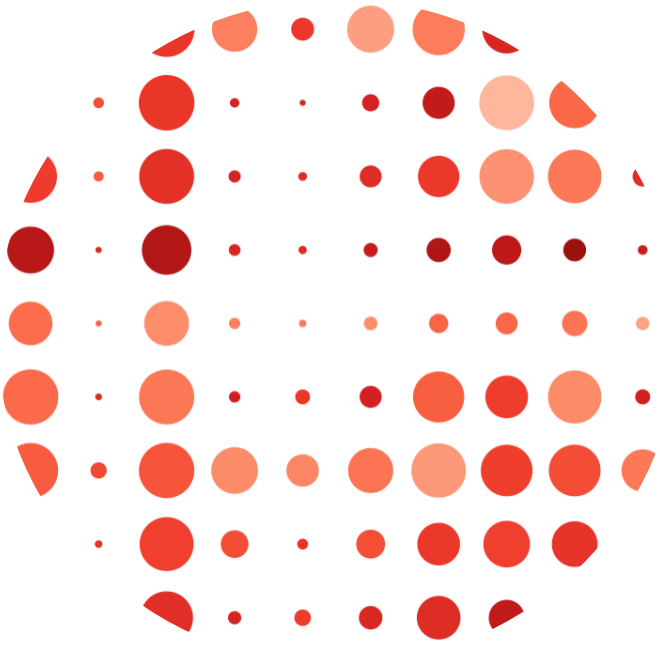

Functional Precision Medicine for Blood Cancer Workshop and Symposium 2022

5th - 7th September 2022
Marina Congress Center
Helsinki, Finland

Program

Program committee:

Jean-Pierre Bourquin, Zürich
Caroline Heckman, Helsinki
Satu Mustjoki, Helsinki
Kimmo Porkka, Helsinki
Sigrid Skånland, Oslo
Berend Snijder, Zürich
Philipp Staber, Vienna
Krister Wennerberg, Copenhagen
Thorsten Zenz, Zürich

Local organisers:

University of Helsinki
Institute for Molecular Medicine, Finland (FIMM)
HUS Helsinki University Hospital

Symposium program

6th September 2022

8.00-9.00 Registration, coffee

9.00-9.20 Welcome

Symposium chairs and sponsors

9.20-10.10 Keynote lecture

Ravi Majeti (Stanford University, USA): "Precision Medicine in Human AML"

Session 1: Functional precision medicine in clinical trials

Chairs: Sirpa Leppä (HUS; University of Helsinki, Finland), Kjetil Taskén (Oslo University Hospital, Norway)

10.10-10.30 Pamela Becker (City of Hope, USA): "High Throughput Drug Screens in Clinical Trials for Hematologic Malignancies: Correlations with Molecular Data"

10.30-10.50 Philipp Staber (Medical University Vienna, Austria): "How to deliver functional precision medicine to patients with blood cancers"

10.50-11.10 Mika Kontro (HUS; FIMM; University of Helsinki, Finland): "Predictive value of ex vivo sensitivity testing of venetoclax in AML: Interim results from the prospective Venex trial"

11.10-11.20 Alexander Waclawiczek (German Cancer Research Center, Germany): "Flow cytometry-based combinatorial BCL-2 family expression in Acute Myeloid Leukemia Stem Cells predicts clinical response to Venetoclax and other BH3-mimetics"

11.20-11.40 Break

Session 2: Functional precision medicine for pediatric disease

Chairs: Jean Pierre Bourquin (University Children's Hospital Zürich, Switzerland), Vilja Pietiäinen (University of Helsinki, Finland)

11.40-12.00 Jun Yang (St. Jude Children's Research Hospital, USA): "Pharmacotypes across the genomic landscape of pediatric ALL"

12.00-12.20 Yana Pikman (Harvard University, USA): "Precision medicine for pediatric acute leukemia"

12.20-12.40 Olli Lohi (Tampere University, Finland): "Combination therapies to inhibit LCK tyrosine kinase and mTOR signaling in T-acute leukemia"

12.40-12.50 Merja Heinäniemi (University of Eastern Finland, Finland): "Mechanistic study of Wee1 kinase inhibition with AZD1775 exposes drug targetable vulnerabilities in acute B-lymphoblastic leukemia"

