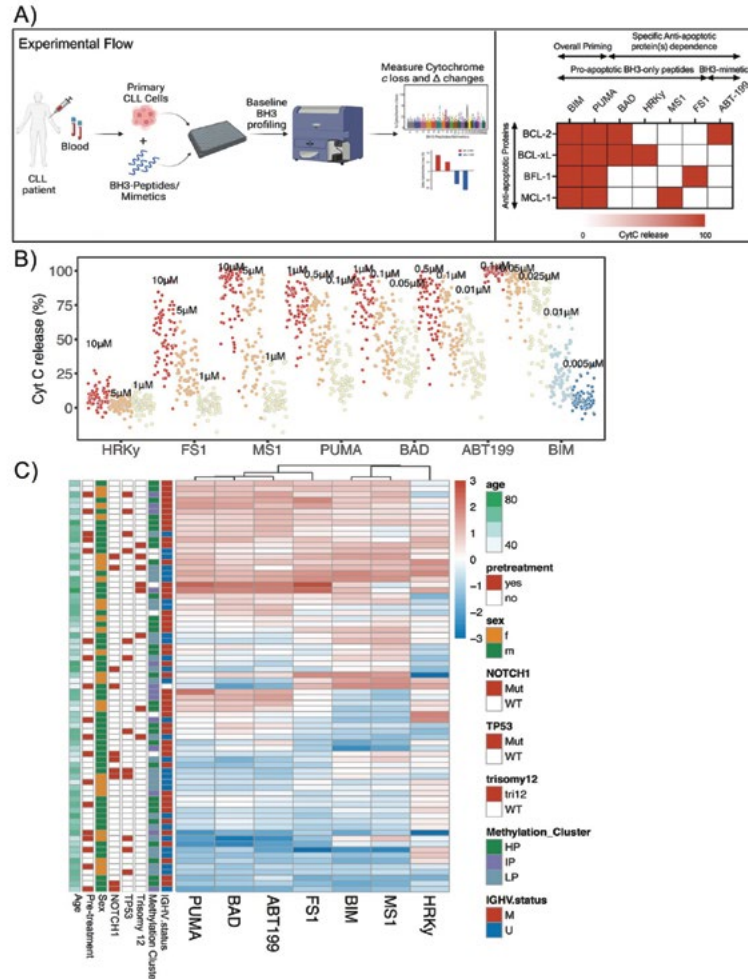
Keywords: Lymphoma, Proteome, Precision Oncology

Overview

Many lymphoma patients cannot be cured with current treatment strategies, and accurate diagnosis remains challenging even for experts. The goal of POLAR is to develop a platform that can integrate the entire protein profile (proteome) of lymphomas into clinical decision making. The platform will enable physicians and researchers to access and utilize the vast amounts of data generated by proteomic measurements to improve diagnosis, reveal new treatment targets, and help assess the effectiveness of drugs before administration. This enables personalized, precision oncological lymphoma treatment and addresses a long-term medical need in cancer diagnostics: the precise alignment of diagnosis and individual therapies based on molecular profiles. The project also lays the foundation for a nationwide lymphoma registry involving the University Hospital Basel and the Institute for Research in Biomedicine in Bellinzona.

Research Highlight

BH3-profiling overview and its correlations with clinical and genetic backgrounds in primary CLL cells. A BH3-profiling is a technique used to measure how close a cell is to the threshold of apoptosis, and to identify how dependent a cell is on certain BCL-2 family anti-apoptotic protein(s) for survival. Measurements by flow cytometry are determined based on the level of cytochrome c (CytC) release, induced by specific BH3 peptides or mimetic drug, whereby the higher the CytC is released or loss (%), the higher the dependence(s) is towards its respective anti-apoptotic protein(s). The heat-



map shows peptides or mimetic drug that measures the overall apoptotic priming of cells and the specific anti-apoptotic dependences of cells. Diagrams were created either in BioRender. Chamberlain, S. (2025) <https://BioRender.com/y06s314> (left panel) or Powerpoint software (heatmap). **B** Measurement of CytC release (%) of 73 CLL patient samples from the discovery cohort, induced by the BH3 peptides or mimetic. **C** Heatmap showing BH3-profiling pattern with heterogenic clinical and genetic background. The CytC values (area under curve) were centered by mean and scaled by standard deviation column-wise in order to reveal the pattern among patient samples with heterogenic clinical and genetic background. Chong et al. **bioRxiv**. 2025.

BCL-2 Dependence: A Functional Biomarker for Predicting Treatment Response in CLL

Genetic markers have long guided chemoimmunotherapy decisions in chronic lymphocytic leukemia (CLL), but their predictive power falls short for newer targeted therapies. This study identifies BCL-2 dependence – measured through BH3-profiling, a functional assay that tracks cytochrome c loss to gauge a cell's reliance on anti-apoptotic proteins for survival – as a promising non-genetic biomarker to fill that gap.

By integrating BH3-profiling with multi-omics data (sequencing, methylation, transcriptomics, and protein analyses) across a 73-patient discovery cohort, the researchers found that greater BCL-2 dependence correlated with favorable genetic subtypes and a gene expression profile associated with drug sensitivity. Functional experiments in cell lines confirmed these relationships were causal, not merely correlative. Validation in an independent cohort of 54 patients treated with ibrutinib plus chemoimmunotherapy on a phase-2 trial confirmed that higher BCL-2 dependence predicted better clinical response – regardless of underlying genetic background.

Why it matters: These findings position BCL-2 dependence as a functional biomarker capable of stratifying CLL patients beyond genetics alone, offering a path toward more precise matching of patients to targeted therapy combinations.

Selected Publications

Nodal gamma-delta T-cell lymphoma: expression of TFH-markers causing diagnostic difficulties in a newly described entity. Vetter VK, Benoit T, Rahmani-Khajouei S, Bender D, Inauen R, Djerbi N, Zenz T, Bühler MM. **Virchows Arch**. 2025 Sep 26.

BCL-2 dependence is a favorable predictive marker of response to therapy for chronic lymphocytic leukemia. Chong SJF, Lu J, Valentin R, Lehmberg TZ, Eu JQ, Wang J, Zhu F, Kong LR, Fernandes SM, Zhang J, Herbaux C, Goh BC, Brown JR, Niemann CU, Huber W, Zenz T, Davids MS. **Mol Cancer**. 2025 Mar 3 ;24(1):62.

Cancer pathway connectivity resolved by drug perturbation and RNA sequencing. Thi Huong LD, Lohoff C, Jung F, Kummer S, Pohly MF, Scheinost S, Jennifer Huellen, Benes V, Huber W, Junyan Lu, Zenz T. **bioRxiv**. 2025.12.11.692401.

«POLAR will enable the diagnostic use of cutting-edge proteome analysis and bioinformatics integration. We are excited to leverage the unique tissue banks for improved diagnostics and discovery.»

Thorsten Zenz
Leitender Arzt, MOH

AI Tumor Board

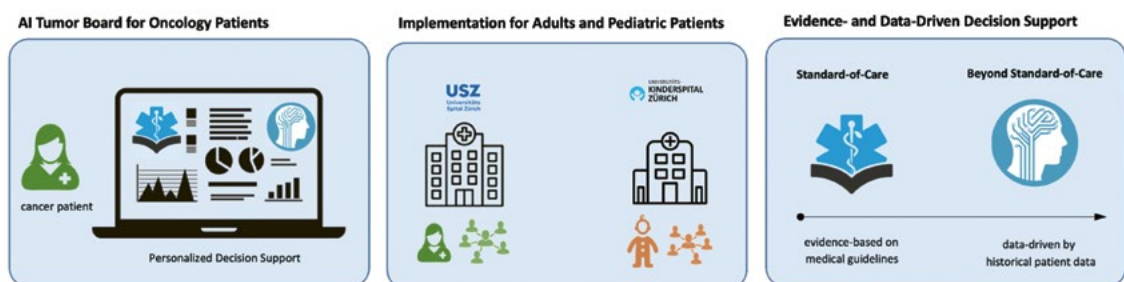
Project Team: Andreas Wicki (MOH), Michael Krauthammer (UZH/USZ), Jean-Pierre Bourquin (Kinderspital Zürich)

Funding: CHF 1 Mio. (2025–2028), The LOOP Zurich

Keywords: Precision Medicine, Artificial Intelligence, Personalized Decision Support, Unstructured Data, Machine Learning Prediction, Treatment Response, Treatment suggestion, Cross-institutional Evaluation

Overview

This project aims to develop and clinically evaluate an AI-driven Tumor Board platform (**AI Tumor Board**) for precision oncology. This platform will utilize Large Language Model (LLM) and machine learning technology to (1) seamlessly integrate and map routine patient data (clinical, genetics) to treatment guidelines; (2) use the integrated data to predict treatment response and side effects and (3) to present this information in a user-friendly AI dashboard specifically designed for tumor board settings, facilitating informed, collaborative decision-making by the multidisciplinary team. The project aims to bridge the gap between evidence-based guidelines and patient-specific data, ultimately enhancing personalized treatment plans and improving patient outcomes through the transformative power of AI-powered precision oncology. In particular, the project consists of three stages: fine-tuning LLMs to extract structured information from medical guidelines and patient data. To this end, we will take advantage of recent LLM developments in the medical domain, including Meditron, a Swiss open-source LLM developed by EPFL that encodes high-quality medical knowledge, based on PubMed and medical guidelines, as well as techniques such as Retrieval Augmented Generation (RAG), to map patient data to treatment guidelines and to transform the data into structured, standardized representations (drugs, diseases and their respective clinical codes). The structured data will be subjected to machine learning for calculating patient-specific probability of treatment success based on historic patient data, and designing a dashboard that allows oncologists to access these technologies at point of care in the tumor board. The ultimate goal is to provide oncologists with up-to-date information and data-driven evidence, leading ultimately to improved decision-making in oncology. This comprehensive and personalized data-driven approach holds great promise for advancing cancer treatments and improving patient outcomes. For data access and training of the algorithms, the proposal seeks to capitalize on the LOOP BMIP platform to integrate cancer data across the University Hospital Zurich (USZ) and the University Children's Hospital Zurich (Kispi).



Overall goal of the project. We aim to implement an "AI Tumor Board" – an interactive dashboard to provide personalized treatment decision support for adult (UZH) and pediatric (KISPI) cancer patients based on medical guidelines and historical patient data in the "standard-of-care" and "beyond standard-of-care" settings.

Selected Publications/Preliminary work

Towards scalable and cross-lingual specialist language models for oncology. Rohanian M, Mehra T, Miglino N, Nooralahzadeh F, Krauthammer M, Wicki A. *Sci Rep.* 2025 Oct 10;15(1):35480.

