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## Information om forskning och undervisning

My current work at FIMM is focused on understanding the mechanisms of pathogenesis and drug resistance in hematological malignancies, more specifically in multiple myeloma (MM) and acute myeloid leukemia (AML). This research requires the combination of high throughput drug sensitivity and resistance testing, NGS, and quantitative proteomics. Aims of the work are to identify new treatment strategies for patients with recurrent disease, identify new biomarkers for treatment response, and to develop new methods for patient stratification.

## !!Qualifications

Biochemistry, Doctor of Philosophy, Activation of innate immune response in human macrophages by Herpes simplex virus-1 and crystallized monosodium urate (Väitöskirja), Bio- och miljövetenskapliga fakulteten

1 jan. 2009 → 23 jan. 2015

Tilldelningsdatum: 23 jan. 2015

Biochemistry, Master of Science, Signal transduction by angiopoietin-TEK complexes in endothelial cells (Pro gradu), Bio- och miljövetenskapliga fakulteten

1 aug. 2003 → 18 juni 2008

Tilldelningsdatum: 18 juni 2008

PhD student / Research scientist, Institutet för bioteknik

15 sep. 2008 → 30 apr. 2015

Undergraduate student / Research assistant, Pro gradu-työ

1 juni 2003 → 1 aug. 2007

University studies in biology and biochemistry, University of Eastern Finland (UEF)

15 aug. 2000 → 31 juli 2003

## Publikationer

### Designing patient-oriented combination therapies for acute myeloid leukemia based on efficacy/toxicity integration and bipartite network modeling

Mirzaie, M., Gholizadeh, E., Miettinen, J., Ianevski, F., Ruokoranta, T., Saarela, J., Manninen, M., Miettinen, S., Heckman, C. & Jafari, M., 1 mars 2024, I: Oncogenesis. 13, 1

### Robust scoring of selective drug responses for patient-tailored therapy selection

Chen, Y., He, L., Ayuda-Duran, P., Potdar, S., Saarela, J., Miettinen, J. J., Kyttälä, S., Miettinen, S., Manninen, M., Heckman, C. A., Enserink, J. M., Wennerberg, K. & Aittokallio, T., nov. 2023, I: Nature Protocols. 30 s.

### Proteomic and Metabolomic Analysis of Bone Marrow and Plasma from Patients with Extramedullary Multiple Myeloma Identifies Distinct Protein and Metabolite Signatures

Dunphy, K., Bazou, D., Henry, M., Meleady, P., Miettinen, J. J., Heckman, C. A., Dowling, P. & O'Gorman, P., aug. 2023, I: Cancers. 15, 15, 25 s., 3764.

### Erythroid/megakaryocytic differentiation confers BCL-XL dependency and venetoclax resistance in acute myeloid leukemia

Kuusanmäki, H., Dufva, O., Vähä-Koskela, M., Leppä, A-M., Huuhkanen, J., Vänttinen, I., Nygren, P., Klievink, J., Bouhla, J., Pölönen, P., Zhang, Q., Adnan-Awad, S., Mancebo-Pérez, C., Saad, J., Miettinen, J., Javarappa, K. K., Aakko, S., Ruokoranta, T., Eldfors, S., Heinäniemi, M., & 9 andra Theilgaard-Mönch, K., Wartiovaara-Kautto, U., Keränen, M., Porkka, K., Konopleva, M., Wennerberg, K., Kontro, M., Heckman, C. A. & Mustjoki, S., 30 mars 2023, I: Blood. 141, 13, s. 1610-1625 16 s.

**Integrative phosphoproteomics defines two biologically distinct groups of KMT2A rearranged acute myeloid leukaemia with different drug response phenotypes**

Casado-Izquierdo, P., Rio-Machin, A., Miettinen, J. J., Bewicke-Copley, F., Rouault-Pierre, K., Krizsán, S., Parsons, A., Rajeeve, V., Miraki-Moud, F., Taussig, D., Bödör, C., Gribben, J., Heckman, C., Fitzgibbon, J. & Cutillas, P. R., 27 feb. 2023, I: Signal Transduction and Targeted Therapy. 8, 1, 14 s., 80.

**P-374: Stratifying Multiple Myeloma Patients for Personalized Therapy Based on TP53 Mutation, Deletion, and Drug Response Profiles**

Tsallos, D., Ikonen, N., Miettinen, J., Majumder, MM., Eldfors, S., Parsons, A. O., Suvela, M., Dowling, P., Bazou, D., O'Gorman, P., Lievonen, J., Silvennoinen, R., Anttila, P. & Heckman, C., 2023, s. S246-S246. 1 s.

