Olli Dufva

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Current position

2014 – present **Ph.D. Student in Immunology/Hematology**
Laboratory of Prof. Satu Mustjoki, Hematology Research Unit Helsinki, University of Helsinki and Department of Hematology, Helsinki University Hospital Comprehensive Cancer Center, Helsinki, Finland

Education

2020 **Licenciate of Medicine (M.D.)**
Faculty of Medicine, University of Helsinki, Finland

2013-present **M.D./Ph.D. Program**
Faculty of Medicine, University of Helsinki, Finland

Professional experience

02/2020 – 06/2020 **Specializing Physician (Laboratory Hematology)**
Department of Special Hematology, HUSLAB, Helsinki, Finland

01/2020 - 05/2020 **General Practitioner**
City of Helsinki, Helsinki, Finland

06/2016 - 07/2016 **Medical Doctor in Training**
Department of Oncology, Helsinki University Hospital Comprehensive Cancer Center, Helsinki, Finland

07/2014 - 08/2014 **Research Assistant (Rotation Student)**
Laboratory of Dr. Tyler Jacks, David H. Koch Institute for Integrative Cancer Research, Massachusetts Institute of Technology, Cambridge, MA, United States

06/2013 – 05/2014 **Research Assistant**
Laboratory of Dr. Kari Alitalo, Research Program for Translational Cancer Biology, University of Helsinki, Helsinki, Finland

07/2013 - 08/2013 **Research Assistant (Rotation Student)**
Laboratory of Dr. Lauri Aaltonen, Research Program for Genome-Scale Biology and Medical Genetics, University of Helsinki, Helsinki, Finland

Scientific awards

- American Society of Hematology Annual Meeting Abstract Achievement Awards 2015, 2016, 2018, 2019
- Biomedicum Helsinki Young Scientist award 2019

- University of Helsinki M.D. thesis prize (for Dufva et al. Nature Communications 2018)

Selected oral conference presentations

12/2018 American Society of Hematology Annual Meeting & Exposition, San Diego, CA, USA
"*Genome-scale CRISPR screens identify essential genes for sensitivity to natural killer cells in hematological malignancies"*

06/2018 YoungEHA Research Meeting, Stockholm, Sweden
"CRISPR/Cas9 functional screens of tumor immunogenicity" (invited talk)

12/2015 American Society of Hematology Annual Meeting & Exposition, Orlando, FL, USA
"Exome Sequencing of Aggressive Natural Killer Cell Leukemia and Drug Profiling Highlight Candidate Driver Pathways in Malignant Natural Killer Cells"

Other professional experience

- Reviewer for journals including Blood Advances, Scientific Reports, Critical Reviews in Oncology/Hematology
- M.D./Ph.D. program executive board member 2019-2020
- Tutor for University of Helsinki M.D./Ph.D. program class of 2017

Skills

Molecular/cell biology

- CRISPR screens, small-molecule screens, flow cytometry, immune cell culture and assays

Computational biology

- Analysis of RNA-seq, single-cell RNA-seq, CRISPR screening data
- Experienced in R programming, knowledge in Linux and Python

Languages

- Finnish native proficiency
- English full professional proficiency
- Swedish full professional proficiency
- German working proficiency

Selected publications

Dufva, O.*, Pölönen, P. *****, Brück, O., Keränen, M.A.I., Klievink, J., Mehtonen, J., Huuhtanen, J., Kumar, A., Malani, D., Siitonen, S., Kankainen, M., Ghimire, B., Lahtela, J., Mattila, P., Vähä-Koskela, M., Wennerberg, K., Granberg, K., Leivonen, S.-K., Meriranta, L., Heckman, C., Leppä, S., Nykter, M., Lohi, O., Heinäniemi, M., Mustjoki, S., 2020.

