HAEMATOLOGY-PATHOLOGY RESEARCH LABORATORY

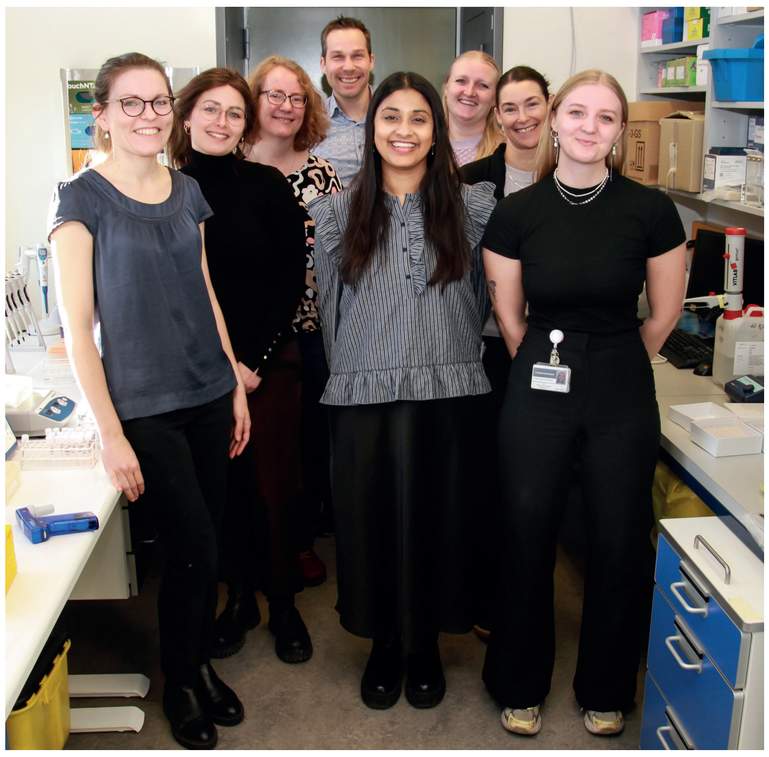
HPF
HAEMATOLOGY-PATHOLOGY
RESEARCH LABORATORY

Principal investigator: Charlotte Guldborg Nyvold

MAIN RESEARCH TOPICS

At HPF, we conduct research on hematological diseases, with a particular focus on the molecular heterogeneity of malignant B-cell disorders, including leukemia, lymphomas and multiple myeloma. Our work emphasizes translational research, bridging the gap between the laboratory and the clinic, and fostering a dynamic research environment that includes both science and medical students.

Beyond supporting specific research projects, we also collaborate with clinicians requiring laboratory expertise. Our research employs a wide range of techniques, including short- and long-read sequencing, flow cytometry, and cell sorting, allowing for in-depth molecular and genetic characterization of cancer cells and their microenvironment.



CONTACT INFORMATION

If you are interested in conducting a project in the group, contact:

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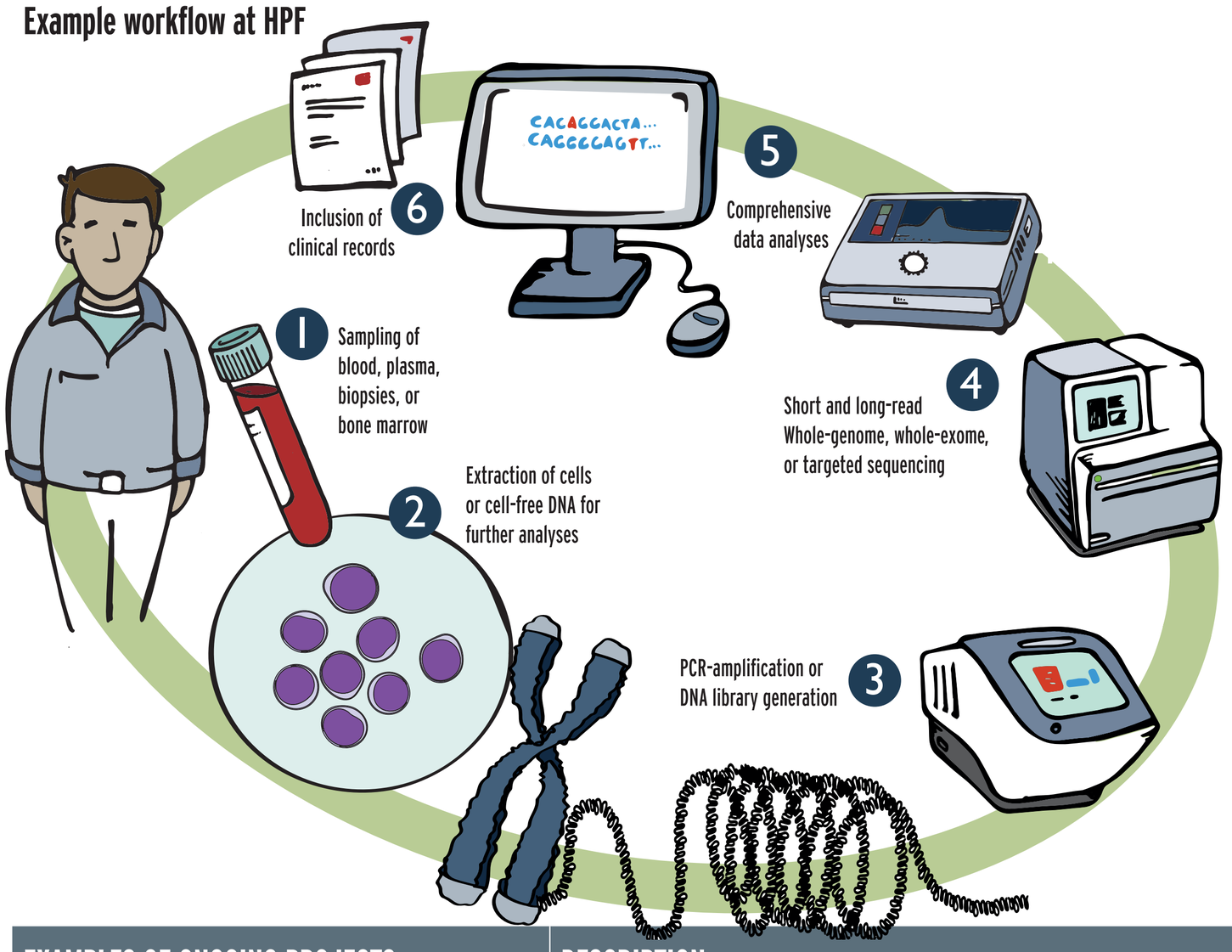
INVESTIGATING B-CELL CANCERS