**A Potential Role of NK Cells and ABCB9 in Modulating the Response to Melflufen in Multiple Myeloma**

Sergeev, P., Adhikari, S., Miettinen, J. J., Huppunen, M-E., Suvela, M., Slipicevic, A., Nupponen, N. N., Acs, K., Lehmann, F. & Heckman, C. A., nov. 2022, s. 6000–6001. 2 s.

**The Novel Peptide Drug Conjugate OPDC3 Is Highly Active in Different Hematological Malignancies**

Miettinen, J., Ruokoranta, T., Ikonen, V. K., Huppunen, M-E. A., Acs, K., Lehmann, F. & Heckman, C., nov. 2022, I: Blood. 140, Supplement 1, s. 10697–10698 2 s.

**CKS1 inhibition depletes leukemic stem cells and protects healthy hematopoietic stem cells in acute myeloid leukemia**

Grey, W., Rio-Machin, A., Casado, P., Gronroos, E., Ali, S., Miettinen, J. J., Bewicke-Copley, F., Parsons, A., Heckman, C. A., Swanton, C., Cutillas, P. R., Gribben, J., Fitzgibbon, J. & Bonnet, D., 22 juni 2022, I: Science translational medicine. 14, 650, 14 s., 3248.

**Growth Response and Differentiation of Bone Marrow-Derived Mesenchymal Stem/Stromal Cells in the Presence of Novel Multiple Myeloma Drug Melflufen**

Gebraad, A., Ohlsbom, R., Miettinen, J. J., Emeh, P., Pakarinen, T-K., Manninen, M., Eskelinen, A., Kuismanen, K., Slipicevic, A., Lehmann, F., Nupponen, N. N., Heckman, C. A. & Miettinen, S., maj 2022, I: Cells. 11, 9, 22 s., 1574.

**The Peptide–Drug Conjugate Melflufen Modulates the Unfolded Protein Response of Multiple Myeloma and Amyloidogenic Plasma Cells and Induces Cell Death**

Flanagan, K., Kumari, R., Miettinen, J., Haney, S. L., Varney, M. L., Williams, J. T., Majumder, M. M., Suvela, M., Slipicevic, A., Lehmann, F., Nupponen, N. N., Holstein, S. A. & Heckman, C., mars 2022, I: HemaspHERE. 6, 3, s. e687 9 s., 687.

**Identification of Protein Biomarker Signatures for Acute Myeloid Leukemia (AML) Using Both Nontargeted and Targeted Approaches**

Dowling, P., Tierney, C., Dunphy, K., Miettinen, J. J., Heckman, C. A., Bazou, D. & O'Gorman, P., dec. 2021, I: Proteomes. 9, 4, 20 s., 42.

**Heterogeneous modulation of Bcl-2 family members and drug efflux mediate MCL-1 inhibitor resistance in multiple myeloma**

Bolomsky, A., Miettinen, J. J., Malyutina, A., Besse, A., Huber, J., Fellinger, S., Breid, H., Parsons, A., Klavins, K., Hannich, J. T., Kubicek, S., Caers, J., Hübl, W., Schreder, M., Zojer, N., Driessen, C., Tang, J., Besse, L., Heckman, C. & Ludwig, H., 26 okt. 2021, I: Blood advances. 5, 20, s. 4125-4139 15 s.

**S100 Calcium Binding Protein Family Members Associate With Poor Patient Outcome and Response to Proteasome Inhibition in Multiple Myeloma**

Liu, M., Wang, Y., Miettinen, J. J., Kumari, R., Majumder, M. M., Tierney, C., Bazou, D., Parsons, A., Suvela, M., Lievonen, J., Silvennoinen, R., Anttila, P., Dowling, P., O'Gorman, P., Tang, J. & Heckman, C. A., 16 aug. 2021, I: Frontiers in Cell and Developmental Biology. 9, 14 s., 723016.

**Aminopeptidase Expression in Multiple Myeloma Associates with Disease Progression and Sensitivity to Melflufen**

Miettinen, J., Kumari, R., Traustadottir, G. A., Huppunen, M-E. A., Sergeev, P., Majumder, M. M., Schepsky, A., Gudjonsson, T., Lievonen, J., Bazou, D., Dowling, P., O'Gorman, P., Slipicevic, A., Anttila, P., Silvennoinen, R., Nupponen, N. N., Lehmann, F. & Heckman, C., apr. 2021, I: Cancers. 13, 7, 21 s., 1527.