12:50-13:30 Lunch

Session 3: Functional precision medicine for acute leukemia

Chairs: Krister Wennerberg (BRIC, University of Copenhagen, Denmark), Mika Kontro (HUS; FIMM; University of Helsinki, Finland)

13.30-13.50 Bjørn Tore Gjertsen (University of Bergen, Norway): "Single cell signaling profiling in early response evaluation of myeloid leukemia"

13.50-14.10 Eva Szegezdi (National University of Ireland, Galway, Ireland): "Cell-cell interactome alterations of the marrow microenvironment in acute myeloid leukemia"

14.10-14.30 Lars Bullinger (Charité, Germany): "Big Data for Better Outcomes (BD4DO) – AML leads the way in HARMONY"

14.30-14.40 Joseph Saad (University of Helsinki; FIMM, Finland): "Monosomy 7 and del(7q) Cause Selective Sensitivity to Inhibitors of Nicotinamide Phosphoribosyltransferase in Acute Myeloid Leukemia"

Session 4: Functional precision medicine for myeloma

Chairs: Caroline Heckman (University of Helsinki, Finland), Raija Silvennoinen (HUS; University of Helsinki, Finland)

14:40-15:00 Lawrence Boise (Emory University, USA): "Functional and phenotypic approaches to predict responses to venetoclax in multiple myeloma"

15:00-15.20 Klara Kropivsek (ETH Zürich, Switzerland): "A single-cell functional precision medicine landscape of multiple myeloma"

15.20-15.40 Jan Krönke (Charité, Germany): "Proteogenomics analyses for the identification of resistance mechanisms and therapeutic targets in multiple myeloma"

15.40-16:00 Katie Dunphy (Maynooth University, Ireland): "Understanding extramedullary multiple myeloma using quantitative proteomics"

16:00-16.10 Break

Session 5: Functional precision medicine for lymphoma

Chairs: Sigrid Skånland (Oslo University Hospital), Thorsten Zenz (University Hospital Zürich, Switzerland)

16.10-16.30 Sascha Dietrich (Medical University Heidelberg, Germany): "Ex-vivo modelling of drug response in B-cell lymphoma"

16.30-17.00 Tea Pemovska (Medical University Vienna, Austria): "Functional precision medicine of T-cell malignancies"

17.00-17.20 Carsten Niemann (Rigshospitalet, Denmark): "Development and implementation of the CLL-TIM model for infection and treatment need into a clinical trial with direct implementation into an Electronic Health Record system"

17.20-17.30 Petra Nygren (University of Helsinki, Finland): "High-throughput evaluation of the potential of cancer drugs to enhance natural killer cell cytotoxicity in hematological malignancies"

17.30-19.00 Poster and networking session

19:00- Dinner and social program

7th September 2022

8.00-9.00 Registration, coffee

9.00-9.40 Keynote lecture

Anthony Letai (Harvard University, USA): "Personalizing cancer therapy with BH3 profiling"

Session 6: Immunotherapy/immunoprofiling

Chairs: Satu Mustjoki (HUS; University of Helsinki, Finland), Markus Vähä-Koskela (University of Helsinki, Finland)

9.40-10.00 Evren Alici (Karolinska Institutet, Sweden): "Strategies to restore and sustain natural killer cell function in hematological malignancies"

10.00-10.20 Olli Dufva (University of Helsinki, Finland): "Single-cell functional genomics of natural killer cell evasion in blood cancers"

10.20-10.30 Sofia Aakko (Faron Pharmaceuticals, Finland): "Ex vivo immune activation with the macrophage-targeting immunotherapy, anti-Clever-1 antibody bexmarilimab, in acute myeloid leukemia and myelodysplastic syndrome"

10.30-11.00 Break

Session 7: New technologies for functional precision medicine

Chair: Tero Aittokallio (University of Oslo, Norway), Heikki Kuusanmäki (University of Helsinki, Finland)

11.00-11.20 Ido Amit (Weizmann Institute, Israel): "Single-cell immunology: past, present and future"

11.20-11.40 Bo Porse (BRIC, University of Copenhagen, Denmark): "Single cell proteomics to assess human hematopoiesis"

11.40-12.00 Janne Lehtiö (Karolinska Institutet, Sweden): "Proteogenomics -Connecting cancer genotype and molecular phenotype for precision medicine"