CCCZ Lighthouse Project – MACROCURE: Phagocytes against cancer

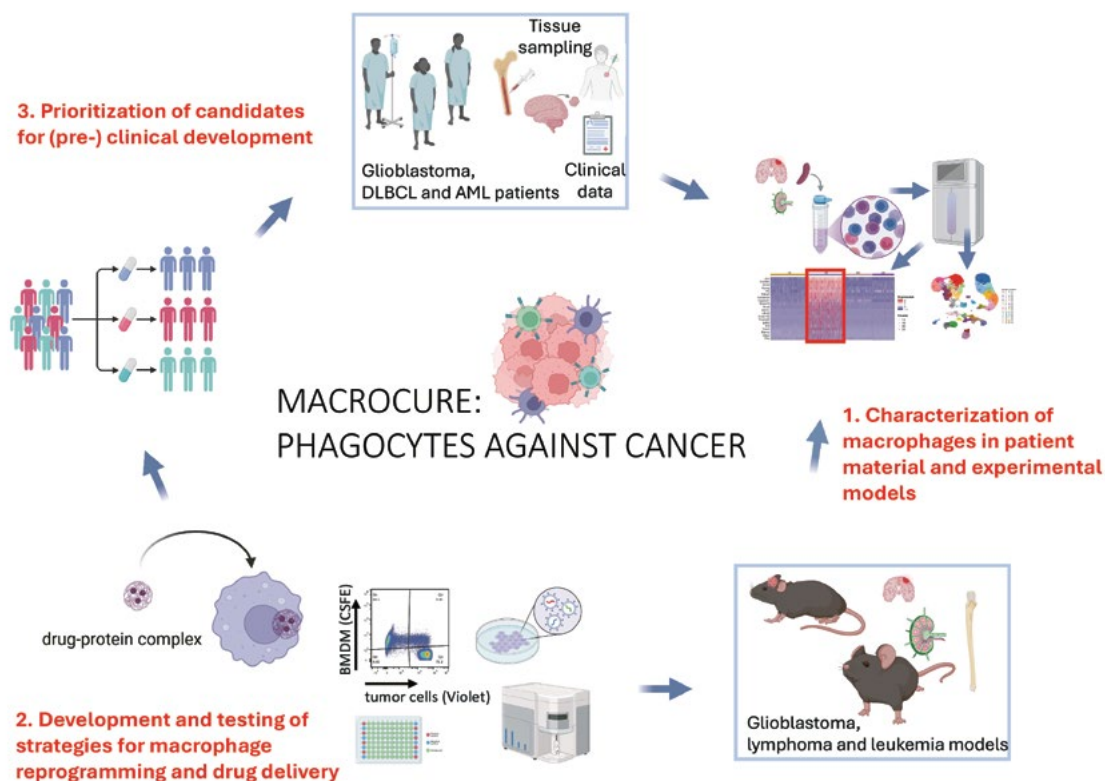
Project Team: Anne Müller (UZH), Markus G. Manz (MOH), Melanie Greter (UZH), Alexandre Theodorides (MOH), Burkhard Becher (UZH), Tobias Weiss (USZ)

Funding: CHF 1.750.000 (2026–2029), CCCZ

Keywords: Immunosuppressive Macrophages, Macrophage-Drug-Conjugates, Glioblastoma, Lymphoma, Myeloid Leukemia

Overview

Tumor-associated macrophages (TAMs) are ubiquitous in tumor microenvironments, present in immunologically “hot” and “cold” tumors. They can promote cancer growth but also support eradication, especially during immunotherapy. TAMs display diverse functional states and origins, including monocyte-derived and tissue-resident macrophages, and their profiles evolve with tumor context. Our consortium studies TAM biology across diffuse large B-cell lymphoma, acute myeloid leukemia, and glioblastoma using patient samples and advanced single-cell and spatial technologies. We test macrophage-targeting strategies in preclinical models, including reprogramming and drug delivery. The goal is to define TAM subsets, validate functions, and translate the most promising approaches into clinical trials.



**«Our mission is to better understand tumor-infiltrating macrophages
in order to target them more precisely and harness them
in the fight against cancer.»**

Anne Müller
Institute of Molecular Cancer Research, UZH

**«Macrophages are underappreciated immune cells as we do not
see them in blood. However tissues are highly populated and
macrophages make up about half of our immune cell mass.
We want to use them as force against cancer.»**

Markus Manz
Klinikdirektor, MOH

Selected Publications/Preliminary work

PDL1-expressing macrophages infiltrate diffuse large B-cell lymphoma and promote lymphoma growth in a MYC-driven experimental model. Cui N, Leary P, Ivanova VS, Stirn K, Kirsche L, Aceto N, Stenner F, Dieterich LC, Detmar M, Petrova E, Mundt S, Greter M, Tzankov A, Müller A. **Blood Cancer J.** 2025 Apr 16;15(1):66.

Next-generation immune profiling – beyond blood cancer cells. Unger S, Nuñez N, Becher B, Kreutmair S. **Trends Mol Med.** 2025 Dec;31(12):1140–1153.

Central Nervous System Macrophages in Health and Disease. Van Hove H, De Feo D, Greter M, Becher B. **Annu Rev Immunol.** 2025 Apr;43(1):589–613.

Immunity in malignant brain tumors: Tumor entities, role of immunotherapy, and specific contribution of myeloid cells to the brain tumor microenvironment. Kienzler JC, Becher B. **Eur J Immunol.** 2024 Feb;54(2):e2250257.

Adoptive cell therapy with macrophage–drug conjugates facilitates cytotoxic drug transfer and immune activation in glioblastoma models. Sun M, Bialasek M, Mayoux M, Lin MS, Buck A, Marszałek I, Taciak B, Bühler M, Górczak M, Kucharzewska P, Kurpiel D, Siemińska M, Nowakowska J, Brancewicz J, Gabrusiewicz K, Lipiński W, Pfammatter S, Pascolo S, Hutter G, Bodnar L, Snijder B, Regli L, Weller M, Baumgartner M, Tugues S, Rygiel TP, Krol M, Weiss T. **Sci Transl Med.** 2025 Jun 18;17(803):eadr4058.

Disruption of SIRPα signaling in macrophages eliminates human acute myeloid leukemia stem cells in xenografts. Theocharides AP, Jin L, Cheng PY, Prasolava TK, Malko AV, Ho JM, Poepl AG, van Rooijen N, Minden MD, Danska JS, Dick JE, Wang JC. **J Exp Med.** 2012 Sep 24;209(10):1883–99.

Zurich Precision Oncology Consortium: INTeRCePT3.0 – Dynamic individualized risk modeling to improve lymphoma treatment

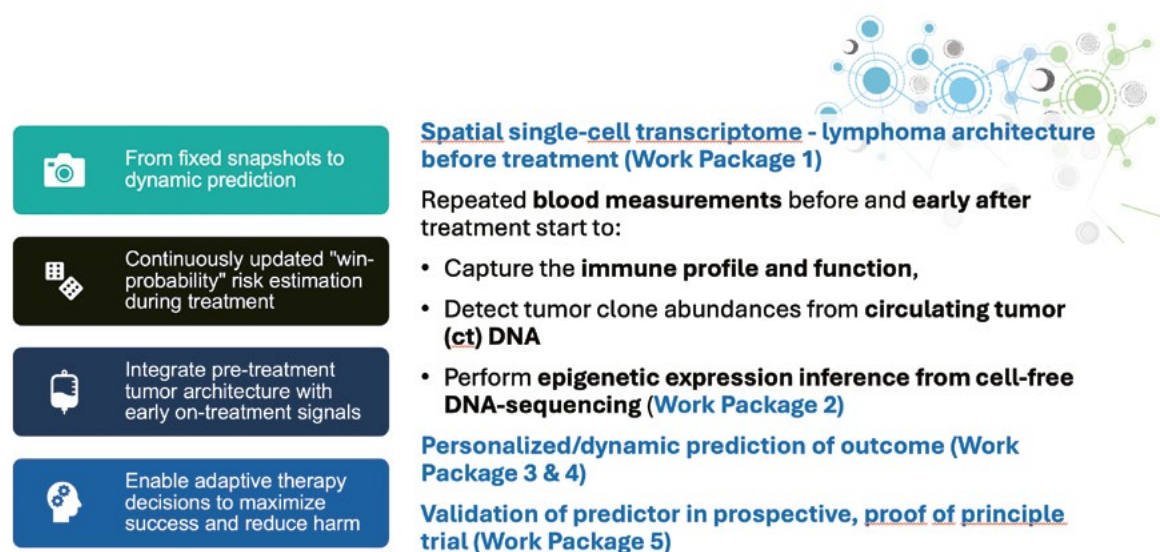
Project Team: Thorsten Zenz (MOH), Burkhard Becher (UZH), Niko Beerenwinkel, (ETH), Valentina Boeva, (ETH), Marco Buehler, (USZ), Wolfgang Huber, (EMBL), Andreas Moor, (ETH), Virginie Uhlmann (UZH)

Funding: CHF 4.050.000 (2026–2030), CCCZ, The LOOP Zurich & TPC

Keywords: Lymphoma, Prediction of Response, Spatial Organization; Liquid Biopsy, Individualized Dynamic Risk

Overview

Precision oncology currently relies mainly on pre-treatment biomarkers to predict risk and treatment response. We propose a novel dynamic precision medicine approach for adult non-Hodgkin lymphoma by integrating pre-treatment tumor profiling with early on-treatment measurements. Using data from multiple cohorts and the INTeRCePT2.0 trial (up to 1,000 samples), we combine spatial single-cell transcriptomics, multi-omics profiling, blood immune monitoring, circulating tumor DNA, and EPIC-seq analyses. Machine learning and mathematical modeling will generate individualized, continuously updated risk predictions, analogous to “win probability” models. Prospective validation will assess feasibility. Earlier detection of treatment resistance could reduce ineffective therapies, limit side effects, and improve opportunities for successful alternative treatments.



«We aim to predict the course of lymphoma patients as early as possible, using high-resolution analyses before and immediately after treatment. We hope these efforts will represent an important step toward truly personalized cancer therapy.»

Thorsten Zenz
Leitender Arzt, MOH

Selected Publications/Preliminary work

IAP dependency of T-cell prolymphocytic leukemia identified by high-throughput drug screening.

Pohly MF, Putzker K, Scheinost S, Ben Taarit L, Walther T, Kummer S, Wertheimer T, Lin M, Do THL, Handler K, Michler J, Kivioja J, Bach K, Kisele S, Kim J, Dietrich S, Bornhauser B, Wong WW, Becher B, Moor A, Lewis J, Ficht X, Lu J, Huber W, Zenz T. **Blood**. 2025 May 15;145(20):2336–2352.

Analysis of multi-condition single-cell data with latent embedding multivariate regression.

Ahlmann-Eltze C, Huber W. **Nat Genet**. 2025 Mar;57(3):659–667.

In vivo interaction screening reveals liver-derived constraints to metastasis.

Borrelli C, Roberts M, Eletto D, Hussherr MD, Fazilaty H, Valenta T, Lafzi A, Kretz JA, Guido Vinzoni E, Karakatsani A, Adivarahan S, Mannhart A, Kimura S, Meijs A, Baccouche Mhamedi F, Acar IE, Handler K, Ficht X, Platt RJ, Piscuoglio S, Moor AE. **Nature**. 2024 Aug;632(8024):411–418.

IL-23 stabilizes an effector T(reg) cell program in the tumor microenvironment.

Wertheimer T, Zwicky P, Rindlisbacher L, Sparano C, Vermeer M, de Melo BMS, Haftmann C, Rückert T, Sethi A, Schärli S, Huber A, Ingelfinger F, Xu C, Kim D, Häne P, Fonseca da Silva A, Muschaweckh A, Nunez N, Krishnarajah S, Köhler N, Zeiser R, Oukka M, Korn T, Tugues S, Becher B. **Nat Immunol**. 2024 Mar;25(3):512–524.

Robust identification of conventional and leukemic nonnodal mantle cell lymphomas using epigenetic biomarkers.

Bühler MM, Kulis M, Duran-Ferrer M, López C, Clot G, Nadeu F, Romo M, Giné E, López-Guillermo A, Beà S, Campo E, Martín-Subero JI. **Hemasphere**. 2024 Jan 29;8(1):e30.

Multi-omics reveals clinically relevant proliferative drive associated with mTOR-MYC-OXPHOS activity in chronic lymphocytic leukemia.

Lu J, Cannizzaro E, Meier-Abt F, Scheinost S, Bruch PM, Giles HA, Lütge A, Hüllein J, Wagner L, Giacomelli B, Nadeu F, Delgado J, Campo E, Mangolini M, Ringshausen I, Böttcher M, Mougiakakos D, Jacobs A, Bodenmiller B, Dietrich S, Oakes CC, Zenz T, Huber W. **Nat Cancer**. 2021 Aug;2(8):853–864.