Example workflow at HPF



EXAMPLES OF STUDENT ALUMNI

Marcus Høy Hansen, MSc, PhD
Working as a senior researcher and bioinformatician in our group

Simone Valentin Lehtonen, MSc, PhD
Molecular biologist in the diagnostic unit at Dept. of Pathology, OUH

Mia Koldby Blum, MSc
Molecular Biologist in the research unit at
The Department of Hepatology and Gastroenterology, AUH

Marie Louise Grube Kjeldsen, MSc
Molecular biologist in the diagnostic unit at Dept. of Pathology, OUH

Per Ishøy Nielsen, MD
Physician at Department of Haematology, OUH

EXAMPLES OF ONGOING PROJECTS	DESCRIPTION	RELEVANT CURRENT PUBLICATIONS
Molecular characterization of B cells during treatment of chronic lymphocytic leukemia	Using cell sorting and a multiomics approach, we are investigating the biology and kinetics of residual leukemia cells treated with a Bruton's tyrosine kinase inhibitor	Veyhe SR, Cédile O, Dahlmann SK, et al. Molecular composition and kinetics of B cells during ibrutinib treatment in chronic lymphocytic leukemia. Int J Mol Sci. 2024;25(23):12569. doi:10.3390/ijms252312569 **AND** Veyhe SR, Hansen MH, Cédile O, et al. A case-driven multi-omics analysis for longitudinal ibrutinib response evaluation in chronic lymphocytic leukemia. Eur J Haematol. 2025. doi:10.1111/ejh.14397
Circulating tumor DNA in aggressive lymphoma	Profiling of circulating tumor DNA employed in sensitive, longitudinal assessment of treatment response	Vimalathas G, Cédile O, Kjeldsen MLG, et al. Liquid biopsy for enhanced specificity in identifying somatic mutations in aggressive non-Hodgkin large B-cell lymphoma: a comparative study of cfDNA and FFPE tissue. Int J Lab Hematol. 2025. doi:10.1111/ijlh.14454 **AND** Højlund EL, Cédile O, Larsen TS, et al. Cell-free DNA for detection of clonal B cells in diffuse large B-cell lymphoma by sequencing. Int J Lab Hematol. 2023;45(5):735-742. doi:10.1111/ijlh.14116
Nanopore sequencing of clonal IgH rearrangements and chromosomal aberrations	Third-generation sequencing is implemented for flexible high-precision clonotyping of malignant B cells and in progressing the field of cytogenomics	Hansen MH, Cédile O, Abildgaard N, Nyvold CG. The potential of 3rd-generation nanopore sequencing for B-cell clonotyping in lymphoproliferative disorders. EJHaem. 2023;5(1):290-293. doi:10.1002/jha2.815 **AND** Hansen MH, Cédile O, Kjeldsen MLG, et al. Toward cytogenomics: assessment of long-read nanopore WGS for detecting large chromosomal alterations in mantle cell lymphoma. J Mol Diagn. 2023;25(11):796-805. doi:10.1016/j.jmoldx.2023.08.004
Mesenchymal stem cells (MSCs) in multiple myeloma	Investigates how MSCs contribute to bone loss and impaired healing in multiple myeloma by uncovering transcriptional and functional MSC alterations	Johansen M, Levring MB, Stokbro K, et al. Novel developments in the treatment of multiple myeloma-associated bone disease. Cancers (Basel). 2023;15(23):5585. doi:10.3390/cancers15235585
T-cell exhaustion in multiple myeloma	Investigates the changes in the T-cell compartment after treatment with engineered antibodies that make T cells recognize and kill the cancer cells	Krejcik J, Barnkob MB, Nyvold CG, Larsen TS, Barington T, Abildgaard N. Harnessing the Immune System to Fight Multiple Myeloma. Cancers (Basel). 2021; 10;13(18):4546. doi: 10.3390/cancers13184546

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