12.00-12.10 Arjen Gebraad (Tampere University, Finland): "Bone Marrow and Adipose Tissue Stem/Stromal Cells as Pericytes Generate Distinct Vascular Phenotypes"

12.10-12.50 Lunch

Session 8: Data analytics, AI/ML, big data for precision medicine

Chairs: Berend Snijder (ETH Zürich, Switzerland), Merja Heinäniemi (University of Eastern Finland, Finland)

12.50-13.10 Olli Kallioniemi (Karolinska Institutet, Sweden): "Functional and data-driven molecular precision medicine in AML"

13.10-13.30 Janghee Woo (Novartis Institute for Biomedical Research, USA): "Mechanisms of action of IL-1β blockade in anemia and clonal hematopoiesis. An Exploratory Analysis of the CANTOS Randomized Clinical Trial with 13776 proteomes and 3413 human genomes"

13.30-13.50 Ilya Shmulevich (Institute of Systems Biology, USA): "Towards Building the AML Digital Twin"

13.50-14.00 Imre Västrik (Institute for Molecular Medicine Finland – FIMM, Finland): "Functional precision medicine data platform"

14.00-14.50 Panel discussion: Bringing functional precision medicine to the clinic

Moderator: Kimmo Porkka (HUS; University of Helsinki, Finland)

Anthony Letai (Harvard University, USA), Kjetil Taskén (University of Oslo, Norway), Olli Kallioniemi (Karolinska Institutet, Sweden), Nikolaus Krall (Exscientia, U.K.), Celine Pallaud (Novartis, Switzerland), Sara (Suomen Syöpäpotilaat ry - Association of Cancer Patients in Finland).

14.50-15.00 Closing words

Symposium chairs

Abstracts

Abstracts selected for oral presentations:

- Sofia Aakko (Faron Pharmaceuticals, Finland): "Ex vivo immune activation with the macrophage-targeting immunotherapy, anti-Clever-1 antibody bexmarilimab, in acute myeloid leukemia and myelodysplastic syndrome"
- Katie Dunphy (Maynooth University, Ireland): "Understanding extramedullary multiple myeloma using quantitative proteomics"
- Arjen Gebraad (Tampere University, Finland): "Bone Marrow and Adipose Tissue Stem/Stromal Cells as Pericytes Generate Distinct Vascular Phenotypes"
- Merja Heinäniemi (University of Eastern Finland, Finland): "Mechanistic study of Wee1 kinase inhibition with AZD1775 exposes drug targetable vulnerabilities in acute B-lymphoblastic leukemia"
- Petra Nygren (University Of Helsinki, Finland): "High-throughput evaluation of the potential of cancer drugs to enhance natural killer cell cytotoxicity in hematological malignancies"
- Joseph Saad (Institute for Molecular Medicine Finland - FIMM, Helsinki Institute of Life Science - HiLIFE, University of Helsinki): "Monosomy 7 and del(7q) Cause Selective Sensitivity to Inhibitors of Nicotinamide Phosphoribosyltransferase in Acute Myeloid Leukemia"
- Imre Västrik (Institute for Molecular Medicine Finland – FIMM, Finland): "Functional precision medicine data platform"
- Alexander Waclawiczek (German Cancer Research Center, Germany): "Flow cytometry-based combinatorial BCL-2 family expression in Acute Myeloid Leukemia Stem Cells predicts clinical response to Venetoclax and other BH3-mimetics"

Abstracts selected for poster presentation:

- Sadiksha Adhikari (University of Helsinki, Finland): "CYLD as a biomarker for resistance to immunomodulatory treatments in multiple myeloma"
- Andres Blanco (University of Pennsylvania, United States): "Targeting epigenetic regulators to override cellular identity programs and induce therapeutic differentiation in MLL-rearranged acute myeloid leukemia"