Swiss Amyloidosis Registry (www.amyloidosis.ch)

PI: Rahel Schwotzer (MOH)

Funding: CHF 350.000, 2018–2029, Multisponsoring by Industry

Keywords: Rare Disease, Collaborative Networks, Interdisciplinary Boards

Overview

The Swiss Amyloidosis Registry (SAR) is a nationwide observational registry established to systematically collect clinical data on patients with systemic amyloidosis in Switzerland. Founded at the University Hospital Zurich, the registry has continuously expanded and now includes participation from more than ten centers across Switzerland. Its primary aim is to improve the understanding, diagnosis, treatment, and long-term management of different amyloidosis subtypes, including light-chain (AL) amyloidosis, transthyretin amyloidosis (ATTR), both hereditary and wild-type forms, as well as rarer amyloidosis entities. Currently, approximately 700 patients are included in the registry.

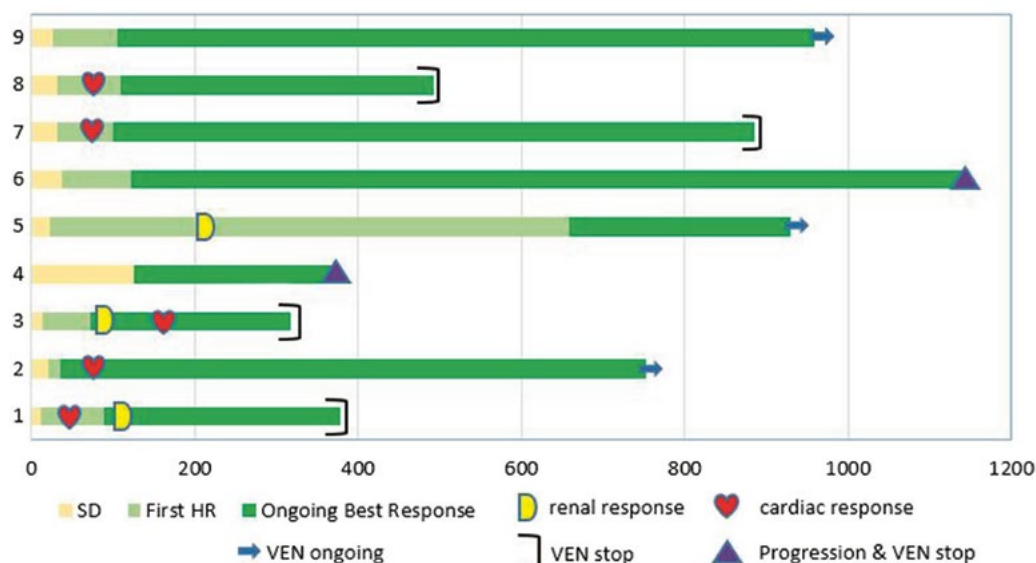
The SAR is closely linked to the Swiss Amyloidosis Network (SAN), a national interdisciplinary research consortium dedicated to collaborative scientific projects, clinical exchange, education, and the development of recommendations and guidelines in the field of amyloidosis. Together, the SAR and SAN promote collaboration between hematology, cardiology, neurology, nephrology, and other specialties involved in amyloidosis care across Switzerland.

The registry collects longitudinal real-world data on patient characteristics, organ involvement, biomarkers, genetic findings, treatment strategies, treatment response, and clinical outcomes. By providing a structured national database, the SAR serves as an important platform for epidemiological research, quality assessment of clinical care, and future national and international scientific collaborations in the field of amyloidosis.

Research Highlight

This three-year follow-up study demonstrates durable efficacy of venetoclax in heavily pretreated patients with advanced, relapsed/refractory AL amyloidosis carrying t(11;14) and BCL2 expression with remarkable overall survival of 89%. Deep hematologic responses translated into sustained survival benefits despite severe cardiac involvement, supporting venetoclax as a valuable targeted treatment option in this high-risk population. Three-year follow-up confirms durable efficacy of Venetoclax in advanced cardiac AL amyloidosis with t(11;14). Rieger et al. **Ann Hematol.** 2024

Hematologic and Organ Response to Venetoclax



*«Our goal is to unite expertise and efforts across Switzerland
through the Swiss Amyloidosis Registry and the Swiss Amyloidosis
Network to sustainably advance both patient care and
research in amyloidosis.»*

Rahel Schwotzer
Leitende Ärztin, MOH

Selected Publications

Historic characteristics and mortality of patients in the Swiss Amyloidosis Registry. Brouwers S, Heimgartner R, Laptseva N, Aguzzi A, Ehl NF, Fehr T, Hitz F, Jung HH, Kälin J, Manz MG, Müllhaupt B, Ruschitzka F, Seeger H, Stussi G, Zweier M, Flammer AJ, Gerber B, Schwotzer R. **Swiss Med Wkly.** 2024 Feb 15;154:3485.

Three years follow-up of Venetoclax in advanced-stage, relapsed or refractory AL amyloidosis with cardiac involvement and t(11;14) with BCL2 expression. Rieger MJ, Pabst T, Jeker B, Paul P, Bergamini F, Bühler MM, Condoluci A, Flammer AJ, Rossi D, Stussi G, Gerber B, Schwotzer R. **Ann Hematol.** 2024 Oct;103(10):4163–4170.

Histiocytosis Registry (www.histiozytose.ch)

PI: Wiebke Rösler (MOH)

Funding: CHF 30.000, 2022-2024, Novartis/SAKK Together for patients award

Keywords: Rare Disease, Histiocytic Disorders, Collaborative Networks, Interdisciplinary Boards

Overview

Histiocytic disorders are rare hematologic diseases in adults, with Langerhans-Cell Histiocytosis (LCH), Erdheim-Chester-Disease (ECD) and Rosai-Dorfman-Destombes-Disease (RDD) as the most common once, best described as clonal inflammatory myeloid neoplasia. The discovery of alterations of the MAPK signaling pathway and therefore proof of clonality led to this relatively new understanding of histiocytic disorders as a neoplastic disease. Histiocytic disorders show a wide clinical picture, some with localized and self-limiting courses, others involve multiple organs and cause significant morbidity. Until now, the treatment is mainly based on case series and expert opinions. Randomized controlled trials in adults do not exist, most data are gained from pediatric trials which include adult patients, too. To address this gap, the Histiocytosis Registry was established in 2020 at MOH. Since then, approximately 70 patients with LCH, ECD, RDD, and other ultra-rare histiocytic entities have been prospectively enrolled across Switzerland. The registry is embedded within a multidisciplinary clinical and translational network at the University Hospital Zurich, integrating expertise across hematology, radiology, pathology, nuclear medicine, and related specialties for the management of these complex diseases. Within this framework, an interdisciplinary Histiocytosis Board convenes quarterly to support standardized diagnostic and therapeutic decision-making. In parallel, the network has fostered active international collaboration and scientific exchange. In 2024 and 2025, the 2nd and 3rd Swiss Histiocytosis Symposia hosted leading international experts, including Prof. Matthew Collin (Newcastle, UK) and Dr. Oshrat HersHKovitz-Rokah (Tel Aviv, Israel), highlighting emerging biological insights and novel therapeutic approaches aimed at improving clinical outcomes in this highly unmet medical need.

Year	2020 (n)	2021 (n)	2022 (n)	2023 (n)	2024 (n)	2025 (n)
Registry total	20	29	38	40	52	69
LCH	20	29	38	40	52	59
ECD	1	3	3	4	4	4
RDD	0	2	4	4	4	4
others	0	0	0	0	1	2

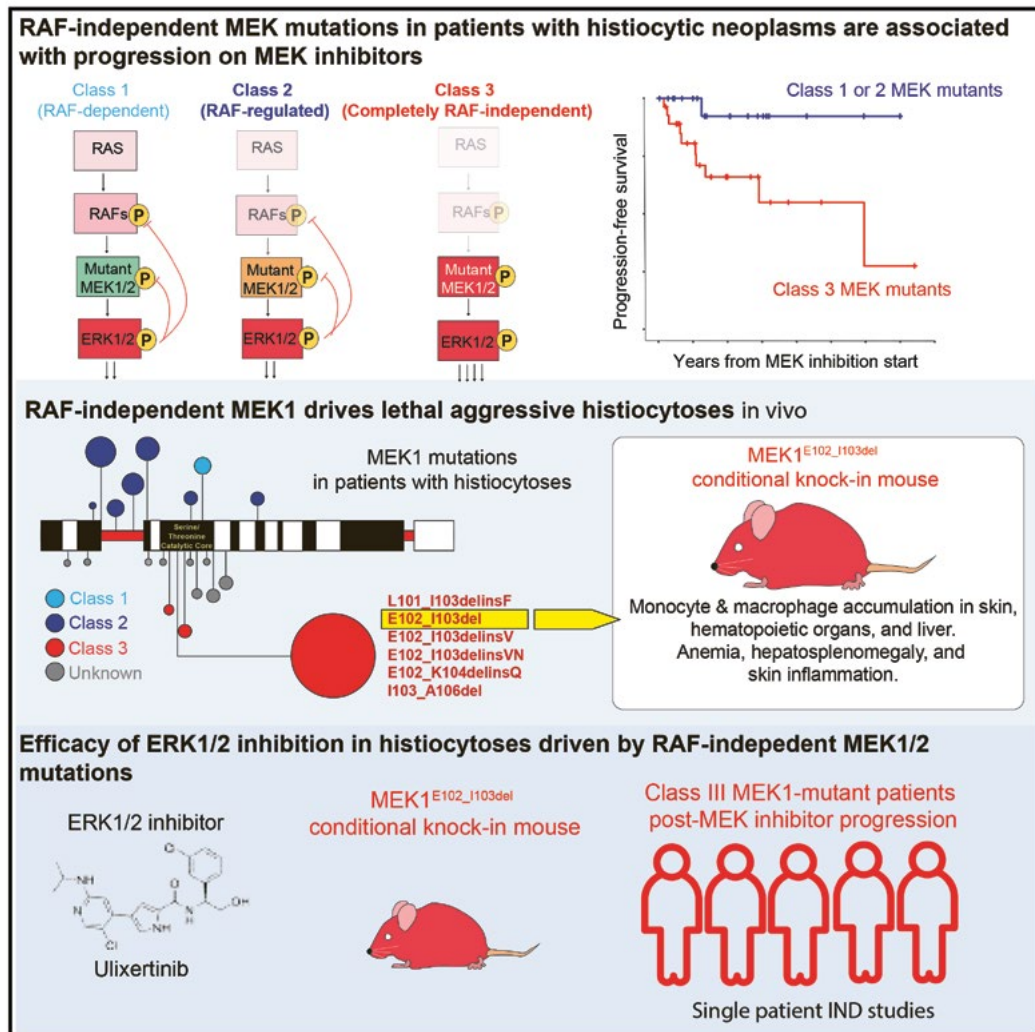
Development of included cases into the Histiocytosis Registry from 2020–2025

«Through scientific excellence, international collaboration, and interdisciplinary cooperation, we continuously advance clinical and translational research in histiocytosis, addressing the significant unmet medical need of adult patients affected by these very rare diseases.»

Wiebke Rösler
Leitende Oberärztin, MOH

Research Highlight

The registry contributed to an international collaboration, lead by Dr. Eli Diamond (MSKCC, New York) which examined the role of MAP2K1-Mutations on treatment with targeted therapies in-vitro and clinically. The group could show that Class III MEK1/2 mutations are associated with MEK inhibitor disease progression and especially Class III MEK1E102_I103del mutation drives aggressive myeloid neoplasms in mice. Patients might respond better to ERK inhibition. Diamond et al. **Cancer Cell**. 2025.