**Single Cell RNA Sequencing Identifies Potential Molecular Indicators of Response to Melflufen in Multiple Myeloma**  
Sergeev, P., Adhikari, S., Miettinen, J., Huppunen, M-E. A., Suvela, M., Slipicevic, A., Nupponen, N., Lehmann, F. & Heckman, C., 2021, I: Blood. 138, Supplement 1, 1194.

**Integration of Deep Multi-Omics Profiling Yields New Insights into the Biology of Poor-Risk Acute Myeloid Leukemia**  
Rio-Machin, A., Casado-Izquierdo, P., Miettinen, J., Bewicke-Copley, F., Khan, N., Demeulemeester, J., Krizsán, S., Zheng, J., Middleton, C., Yin, W., Grey, W., Miraki-Moud, F., Matthews, J., Grantham, M., Rouault-Pierre, K., Wennerberg, K., Parsons, A. O., Armes, H., Close, K. EM., Di Bella, D., & 12 andraCavenagh, J., Freeman, S. D., Van Loo, P., Bödör, C., Porkka, K., Heckman, C., Wang, J., Taussig, D., Bonnet, D., Cazier, J-B., Cutillas, P. R. & Fitzgibbon, J., 5 nov. 2020, s. 39-40. 1 s.

**HSV-1 ICP27 targets the TBK1-activated STING signalsome to inhibit virus-induced type I IFN expression**

Christensen, M. H., Jensen, S. B., Miettinen, J. J., Luecke, S., Prabakaran, T., Reinert, L. S., Mettenleiter, T., Chen, Z. J., Knipe, D. M., Sandri-Goldin, R. M., Enquist, L. W., Hartmann, R., Mogensen, T. H., Rice, S. A., Nyman, T. A., Matikainen, S. & Paludan, S. R., 27 juli 2016, I: EMBO Journal. 2016, 35, s. 1385-1399 15 s.

**Monosodium Urate Activates Src/Pyk2/PI3 Kinase and Cathepsin Dependent Unconventional Protein Secretion From Human Primary Macrophages**

Välimäki, E., Miettinen, J. J., Lietzen, N., Matikainen, S. & Nyman, T. A., mars 2013, I: Molecular & Cellular Proteomics. 12, 3, s. 749-763 15 s.

**Global Secretome Characterization of Herpes Simplex Virus 1-Infected Human Primary Macrophages**

Miettinen, J. J., Matikainen, S. & Nyman, T. A., dec. 2012, I: Journal of Virology. 86, 23, s. 12770-12778 9 s.

**Claudin-like protein 24 interacts with the VEGFR-2 and VEGFR-3 pathways and regulates lymphatic vessel development**

Saharinen, P. I., Heloterä, H., Miettinen, J., Norrmen, C., D Amico Lago, G. V., Jeltsch, M., Langenberg, T., Vandervelde, W., Ny, A., Dewerchin, M., Carmeliet, P. & Alitalo, K., 2010, I: Genes & Development. 24, 9, s. 875-880 6 s.

**Angiopoietins assemble distinct Tie2 signalling complexes in endothelial cell-cell and cell-matrix contacts**

Saharinen, P., Eklund, L., Miettinen, J., Wirkkala, R., Anisimov, A., Winderlich, M., Nottebaum, A., Vestweber, D., Deutsch, U., Koh, G. Y., Olsen, B. R. & Alitalo, K., 2008, I: Nature Cell Biology. 10, 5, s. 527-537 11 s.

## Aktiviteter

**64th ASH Annual Meeting & Exposition**

Juho Miettinen (Närvarande)  
10 dec. 2022 → 13 dec. 2022

**Functional Precision Medicine for Blood Cancer**

Juho Miettinen (Närvarande)  
5 sep. 2022 → 7 sep. 2022

**24th European Hematology Association (EHA) Congress**

Juho Miettinen (Närvarande)  
13 juni 2019 → 16 juni 2019

**23rd European Hematology Association Congress**

Juho Miettinen (Närvarande)  
14 juni 2018 → 17 juni 2018

**European Hematology Association (Extern organisation)**

Juho Miettinen (Medlem)  
2018 → ...

**8th Annual Network Meeting of the Nordic EMBL Partnership for Molecular Medicine: Main Meeting**

Juho Miettinen (Närvarande)

6 sep. 2017 → 7 sep. 2017

**FIMM Annual Scientific Retreat 2017**

Juho Miettinen (Medlem i organisationskommitté)

8 juni 2017 → 9 juni 2017

**Helsinki Hematology Day 2017**

Juho Miettinen (Närvarande)

16 feb. 2017

**Euroconference on Angiogenesis**

Juho Miettinen (Närvarande)

21 maj 2004 → 24 maj 2004