- Kieran Brennan (University College Dublin, Ireland): "Multiple Myeloma Plasma Extracellular Vesicles from patients treated with Daratumumab show elevated levels of complement inhibitory proteins CD55 and CD59"
- Anthony Brown (St. Jude Children's Research Hospital, United States): "Development of an Imaging-based Platform for Ex Vivo Drug Sensitivity Testing of Acute Lymphoblastic Leukemia"
- Sheila Burns (ThinkCyte, United States): "Characterization and isolation of immune cells using Ghost Cytometry, a novel label-free, AI-based flow cytometry technology"
- Anna Dolnik (Charité University Medicine Berlin, Germany): "Combined CRISPR-Cas9 targeted enrichment and whole genome sequencing profiling allows real time stratification of acute myeloid leukemia (AML)"
- Hanna Duàn (University of Helsinki, Finland): "Ex vivo modeling of NK cell immunotherapy response in acute myeloid leukemia using single-cell transcriptomics"
- Kat Ginda-Mäkelä (Applied Cells Inc., United States): "A New Approach for High Recovery and Purity Isolation of Plasma Cells from Whole Blood and Bone Marrow"
- Konstantin Ivanov (University of Eastern Finland, Finland): "Deep variational autoencoder modeling of multimodal single-cell data resolves molecular fingerprints of pre-leukemic states"
- Niveditha Umesh Katyayini (Oslo universitetssykehus - Norwegian Radium Hospital, Norway): "The LD-VenEx phase II clinical trial: An ex vivo flow cytometry based-drug screening of AML patient samples"
- Elmira Khabusheva (University of Helsinki, Finland): "HDAC inhibitors resensitize AML cells to the BCL-2 and BCL-2/BCL-xL inhibitors venetoclax and navitoclax"
- Olga Krali (Uppsala University, Sweden): "A multiscale machine learning approach for molecular subtype determination of pediatric acute lymphoblastic leukemia"
- Romika Kumari (Institute for Molecular Medicine Finland, Finland): "CD8+ effector and memory T-cells are associated with venetoclax sensitivity in acute myeloid leukemia"
- Adriana Ladungova (CEITEC, Masaryk University, Czech Republic): "Prediction of novel treatment options for venetoclax-resistant AML cells based on drug repurposing"
- Mari Lahnalampi (University of Eastern Finland, Finland): "Dynamic evolution of TCF3-PBX1 leukemias at the single-cell level under chemotherapy pressure"
- Timofey Lebedev (Engelhardt Institute of Molecular Biology, Russian Federation): "Prediction of novel drug targets for pediatric acute leukemias by combining transcriptome, gene fitness and drug action data"
- Alina Malyutina (University of Helsinki, Finland): "Multi-omics data integration reveals molecular targets of carfilzomib resistance in multiple myeloma"
- Mehdi Mirzaie (University of Helsinki, Finland): "Drug combinations for acute myeloid leukemia"
- Laura Oksa (Tampere University, Finland): "Genomic Determinants of Therapy Response in Etv6-Runx1 Leukemia"
- Jani Saarela (University of Helsinki / FIMM,Finland): "Ex vivo Drug Sensitivity Testing of Primary Cells for Functional Precision Medicine"
- Philipp Sergeev (FIMM, Finland): "Single Cell RNA Sequencing Identifies Potential Molecular Indicators of Response to Melflufen in Multiple Myeloma"
- Rebecca Sheridan (University College Dublin, Ireland): "Analysis of Multiple Myeloma Extracellular Vesicles uptake by bone marrow microenvironment cells and characterisation downstream cytokine release"

- Ankita Srivastava (University of Helsinki, Finland): “Deciphering plasma cell heterogeneity and tumor microenvironment in light-chain amyloidosis using single cell RNA-sequencing”
- Nona Struyf (Karolinska Institute, Sweden): “Comparison of data from fresh and frozen AML samples for functional drug testing”
- Silja Tammi (Finnish Red Cross Blood Service , Finland): “Finnish Hematology Registry and Biobank (FHRB): a national population-based comprehensive biobank resource for hematological research”
- Sylvain Tollis (University of Eastern Finland, Finland): “Towards a mechanistic understanding of cell-cycle rewiring during hematopoietic differentiation: insight from single cell transcriptomics and quantitative live-cell imaging”
- Dimitrios Tsallos (Institute For Molecular Medicine Finland – FIMM,Finland): “Resistance to the proteasome inhibitor bortezomib is associated with a gain in sensitivity to BCL-xL inhibition in multiple myeloma”
- Tania Vu (Knight Cancer Institute, Oregon Health and Science University, United States): "Evaluating Immune-Oncology-Small Molecule Drug Responsesin Individual AML Patients by Single Cell Functional Precision Imaging"

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