Selected Publications

RAF-independent MEK mutations drive refractory histiocytic neoplasms but respond to ERK inhibition. Diamond EL, Emile JF, Fujino T, Haroche J, Maron MI, Lewis AM, Rahman J, Reiner AS, Bossert D, Rosenblum M, Yabe M, Petrova-Drus K, Francis JH, Rotemberg V, Rampal RK, Yoo S, Daniyan AF, Mahajan S, Hatzoglou V, Young R, Ulaner GA, Rösler W, Herschkovitz-Rokah O, Shpilberg O, Mazor RD, Chen LYC, Singer M, Cuibus MA, Weis K, Benbarche S, Zhang P, Fox N, Castro C, Tittley S, Witkowski M, Cohen-Aubart F, Terriou L, Hanoun M, Schleinitz N, Sosa G, Hautala T, De Lasso LF, Rosen N, Abdel-Wahab O, Durham BH. **Cancer Cell**. 2026 Jan 12;44(1):203-220.e8.

Distinct [18F] FDG-PET imaging features of a newly recognized and yet uncharacterized RDD-ECD overlap disease entity. Huellner MW, Bühler MM, Kölzer VH, Limani P, Rösler W. **Eur J Nucl Med Mol Imaging**. 2024 Sep;51(11):3465-3466.

11 Laboratory Research Scientists & Physician Scientists

As an academic department, MOH is committed to continuously advancing patient care through clinical, translational, and basic research.

The department currently comprises 7 university professorships and 12 research groups/clinical investigators. MOH secured more than CHF 5.2 Mio. in exclusive third-party funding (2025) and CHF 35.9 Mio. in collaborative third-party funding (2021–2030). In 2025, MOH researchers published more than 115 peer-reviewed scientific articles.



OUR IMPACT IN RESEARCH



Driving innovation through collaborative research



Translating scientific discovery into better patient care



Shaping the future towards Precision Oncology



Interdisciplinary excellence and scientific discovery

Diagnostics of Hematological Neoplasms

Keywords

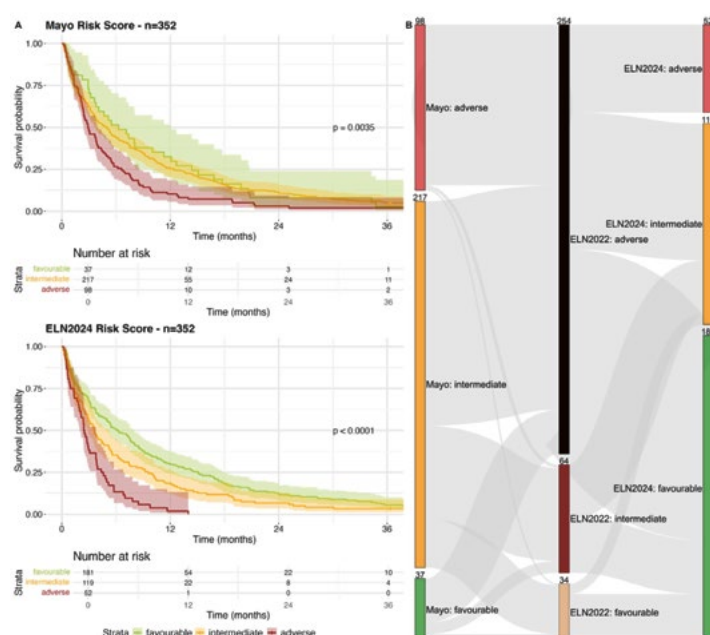
Myeloid Neoplasms, Hematological Diagnostics, Next Generation Sequencing, Flow Cytometry, Digital Microscopy, Machine Learning

Aims

The focus of our laboratory is to optimize the diagnostics of myeloid and lymphoid neoplasms. In particular, we aim to establish new assays for sensitive detection of minimal residual disease using digital PCR, next generation sequencing and flow cytometry. Furthermore, we use machine learning to optimize digital microscopy of blood and bone marrow cells and to predict diseases from lab values.

Research Highlight

We conducted an independent validation of the Mayo Genetic Risk Model and the ELN2024 classification outside the context of hypomethylating agent (HMA)-based treatments, using a publicly available dataset, and compared their prognostic performance with that of the established ELN2022 model.



Comparison of Mayo and ELN2024 Risk Stratifications in not-intensively treated AML. (A) Stacked cumulative incidence plots showing overall survival stratified by Mayo risk groups (top) and ELN2024 risk groups (bottom). Colors indicate risk categories. Adjusted p-values < 0.05 were considered statistically significant. (B) Sankey diagram illustrating patient reclassification between Mayo risk categories and ELN2024/ELN2022 risk groups. Widths of the flows are proportional to the number of patients transitioning between classifications. Patient numbers are indicated at each node. Roncador et al., *Am J Hem.* 2025.

Selected Publications

Late-onset telomere biology disorders in adults: clinical insights and treatment outcomes from a retrospective registry cohort. Tometten M, Beier F, Kirschner M, Schumacher Y, Walter J, Vieri M, Kricheldorf K, Roth A, Platzbecker U, Radsak M, Schafhausen P, Corbacioglu S, Hochsmann B, Balabanov S, Hinze C, Chromik J, Heuser M, Kreuter M, Wlodarski MW, Elbracht M, Kurth I, Koschmieder S, Panse J, Isfort S, Meyer R, Brummendorf TH. *Blood Adv.* 2025 May 13;9(9):2183–2191.

Validation of the ELN2024 and Mayo Genetic Risk Models in an External Cohort of 352 Patients With Newly Diagnosed AML Receiving Less-Intensive Therapies. Roncador M, Marconato M, Deuel JW, Balabanov S. *Am J Hematol.* 2025 Oct;100(10):1861–1864.

AI-based detection of neutrophil dysplasia: an accessible and sensitive model for MDS diagnosis from peripheral blood. Romano NH, Ruiz C, Schlaepfer P, Balabanov S, Habringer S, Widmer CC. *Ann Hematol.* 2025 Sep;104(9):4477–4486.

VEXAS syndrome: a Swiss national retrospective cohort study. Wolff L, Caratsch L, Lotscher F, Seitz L, Seitz P, Coattrenec Y, Seebach J, Vilinovszki O, Balabanov S, Nilsson J, Canbek A, Clottu A, Bruecker R, Efthymiou A, Regli D, Chrysoula M, Amstad A, Bonadies N, Blum S, Chitic M, Schreiber C, Comte D. *Swiss Med Wkly.* 2024 Mar 14;155:3879.

Evaluation of deep learning training strategies for the classification of bone marrow cell images. Comput Methods Programs Gluge S, Balabanov S, Koelzer VH, Ott T. *Biomed.* 2024 Jan;243:107924.



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- Karolina Zielińska, PhD, Computational biologist

Translational Cancer Research Lab

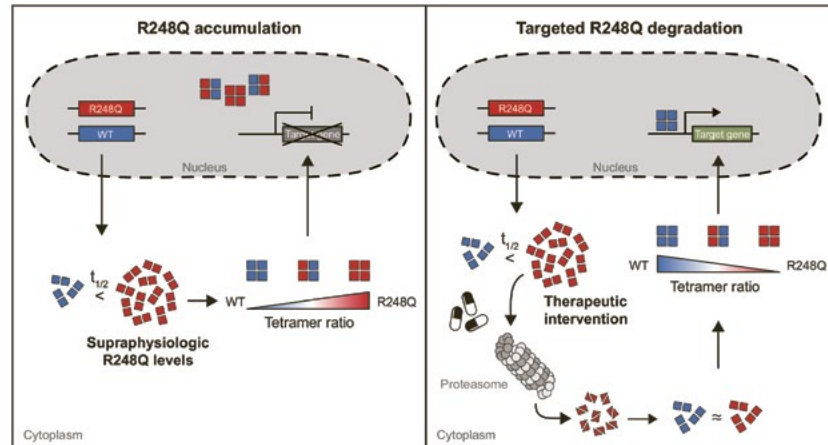
Keywords

TP53 mutations, Pre-Malignancies, Clonal Hematopoiesis, Acute Myeloid Leukemia

Aims

We generate novel in vitro and in vivo models of TP53-mutant hematological (pre-)malignancies with a special focus on acute myeloid leukemia (AML). We use human genetics data, precise CRISPR-based genome editing, classical molecular biology as well as large-scale functional genomics to elucidate disease mechanisms and to identify cancer vulnerabilities. Our ultimate goal is to improve outcomes in cancer patients.

Research Highlight



Missense p53 mutants, including the frequent hotspot variant R248Q, can exert a dominant-negative effect (DNE) on wild-type (WT) p53 in cancer cells carrying monoallelic TP53 mutations. However, the mechanisms underlying this effect have remained unclear, largely due to the lack of suitable model systems. Here, we developed complementary experimental platforms, including CRISPR-edited human isogenic cell lines, transcriptional reporter systems, and targeted protein degradation assays, to functionally and mechanistically investigate the DNE. We found that R248Q forms heterotetramers with WT p53, thereby impairing WT p53 function by preventing DNA binding and subsequent transactivation of target genes. In addition, the markedly prolonged half-life of R248Q results in supraphysiologic mutant p53 levels, which are essential for the DNE. Drug-induced degradation of R248Q reduced the R248Q:WT p53 ratio, restored WT p53 transcriptional activity, inhibited cancer cell proliferation in vitro, and produced strong therapeutic effects in vivo. Together, these findings define the molecular basis of the DNE of p53 missense mutants and identify mutant p53 accumulation as a promising therapeutic vulnerability. Klemm et al. **Cancer Res.** 2025.

Selected Publications

The pathogenesis of therapy-related myeloid neoplasms from TP53-mutant clonal hematopoiesis. Fullin J, Topçu E, Zielińska KA, Schimmer RR, Klemm N, Koch C, Caiado F, Lock M, Doerdelmann C, Bühler MM, Tchinda J, Kurppa KJ, Borsig L, Jones PH, Lopes M, Manz MG, Boettcher S. **Leukemia.** 2026 Feb;40(2):279–292.

The Prolonged Half-Life of the p53 Missense Variant R248Q Promotes Accumulation and Heterotetramer Formation with Wild-Type p53 to Exert the Dominant-Negative Effect. Klemm N, Schimmer RR, Konrad NK, Thelen F, Fullin J, Topçu E, Koch C, Treacy M, Leventhal MJ, Bühler MM, Lysenko V, Theodorides APA, Kurppa KJ, Balabanov S, Baubec T, Krivtsov AV, Miller PG, Armstrong SA, Ebert BL, Manz MG, Nombela-Arrieta C, Boettcher S. **Cancer Res.** 2025 Jun;85(11):1978–1996.

Prolonged persistence of mutagenic DNA lesions in somatic cells. Spencer Chapman M, Mitchell E, Yoshida K, Williams N, Fabre MA, Ranzoni AM, Robinson PS, Kregar LD, Wilk M, Boettcher S, Mahbubani K, Saeb Parsy K, Gowers KHC, Janes SM, Ng SWK, Hoare M, Green AR, Vassiliou GS, Cvejic A, Manz MG, Laurenti E, Martincorena I, Stratton MR, Nangalia J, Coorens THH, Campbell PJ. **Nature.** 2025 Feb;638(8051):729–738.

Clonal dynamics after allogeneic haematopoietic cell transplantation. Spencer Chapman M, Wilk CM, Boettcher S, Mitchell E, Dawson K, Williams N, Müller J, Kovtonyuk L, Jung H, Caiado F, Roberts K, O'Neill L, Kent DG, Green AR, Nangalia J, Manz MG, Campbell PJ. **Nature.** 2024 Nov;635(8040):926–934.

Targeting the mevalonate or Wnt pathways to overcome CAR T-cell resistance in TP53-mutant AML cells. Mueller J, Schimmer RR, Koch C, Schneiter F, Fullin J, Lysenko V, Pellegrino C, Klemm N, Russkamp N, Myburgh R, Volta L, Theodorides AP, Kurppa KJ, Ebert BL, Schroeder T, Manz MG, Boettcher S. **EMBO Mol Med.** 2024 Mar;16(3):445–474.

Cancer Inflammation Lab

Keywords

Inflammation, Clonal Hematopoiesis, Premalignancies, Myeloid Malignancies, Bone and Soft Tissue Sarcoma, Drug Resistance, Target Discovery

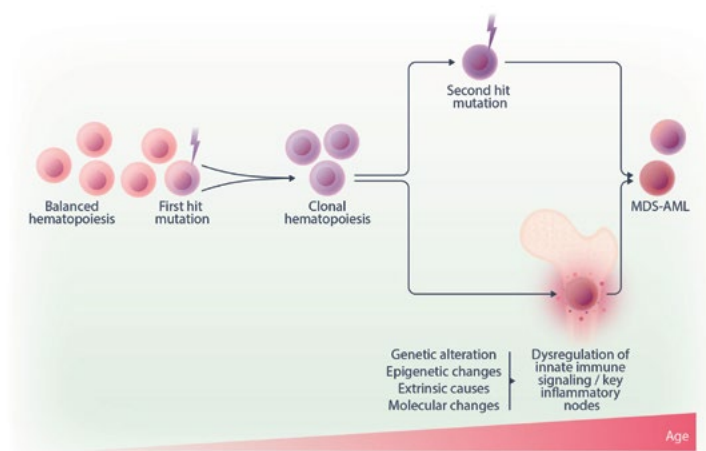
Aims

Exploiting inflammation to fight cancer by

- Decoding the molecular basis of inflammatory programs in myeloid malignancies and sarcoma to leverage this understanding for the discovery of immune-modulating targets.
- Investigating the dynamic interplay between cancer cells and their tumor environment, specifically examining the roles of cell-intrinsic and extrinsic inflammation, informing enhanced treatment strategies.
- Determining the role of inflammatory signaling in resistance mechanisms and metastases formation.

Research Highlight

Extensive research has elucidated the broad spectrum of biological mechanisms contributing to the development of AML. However, the role of inflammation in the pathogenesis of AML remains relatively unexplored; indeed, studies on the contribution of inflammatory signaling to disease initiation in myeloid malignancies have only recently gained attention, marking an emerging area of research. AML has the highest incidence in the elderly, where inflammation plays an even greater role. A granular understanding of inflammatory processes driving leukemogenesis thus promises to guide therapeutic strategies for a patient population where outcomes remain dismal. We provide a comprehensive synthesis of the current knowledge on the role of inflammatory signaling in AML pathogenesis and highlight the translational potential of therapies targeting inflammatory signaling.



Scheme depicting the development of hematopoietic stem cells (HSCs) into (pre)malignant cells. Baumann and Ellegast. **Hemasphere**. 2025.

Selected Publications

Identifying targeted therapies for CBFA2T3::GLIS2 acute myeloid leukemia. Gonzales F, Schneider C, Alexe G, Lin S, Khalid D, Alvarez M, Basanthakumar A, Ellegast JM, Merickel L, Salhotra S, Taillon A, Giaimo M, Wunderlich M, Ansari M, Perry JA, Degar B, Pikman Y, Stegmaier K. **Leukemia**. 2026 Feb;40(2):383-396.

Inflammatory signaling in the pathogenesis of acute myeloid leukemia. Baumann AM, Ellegast JM. **Hemasphere**. 2025 Aug;9(8):e70188.

PPM1D modulates hematopoietic cell fitness and response to DNA damage and is a therapeutic target in myeloid malignancy. Miller PG, Sperling AS, Mayerhofer C, McConkey M, Ellegast JM, Da Silva C, Cohen DN, Wang C, Sharda A, Yan N, Saha S, Schluter C, Schechter IA, Słabicki M, Sandoval B, Kahn J, Boettcher S, Gibson CJ, Scadden DT, Stegmaier K, Bhatt S, Lindsley RC, Ebert BL. **Blood**. 2023;142(24):2079-2091

The ETS transcription factor ETV6 constrains the transcriptional activity of EWS-FLI1 to promote Ewing sarcoma. Lu D, Ellegast JM, Ross KN, Malone CF, Lin S, Mabe NW, Dharia NV, Meyer A, Conway A, Selich-Anderson J, Taslim C, Byrum AK, Seong BKA, Adane B, Gray NS, Rivera MN, Lessnick SL, Stegmaier K. **Nature Cell Biol**. 2023 Feb;25(2):285-297.



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- Dr. Helena Stricker, Clinical research Fellow

Experimental GI Oncology

Keywords

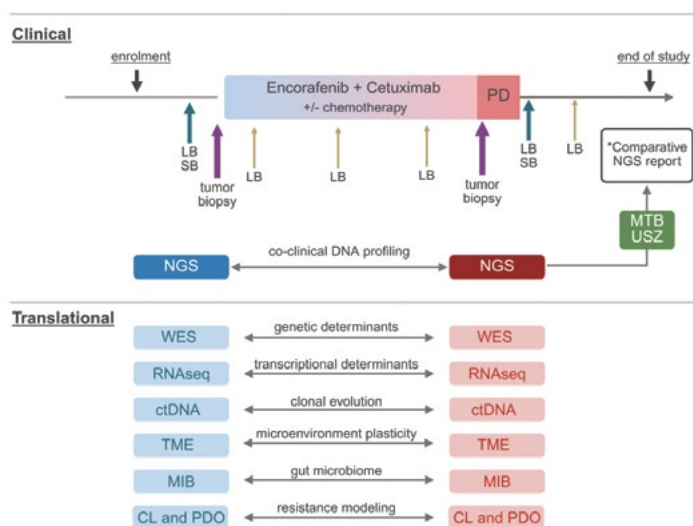
Gastrointestinal Cancer, Precision Treatment, Oncogenic Signalling, Organoid Modelling, Liquid Biopsya

Aims

- To improve oncogene targeting and to develop novel strategy to reverse acquired drug resistance in pancreatic and colorectal cancers.
- To advance precision treatment of gastrointestinal and hepatopancreatobiliary (HPB) tumors.
- To personalize systemic GI Cancer treatment through molecular response monitoring

Research Highlight

We designed, planned and organized PARTACER-Suisse, a prospective multicenter investigator-initiated prospective HRO chapter 2 multicenter study, enrolling patients undergoing molecularly targeted treatment with CE for BRAF V600E-mutated mCRC. PARTACER-Suisse is organized through Swiss Group for Clinical Cancer Research (SAKK, trial number 41-23). Recruitment commenced 11/2025.



PARTACER-Suisse: Schematic representation of the PARTACER-Suisse study workflow. The study prospectively enrolls patients with confirmed BRAF V600E-mutated mCRC prior to molecularly targeted treatment with cetuximab and encorafenib (CE), with or without chemotherapy. For the clinical part of the study, paired tissue and liquid samples are analyzed by targeted DNA NGS (Foundation Medicine platform), and a comparative research report is reported back to the recruiting site. For the translational part, tissue and liquid biopsies undergo comprehensive molecular analysis including gene expression profiling and multiple analysis of the tumor immune microenvironment. Patient-derived organoids (PDOs) established from pre- and post-treatment biopsies are exploited for treatment modelling in vitro, aiming to establish novel strategies to prevent, delay, modify or overcome acquired resistance. Abstract **SOHC**. 2023.

Selected Publications

RAF($\Delta\beta 3$ - αC) in-frame deletion mutants differ in their dimerization propensity, HSP90 dependence, and druggability. Lauinger, M., Christen, D., Klar, R. F. U., Roubaty, C., Heilig, C. E., Stumpe, M., Knox, J. J., Radulovich, N., Tamblyn, L., Xie, I. Y., Horak, P., Forscher, A., Bitzer, M., Wittel, U. A., Boerries, M., Ball, C. R., Heining, C., Glimm, H., Fröhlich, M., Hübschmann, D., Gallinger, S., Fritsch R., Fröhling, S., O’Kane, G. M., Dengjel, J. and Brummer, T. **Sci Adv**. 2023 Sep;9, eade7486.

A stratified two-stage tumor molecular profiling algorithm to identify clinically actionable molecular alterations in pancreatic cancer. Hussung S, Akhoundova D, Pistoni C, Lenggenhager D, Töpfer A, Pauli C, Pestalozzi B, Britschgi C, Zoche M, Rechsteiner M, Moch H, Weber A, Fritsch R. **ESMO Gastrointest Oncol**. 2025 Feb 10;7:100134.

A novel KRAS exon 2 drop-off digital PCR assay for mutation detection in cell-free DNA of cancer patients. Addamo-De Nard B, Geissmann M, Akhoundova D, Pistoni C, Brezina T, Zoche M, Weber A, Hussung S, Fritsch R. **Diagn Pathol**. 2025 May 24;20(1):62.

Ex vivo modeling of acquired drug resistance in BRAF - mutated pancreatic cancer organoids uncovers individual therapeutic vulnerabilities. Steiner S, Pliego-Mendieta A, Haberecker M, Hussung S, Kollár A, Fritsch R, Arnold F, Lenggenhager D, Planas-Paz L, Pauli C. **Cancer Lett**. 2024 Mar 1;584:216650.

Cancer Immunotherapy and Cell Engineering Lab

Keywords

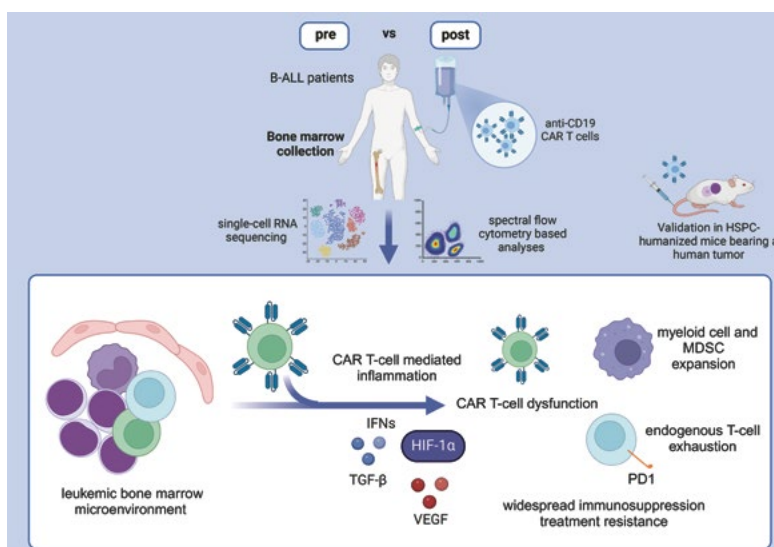
Cancer Immunotherapy, Gene Therapy, Hematological and solid tumors, Chimeric Antigen Receptor T cells, Cellular Therapy

Aims

Our research focuses aims to develop new cancer treatments by engineering a patient's own immune cells into a living drug. Specifically, we aim to apply non-viral engineering and gene editing to generate more potent CAR T cells by overcoming immune escape in the tumor microenvironment.

Research Highlight

Despite the success of CAR T-cell therapy, relapse and resistance remain major challenges, often linked to dysfunction of the immune response. In this study, we investigated how CAR T cells interact with the tumor microenvironment in patients with B-cell acute lymphoblastic leukemia. We found that CAR T-cell therapy reshapes the bone marrow into a hypoxic and immunosuppressive environment, driving myeloid suppression and T-cell exhaustion. Importantly, this dysfunction is clinically relevant, as patients with increased T-cell exhaustion show reduced durability of response. Hypoxia and VEGF-related pathways contribute to this process, and their modulation can partially restore CAR T-cell activity.



Schematic overview of the study design (upper panel) and main results (lower panel). Ponzo et al. *The Journal for ImmunoTherapy of Cancer*. 2025.

Selected Publications

Genetically engineered ErbB2 overexpression sensitizes organoid-derived tumors to checkpoint inhibition in a syngeneic model of gastric cancer. He J, Kirsche L, Nascakova Z, Manfredi F, Magnani CF, Papa G, Azizi F, Leary P, Müller A. *J Immunother Cancer*. 2026 Feb 11;14(2):e012976.

Co-editing of NKG2A and FAS increases long-term cytotoxic capacity and persistence of CAR NK cells. Mietz J, Egli L, Misiune M, Picozzi A, Coianiz N, Thompson D, Ponzo M, Charmey A, Bornhauser B, Magnani CF, Münz C, Chijioke O. *Mol Ther Oncol*. 2026 Jan 9;34(1):201126

Acquisition of an immunosuppressive microenvironment after anti-CD19 CAR T-cell therapy is associated with T-cell dysfunction and resistance. Ponzo M, Drufuca L, Buracchi C, Sindoni MM, Nucera S, Bugarin C, Bason R, Rossetti G, Bonnal R, Meli C, Rambaldi B, Lussana F, Ferrari S, Moretti A, Dastoli G, Risca G, Pellegrino C, Manz MG, Galimberti S, Rambaldi A, Gaipa G, Biondi A, Pagani M, Magnani CF. *J Immunother Cancer*. 2025 Oct 23;13(10):e011768.

Donor-derived CARCIK-CD19 cells engineered with Sleeping Beauty transposon in acute lymphoblastic leukemia relapsed after allogeneic transplantation. Lussana F, Magnani CF, Galimberti S, Gritti G, Gaipa G, Belotti D, Cabiati B, Napolitano S, Ferrari S, Moretti A, Buracchi C, Borleri GM, Rambaldi B, Rizzuto G, Grassi A, Paganessi M, Meli C, Tettamanti S, Risca G, Pais G, Spinozzi G, Benedicenti F, Cazzaniga G, Capelli C, Gotti E, Introna M, Golay J, Montini E, Balduzzi A, Valsecchi MG, Dastoli G, Rambaldi A, Biondi A. *Blood Cancer J*. 2025 Apr 3;15(1):54.

Efficient combinatorial adaptor-mediated targeting of acute myeloid leukemia with CAR T-cells. Volta L, Myburgh R, Pellegrino C, Koch C, Maurer M, Manfredi F, Hofstetter M, Kaiser A, Schneider F, Müller J, Buehler MM, De Luca R, Favalli N, Magnani CF, Schroeder T, Neri D, Manz MG. *Leukemia*. 2024 Dec;38(12):2598-2613.



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Our research is supported by the NCCR Children & cancer, Swiss National Science Foundation, Cancer League, Helmuth Horten Stiftung, C3Z lighthouse project, the San Salvatore Foundation, Cancer Research UK, AIRC.

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Funding

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- Laura Volta, PhD

Experimental Hematology and Immunology Lab

Keywords

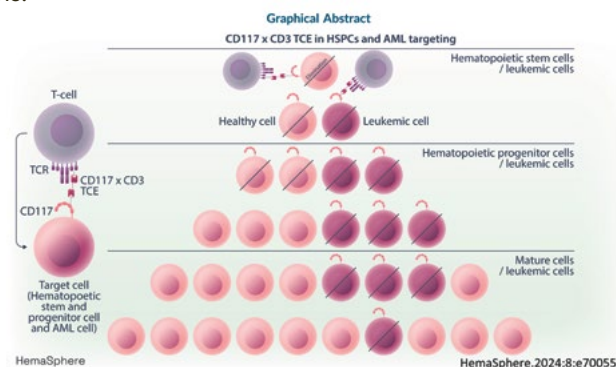
Hematopoietic Stem Cells, Hematopoiesis, Hematopoietic Ageing, Hematopoietic Stem Cell Malignancies/Leukemia, Immunotherapy of Cancer

Aims

Our research is focused on the biology of hematopoietic stem and progenitor cells, homeostasis of hematopoiesis in steady-state and under environmental stress, and the pathogenesis of hematopoietic stem and progenitor cell derived malignancies. Our goal is to develop innovative therapeutic strategies, including small molecules and engineered immunotherapies, to foster healthy aging and improve treatment outcomes for hematopoietic stem and progenitor cell derived diseases such as acute myeloid leukemia and myelodysplastic neoplasia.

Research Highlight

The laboratory has developed several immunotherapeutic approaches to fight hematopoietic stem cell diseases such as AML and MDS. Further, these approaches might be used for precise and selective hematopoietic stem cell depletion prior to allogeneic stem cell transplantation. Specifically, we generated CAR T-cells recognizing a tag (Fluorescein), which can be linked to multiple adaptors, binding to target cells. This allows on-off tuning of CAR T-cells, depending on the half-life of the tag. In addition, this allows to use multi-ple tagged binders in order to enhance on-target efficacy. Also, we generated bispecific T-cell engagers and activators, which engage the endogenous T-cell compartment against selected antigens.



Graphical Abstract showing CD117xCD3 TCE mediated elimination of HSCs and Leukemia Cells.

We generated a recombinant single-chain variable fragment-based bispecific T-cell engaging and activating antibody directed against CD3 on T-cells and CD117, the surface receptor for stem cell factor, expressed by both AML cells and healthy HSPCs. Bispecific CD117xCD3 targeting induced lysis of CD117-expressing healthy human HSPCs, AML cell lines and patient-derived AML blasts in the presence of T-cells at subnanomolar concentrations. Volta et al. **Hemasphere**. 2024.

Selected Publications

A single-chain variable fragment-based bispecific T-cell activating antibody against CD117 enables T-cell mediated lysis of acute myeloid leukemia and hematopoietic stem and progenitor cells. Volta L, Myburgh R, Hofstetter M, ..., Balabanov S, Nombela-Arrieta C, Schroeder T, Neri D, Manz MG. **Hemasphere**. 2024 Nov 19;8(11):e70055.

Clonal dynamics after allogeneic haematopoietic cell transplantation. Spencer Chapman M, Wilk CM, Boettcher S, Mitchell E, Dawson K, Williams N, Müller J, Kovtonyuk L, Jung H, Caiado F, Roberts K, O'Neill L, Kent DG, Green AR, Nangalia J, Manz MG, Campbell PJ. **Nature**. 2024 Nov;635(8040):926–934.

Peptide-guided adaptor-CAR T-Cell therapy for the treatment of SSTR2-expressing neuroendocrine tumors. Pellegrino C, Favalli N, Volta L, Benz R, Puglioli S, Bassi G, Zitzmann K, Auernhammer CJ, Nölting S, Magnani CF, Neri D, Beuschlein F, Manz MG. **Oncoimmunology**. 2024 Oct 3;13(1):2412371.

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Experimental Hematology Lab

Keywords

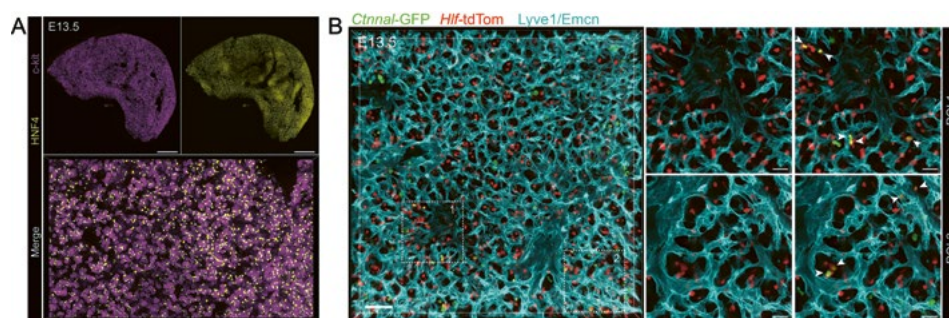
Hematopoiesis, Bone Marrow Microenvironment, Hematopoietic Stem Cell Niche, 3D imaging, Embryonic development, Malignancies

Aims

We aim to understand how the functional crosstalk of stromal, immune, and hematopoietic progenitor cells dynamically regulates hematopoiesis in throughout the entire lifespan and in pathological conditions. We have a special interest in defining how the tissue microenvironment of hematopoietic organs and hematopoietic stem cell niches are perturbed inflammatory settings, infections, ageing and cancer, and how these alterations lead to hematological diseases.

Research Highlight

We recently employed 3D quantitative imaging, spatial analyses, RNA-seq and novel genetically-modified mouse models to describe the spatiotemporal dynamics of the rapid opening and subsequent closure of stromal niches, which drive expansion of hematopoietic stem cells (HSCs) in the fetal liver. Our work demonstrated for the first time that hepatoblasts play a fundamental, transient and developmentally-timed role in fetal hematopoiesis by regulating Hematopoietic stem cell expansion and erythropoiesis through production of KIT ligand.



A. 3D image depicting the nuclei of highly abundant hepatoblasts (yellow) in close spatial association to c-kit+ hematopoietic progenitor cells (magenta) in murine fetal liver slices during mid-gestation (E14.5). **B.** Representative image used for tissue scale quantitative mapping of the distribution of Hematopoietic Stem Cells (yellow), which specifically and selectively express Ctnnbl1GFP and Hlf-tdTom reporter proteins. Vijaykumar et al. *Dev. Cell.* 2025.

Selected Publications

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Bone Marrow Niches for Hematopoietic Stem Cells. Pereira AL, Galli S, Nombela-Arrieta C. *Hemasphere.* 2024 Jul 31;8(8):e133.

Inducible CXCL12/CXCR4-dependent extramedullary hematopoietic niches in the adrenal gland. Schyrr F, Alonso-Calleja A, Vijaykumar A, Sordet-Dessimoz J, Gebhard S, Sarkis R, Bataclan C, Ferreira Lopes S, Oggier A, de Leval L, Nombela-Arrieta C, Naveiras O. *Blood.* 2024 Aug 29;144(9):964-976.

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Funding

Our research is supported by Swiss National Foundation, European Research Council Consolidator Grant program (ERC-CoG), Krebsforschung Schweiz, Clinical Research Priority Programs University of Zurich (CRPP), Novartis Foundation, Promedica Foundation, Krebsliga Zurich, Julius Muller Stiftung and San Salvatore Foundation.

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- Paul Büschl, PhD candidate
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Leukemia Research and Cellular Therapies Lab

Keywords

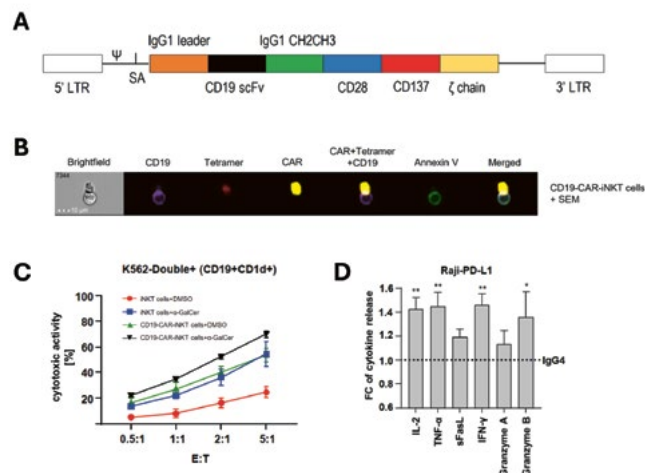
Leukemia, Gene Editing, Tumorbiology, Targeted Therapies, Cellular Therapies, Hematopoietic Cell Transplantation, Graft-versus-Host Disease

Aims

We aim to elucidate the mechanisms driving the malignant transformation of healthy hematopoietic stem and progenitor cells. Building on these insights, we develop novel targeted and immunotherapeutic strategies for the treatment of hematologic malignancies. A particular focus of our work is hematopoietic cell transplantation and its associated complications, including graft-versus-host disease.

Research Highlight

We developed a novel CD19–CAR–iNKT-cell construct to improve treatment of lymphoblastic malignancies.



(A) Scheme of the anti-CD19-CAR-CD28/CD137 construct. (B) ImageStream analysis demonstrates apoptosis induction of a B cell precursor leukemia cell line by CD19-CAR-iNKT cells. (C) CD19-directed CAR-iNKT cells show robust cytotoxicity against CD19+/CD1d+ target cells underscoring dual cytotoxicity through CAR signaling and invariant T-cell receptor engagement enabling leukemia cell lysis despite CD19 antigen loss. (D) Checkpoint inhibition further increases cytokine and effector molecule release by CD19-CAR-iNKT cells while alloreactive immune responses are prevented (not shown). This is of particular importance for the treatment of relapse after allogeneic hematopoietic cell transplantation. Moraes Ribeiro et al. **Journal of Immunotherapy of Cancer**. 2024.

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CD19-chimeric antigen receptor-invariant natural killer T cells transactivate NK cells and reduce alloreactivity. Wesle A, Moraes Ribeiro E, Schairer R, Keppeler H, Korkmaz F, Radszuweit P, Bieber K, Lengerke C, Schneidawind D, Schneidawind C. **Cytotherapy**. 2025 Jan;27(1):7–15.

Only Infant MLL-Rearranged Leukemia Is Susceptible to an Inhibition of Polo-like Kinase 1 (PLK-1) by Volasertib. Fischer J, Erkner E, Radszuweit P, Hentrich T, Keppeler H, Korkmaz F, Schulze-Hentrich J, Fitzel R, Lengerke C, Schneidawind D, Schneidawind C. **Int J Mol Sci**. 2024 Nov 27;25(23):12760.

B-cell maturation antigen-directed bispecific antibodies in plasmablastic lymphoma. Hofer KD, Wolfensberger N, Bachofner A, Schneidawind C, Stühler C, Bühler MM, Abela IA, Müller NJ, Zenz T, Manz MG, Rösler W, Khanna N, Schneidawind D. **Br J Haematol**. 2024 Aug;205(2):722–725.

Treatment response of advanced HNSCC towards immune checkpoint inhibition is associated with an activated effector memory T cell phenotype. Schumacher M, Beer S, Moraes Ribeiro E, Korkmaz F, Keppeler H, Fitzel R, Erkner E, Radszuweit P, Lengerke C, Schneidawind C, Hoefert S, Mauz PS, Schneidawind D. **Front Oncol**. 2024 Mar;14:1333640.

PD-1 checkpoint inhibition enhances the antilymphoma activity of CD19-CAR-iNKT cells that retain their ability to prevent alloreactivity. Moraes Ribeiro E, Secker KA, Nitulescu AM, Schairer R, Keppeler H, Wesle A, Schmid H, Schmitt A, Neuber B, Chmiest D, Podavini S, Märklin M, Klimovich B, Schmitt M, Korkmaz F, Lengerke C, Schneidawind C, Schneidawind D. **J Immunother Cancer**. 2024 Jan;12(1):e007829.

The RORγ/SREBP2 pathway is a master regulator of cholesterol metabolism and serves as potential therapeutic target in t(4;11) leukemia. Erkner E, Hentrich T, Schairer R, Fitzel R, Secker-Grob KA, Jeong J, Keppeler H, Korkmaz F, Schulze-Hentrich JM, Lengerke C, Schneidawind D, Schneidawind C. **Oncogene**. 2024 Jan;43(4):281–293.

Coagulation/Platelet Disorders

Keywords

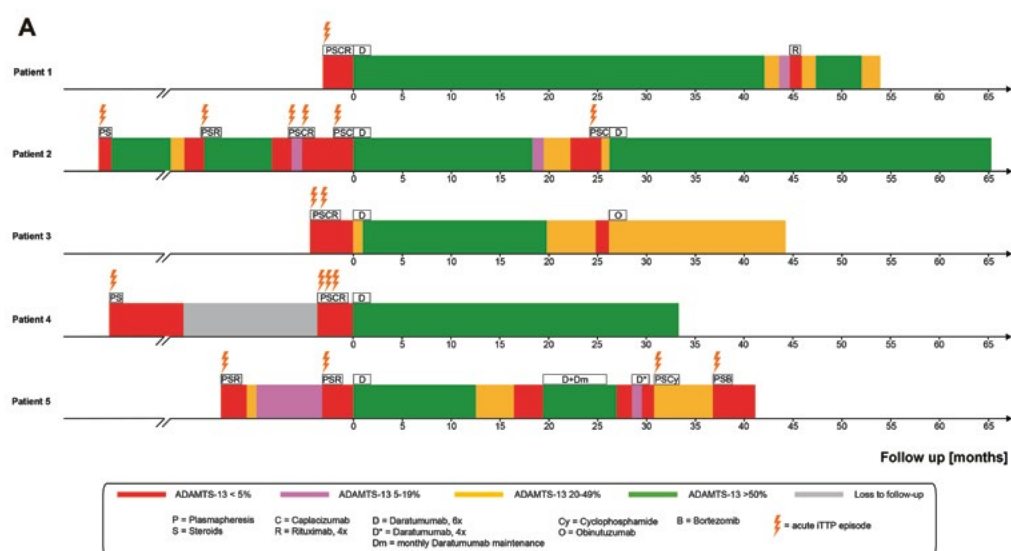
Thrombotic Microangiopathies/Thrombotic Thrombocytopenic Purpura (TTP), Heparin-Induced Thrombocytopenia (HIT), Direct Oral Anticoagulants (DOAC)

Aims

We aim to understand and advance (1) the treatment of refractory and relapsing immune thrombotic thrombocytopenic purpura (iTTP), (2) the perioperative bleeding risk associated with direct oral anticoagulants (DOAC), (3) the diagnosis and treatment of heparin-induced thrombocytopenia (HIT).

Research Highlight

Following our proof of concept in 2022 (Van den Berg J et al. *Blood Adv* 2022; 6: 993–7), we investigated a series of patients with refractory and relapsing iTTP treated with the anti-CD38 antibody daratumumab, with the longest follow-up to date of up to over 5 years. We observed rapid clearance of anti-ADAMTS13 autoantibodies and durable normalization of deficient ADAMTS13 activity following daratumumab in most patients. Our findings support daratumumab as an effective and well-tolerated therapeutic option for refractory and frequently relapsing iTTP.



Timeline of treatment regimens, daratumumab administration, a disintegrin and metalloproteinase with thrombospondin type 1 motif 13 (ADAMTS-13) responses, and subsequent therapies. ADAMTS-13 response is graphed using a color-coded scale. Specific treatments are denoted using single letter abbreviations where appropriate. Clinical thrombotic thrombocytopenic purpura episodes are represented graphically by lightning bolts. The predaratumumab time period is not to scale. Bor, bortezomib; C, caplacizumab; Cy, cyclophosphamide; D, daratumumab, 6 doses; Dm, monthly daratumumab maintenance; D*, daratumumab, 4 doses; O, obinutuzumab; P, therapeutic plasma exchange; R, rituximab; S, steroid. Schimmer et al. *Res Pract Thromb Haemost*. 2026.

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Daratumumab for relapsed and refractory immune thrombotic thrombocytopenic purpura: initial response and long-term follow up. Schimmer R, Van den Berg J, Schraner M, Trincherio A, Holbro A, Kremer Hovinga JA, Studt JD. *Res Pract Thromb Haemost*. 2026 Mar 4;10(2):103405.

Outcomes of patients with suspected heparin-induced thrombocytopenia in a contemporary multicenter cohort. Nilius H, Sinitisa E, Studt JD, Tsakiris DA, Greinacher A, Mendez A, Schmidt A, Willemin WA, Gerber B, Vishnu P, Graf L, Kremer Hovinga JA, Bakchoul T, Nagler M. *Blood Adv*. 2025 Nov 11;9(21):5546–5555.

The dynamic range of immunoassays for heparin-induced thrombocytopenia. Nilius H, Naas S, Studt JD, Tsakiris DA, Greinacher A, Mendez A, Schmidt A, Willemin WA, Gerber B, Vishnu P, Graf L, Kremer Hovinga JA, Bakchoul T, Nakas C, Nagler M. *J Thromb Haemost*. 2025 Feb;23(2):684–691.

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- Dinh-Van Vuong

Translational Hematology Lab

Keywords

Myeloproliferative Neoplasms, Acute Myeloid Leukemia, Macrophage Immune Checkpoints, CD47, JAK2, Calreticulin

Aims

We are interested in molecular mechanisms that contribute to myeloproliferative neoplasms and multiomics approaches that guide personalized therapy in myeloid diseases. Another area of interest is the role of macrophage immune checkpoints.

Research Highlight

The AML Tumor Profiler Study: Using deep single-cell multi-omic profiling, we analyzed 21 patients with relapsed/refractory acute myeloid leukemia (RR AML) by integrating ex vivo drug testing, DNA, RNA, protein, and clinical data. Patients previously treated with hypomethylating agents plus venetoclax showed reduced venetoclax sensitivity. The study identified known and novel resistance mechanisms, highlighted alternative therapies such as the PLK inhibitor volasertib, and linked high CD36 expression to sensitivity to CD36-targeted antibodies. This approach reveals resistance pathways and new treatment vulnerabilities in RR AML.

Cohort rAML	DNA	RNA	Protein	Spatial	Functional	
21 patients 31 patient visits 57 samples (blood, BM)	FOne scDNA	bkRNA scRNA	Proteotyping CyTOF	DigiPath	PCY, 4i DRP	bulk single-cell

Technologies used to investigate samples from patients with relapsed/refractory acute myeloid leukemia in the Tumor Profiler study. Wegmann et al. **Nat Commun.** 2024.

Selected Publications

Loss of SMAD1 in acute myeloid leukemia with KMT2A:AFF1 and KMT2A::MLLT3 fusion genes. Diet-sche L, Stirn K, Lysenko V, Schneidawind C, Tzankov A, Müller A, Theocharides A. **Front Oncol.** 2025 Jan 6;14:1481713.

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Experimental Oncology Lab

Keywords

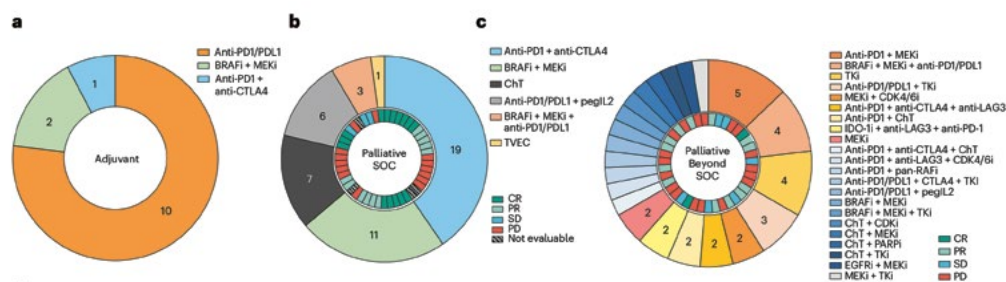
Oncology, Precision Medicine, Therapy Prediction with Novel AI-Based Approaches, Functional and Multi-Omics Testing

Aims

The Experimental Oncology Research Group has a focus on improving therapy outcomes in oncology by combining deep analysis of tumor tissue (functional & single cell –omics) with state-of-the-art data science. Using modern analytical platforms, several tens of thousands of tumor attributes can be assessed from a little piece of tissue within around two weeks. This significant technological progress has paved the way to make multi –omics approaches usable for individual therapy prediction in a clinical setting. By connecting deep biological profiling, large clinical databases (including Real World Data) and AI-based data analysis, modelling of therapy response and benefit is possible with unprecedented accuracy.

Research Highlight

The **Tumor Profiler (TP)** is an initiative to foster personalized oncology by expanding diagnostic possibilities through novel, cutting-edge biotechnological platforms that support clinical decision-making. Novel markers and readouts, including imaging of the tumor microenvironment, are analyzed in a fast diagnostic loop within clinically relevant turn-around time to provide a comprehensive understanding of the tumor biology and vulnerabilities. TP analyses inform therapy decisions in both the standard of care (when multiple treatment options are available) as well as beyond standard of care setting. Note the highly individualized TP-based therapies in the beyond standard of care setting (individual segments of the donut plot in the figure below).



a–c, Treatments applied in the adjuvant (n = 13) (**a**), palliative SOC (n = 47) (**b**) and beyond SOC (n = 39) (**c**) groups. Outer circle, therapies received; inner circle, best responses per patient categorized as CR (dark green), PR (light green), SD (light blue), PD (red) or not evaluable. Miglino et al. *Nat. Med.* 2025.

Selected Publications

Feasibility of multiomics tumor profiling for guiding treatment of melanoma. Miglino N, Toussaint NC, Ring A, Bonilla X, ..., Prummer M, Lischetti U; Tumor Profiler Consortium; Aebersold R, Bacac M, Maass G, Moch H, Weller M, Theodorides APA, Manz MG, Beerenwinkel N, Beisel C, Pelkmans L, Snijder B, Wollscheid B, Heinzelmann V, Bodenmiller B, Levesque MP, Koelzer VH, Rättsch G, Dummer R, Wicki A. *Nat. Med.* 2025 May 27;31(7):2430–24.

Comparative cost analysis of a diagnostic multi-omics platform for decision support in advanced cancer – results from the Tumor Profiler Melanoma project. Mehra T, Menges D, Gosztanyi B, Miglino N, Ring A, Boos L, Sobottka B; Tumor Profiler Consortium; Koelzer VH, Moch H, Toussaint NC, Levesque M, Ramelyte E, Mangana J, Dummer R, Wicki A. *NPJ Precis Oncol.* 2025 Dec 17;10(1):35.

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Towards scalable and cross-lingual specialist language models for oncology. Rohanian M, Mehra T, Miglino N, Nooralahzadeh F, Krauthammer M, Wicki A. *Sci Rep.* 2025 Oct 10;15(1):3548.



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- Sandra Kummer, Biomed. Analyst
- Weeda Mamozai, PhD candidate
- Marta Pinto, PhD
- Thi Huong Lan Do, PhD
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- Rosary Yao, PhD candidate

Lymphoma Research Lab

Keywords

Precision Medicine, CLL, Lymphoma, Drug Screening, Omics Profiling, Functional Genomics, Data Science, Single Cell Technology

Aims

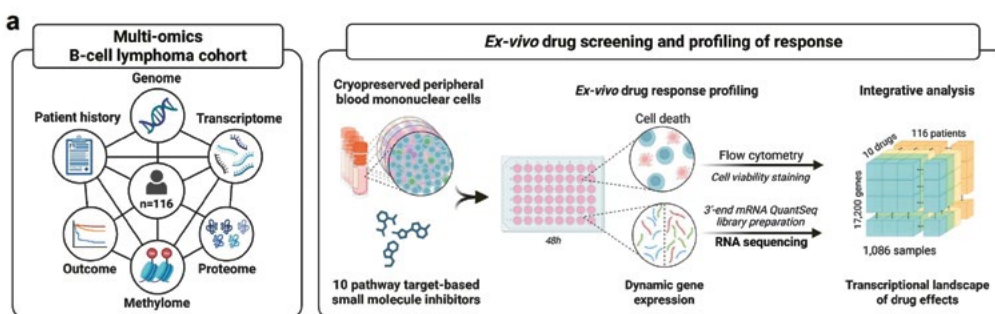
To develop rational and biology-based ways for patient benefit from advances in molecular understanding and targeted drug treatment, we pursue an innovative strategy based on the comprehensive mapping and understanding of individual cancers' vulnerability to compounds, pathway inhibitors and drugs as well as genome-wide silencing triggers (RNAi, CRISPR). We classify disease based on pathway sensitivity and the systematic understanding of underlying molecular networks on bulk and single-cell level.

An Important aspect in our work is to use technology to profile patient samples over time in patients with lymphoma to develop better ways to intervene rationally during the disease course. Many of the lab projects are delivered in cooperation with other groups (POLAR, INTERCEPT, INTERCEPT3.0).

Research Highlight

Mapping Pathway Connectivity in CLL Through Transcriptional Drug Perturbation

Cancer treatment relies on pathway inhibitors, but pathway dependencies vary between tumors. This study profiled transcriptional responses of 116 lymphoma patient samples exposed to ten drug perturbations to map pathway connectivity in chronic lymphocytic leukemia (CLL). BTK inhibition made the two major CLL subgroups (defined by IGHV mutation status) transcriptionally more similar, confirming that B-cell receptor (BCR) signaling drives their differences. Combined BTK and IRAK4 inhibition further strengthened this convergence, revealing cooperation between BCR and Toll-like receptor (TLR) signaling. The study also linked genetic alterations—including TP53, BRAF, del(17p), del(15q), and trisomy 12—to distinct drug-response patterns, with IRAK4 inhibition showing particular activity in trisomy 12 CLL. Why it matters: Functional drug perturbation combined with transcriptomics can map pathway interactions and reveal mechanisms that support the development of more rational combination therapies.



Experimental Design

Selected Publications

BCL-2 dependence is a favorable predictive marker of response to therapy for chronic lymphocytic leukemia. Chong SJF, Lu J, Valentin R, ..., Huber W, Zenz T, Davids MS. *Mol Cancer*. 2025 Mar 3;24(1):62.

IAP dependency of T-cell prolymphocytic leukemia identified by high-throughput drug screening. Pohly MF, Putzker K, Scheinost S, Ben Taarit L, ..., Lu J, Huber W, Zenz T. *Blood*. 2025 May 15;145(20):2336-235.

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Fluctuating DNA methylation tracks cancer evolution at clinical scale. Gabbutt C, Duran-Ferrer M, Grant HE, ..., Zenz T, ..., Shibata D, Martin-Subero JI, Graham TA. *Nature*. 2025 Sep;645(8081):764-773.

Cancer pathway connectivity resolved by drug perturbation and RNA sequencing. Thi Huong LD, Lohoff C, Jung F, Kummer S, Pohly MF, Scheinost S, Jennifer Huellein, Benes V, Huber W, Junyan Lu, Zenz T. *bioRxiv*. 2025.12.11.692401.



12 Awards and Fellowships

Awards 2024 Congratulations to:

César Nombela Arrieta – for receiving a competitive Swiss Cancer League grant, entitled "Inflammation-driven remodelling of the bone marrow microenvironment in the pathogenesis of acute myeloid leukemia."

Dominik Schneidawind, Wieble Rösler and co-workers – for receiving a competitive Swiss Cancer League grant, entitled "Evaluation of pragmatic geriatric assessment for the prediction of toxicity and outcomes in older patients scheduled for chimeric antigen receptor T-cell therapy or bispecific antibody therapy."

Corina Schneidawind – for receiving a competitive Gileat/Kite grant on "Human CRISPR/Cas9 leukemia platforms to transit molecular-guided treatment strategies from proof-of-concept to clinical routine."

Tobias Benoit & Jeremy Deuel – for receiving the Candy Heberlein Award 2024 for their winning projects entitled: "Isoagglutinin-medierte Zytopenien im Kontext zellulärer Therapien" and "REDEFINE – Eine Innovative klinische Studie zur nicht-invasiven Früherkennung invasiver Pilzerkrankungen."

Stefanie Kreutmair & Steffen Böttcher – for receiving the Research Grant 2024 from the Jacques and Gloria Gossweiler Grants for their winning projects entitled "Distinct Immune landscapes in NPM1C acute amyloid

leukemia" and "From clonal hematopoiesis to Therapy – related myeloid neoplasms."

Kevin Hofer & Jeremy Deuel – for receiving competitive funding from the Sassella Foundation for the project entitled "The Role of Occult Bacterial Infections in Driving B Cell Lymphomagenesis."

Jana Ellegast – for receiving an SNSF Starting Grant for her proposal "Exploiting Inflammatory Signaling in Acute Myeloid Leukemia."

Stefanie Kreutmair – for receiving the competitive Jacques and Gloria Gossweiler Foundation Research Grant 2024 for her project "Distinct Immune Landscapes in NPM1c Acute Myeloid Leukemia."

Max Rieger and Rahel Schwotzer – for receiving competitive funding from the Mach-Gaensslen Foundation for the project entitled "Neurofilament light chains as a biomarker of peripheral nervous system damage in systemic amyloidosis"

Steffen Böttcher – for receiving the competitive Jacques and Gloria Gossweiler Foundation Research Grant 2024 for his project "From Clonal Hematopoiesis to Therapy-related Myeloid Neoplasms."

Steffen Böttcher & Niko Beerenwinkel – who have been awarded a grant from the ETH Zurich Lymphoma Challenge, with the title: "Hematopoietic stem and progenitor cells –

developmental pathways of cells during the development of TP53-mutated leukemia: from pathobiology to clinical application."

Ralph Fritsch & collaborators – for receiving highly competitive SNF funding for their project on mechanisms of acquired resistance in BRAF mutated colorectal cancer.

Dominik & Chiara Magnani (with collaborators Berend Snijder, Burkhard Becher, Dario Neri and Markus G. Manz) – for receiving a highly competitive 4-year project grant from the Helmut Horten Foundation.

Six USZ departments – amongst them MOH – were ranked as Switzerland's leading specialist departments in the *Newsweek* ranking *World's Best Specialized Hospitals*, highlighting the outstanding quality of care at USZ.

Awards 2025

Congratulations to:

Saskia Hussung & Ralph Fritsch – for receiving a competitive grant from the Krebsliga Zürich, entitled "Molecular Monitoring and Response Prediction in Pancreatic Cancer."

Dominik Schneidawind – for the funding of the project "CD19-Mediated Inverse Signal Transduction Following CAR T-Cell Therapy" by the Iten-Kohaut Foundation.

Jana Ellegast – for receiving the 2025 Götz-Prize for her work on "Unleashing cell-intrinsic inflammation as a strategy to kill AML blasts."

Andreas Flammer (Cardiology) and Rahel Schwotzer – for receiving competitive funding from the SNF for the project on proteotoxic effect of circulating amyloidogenic proteins on the vasculature in patients with amyloidosis.

Olivia Hoffmann – for receiving the Thesis-Semsterpreis for «BlastenBlaster – Ein interaktives Lernprogramm für die Hämatologie».

Thorsten Zenz – for receiving the highly esteemed Ellermann-Award 2025 of SGH-SSH.

Fellowships 2024/2025

Congratulations to:

Tharshika Thavayogarajah – for receiving a highly competitive two-year fellowship from the Swiss Cancer League, supporting a post-doctoral stay in Boston, starting September 2025.

Stefanie Kreutmair – for being selected for the EHA-ASH TRTH (Translational Research Training in Hematology) program in 2024 and for receiving a FAN Academic Excellence Fellowship.

Sebastian Stolz – for receiving a scholarship from the Vontobel Foundation (2026) to support translational research on CAR T-cell therapies for multiple myeloma.

Teresa Olbrich – for receiving competitive «Filling the Gap» funding (2026–2027) for the project "Targeting P2RX4 and DUX4 in Multiple Myeloma: Exploring New Avenues for Treatment."

Cosima Suter – for receiving competitive «Filling the Gap» funding (2026–2027) for the project "Women at risk for HPA-1a-alloimmunisation and Foetal and Neonatal Alloimmune Thrombocytopenia (FNAIT) – a prospective cohort study on a risk-adapted counselling and management."

Emanuel Rom – for receiving a Jacques and Gloria Gossweiler Fellowship 2025 on "Inflammatory Inhibition in Acute Myeloid Leukemia."

Five MOH emerging talents secured CCCZ Fellowships within the frame of the 2024 and 2025 calls: **Julia Trepl** (2025), **Sebastian Stolz** (2025), **Krithika Rajeeth** (2025–2026), **Emanuel Rom** (2026) and **Chiara Brandas** (2026).

13 Publications

2024

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14 Team

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