Immunogenomic Landscape of Hematological Malignancies. **Cancer Cell** https://doi.org/10.1016/j.ccell.2020.06.002 *** equal contribution**

Dufva, O., Koski, J., Maliniemi, P., Ianevski, A., Klievink, J., Leitner, J., Pölönen, P., Hohtari, H., Saeed, K., Hannunen, T., Ellonen, P., Steinberger, P., Kankainen, M., Aittokallio, T., Keränen, M.A.I., Korhonen, M., Mustjoki, S., 2020. Integrated drug profiling and CRISPR screening identify essential pathways for CAR T-cell cytotoxicity. **Blood** 135, 597–609. https://doi.org/10.1182/blood.2019002121

Dufva, O., Kankainen, M., Kelkka, T., Sekiguchi, N., Awad, S.A., Eldfors, S., Yadav, B., Kuusanmäki, H., Malani, D., Andersson, E.I., Pietarinen, P., Saikko, L., Kovanen, P.E., Ojala, T., Lee, D.A., Loughran, T.P., Nakazawa, H., Suzumiya, J., Suzuki, R., Ko, Y.H., Kim, W.S., Chuang, S.-S., Aittokallio, T., Chan, W.C., Ohshima, K., Ishida, F., Mustjoki, S., 2018. Aggressive natural killer-cell leukemia mutational landscape and drug profiling highlight JAK-STAT signaling as therapeutic target. **Nature Communications** 9, 1–12. https://doi.org/10.1038/s41467-018-03987-2

Other publications

Adnan Awad, S., **Dufva, O.**, Ianevski, A., Ghimire, B., Koski, J., Maliniemi, P., Thomson, D., Schreiber, A., Heckman, C.A., Koskenvesa, P., Korhonen, M., Porkka, K., Branford, S., Aittokallio, T., Kankainen, M., Mustjoki, S., 2020. RUNX1 mutations in blast-phase chronic myeloid leukemia associate with distinct phenotypes, transcriptional profiles, and drug responses. **Leukemia** 1–13. https://doi.org/10.1038/s41375-020-01011-5

Brück, O., Blom, S.*, **Dufva, O.***, Turkki, R., Chheda, H., Ribeiro, A., Kovanen, P., Aittokallio, T., Koskenvesa, P., Kallioniemi, O., Porkka, K., Pellinen, T., Mustjoki, S., 2018. Immune cell contexture in the bone marrow tumor microenvironment impacts therapy response in CML. **Leukemia** 32, 1643–1656. https://doi.org/10.1038/s41375-018-0175-0 *** equal contribution**

Brück, O., **Dufva, O**., Hohtari, H., Blom, S., Turkki, R., Ilander, M., Kovanen, P., Pallaud, C., Ramos, P.M., Lähteenmäki, H., Välimäki, K., El Missiry, M., Ribeiro, A., Kallioniemi, O., Porkka, K., Pellinen, T., Mustjoki, S., 2020. Immune profiles in acute myeloid leukemia bone marrow associate with patient age, T-cell receptor clonality, and survival. **Blood Advances** 4, 274–286. https://doi.org/10.1182/bloodadvances.2019000792

Kuusanmäki, H., **Dufva, O**., Parri, E., van Adrichem, A.J., Rajala, H., Majumder, M.M., Yadav, B., Parsons, A., Chan, W.C., Wennerberg, K., Mustjoki, S., Heckman, C.A., 2017. Drug sensitivity profiling identifies potential therapies for lymphoproliferative disorders with overactive JAK/STAT3 signaling. **Oncotarget**; 8, 97516–97527. https://doi.org/10.18632/oncotarget.22178

Mehtonen, J.*, Pölönen, P.*, Häyrynen, S., **Dufva, O**., Lin, J., Liuksiala, T., Granberg, K., Lohi, O., Hautamäki, V., Nykter, M., Heinäniemi, M., 2019. Data-driven characterization of molecular phenotypes across heterogeneous sample collections. **Nucleic Acids Res**; 47, e76–e76. https://doi.org/10.1093/nar/gkz281 *** equal contribution**

Andersson, E.I., Pützer, S., Yadav, B., **Dufva, O**., Khan, S., He, L., Sellner, L., Schrader, A., Crispatzu, G., Oleś, M., Zhang, H., Adnan-Awad, S., Lagström, S., Bellanger, D., Mpindi, J.P., Eldfors, S., Pemovska, T., Pietarinen, P., Lauhio, A., Tomska, K., Cuesta-Mateos, C., Faber, E., Koschmieder, S., Brümmendorf, T.H., Kytölä, S., Savolainen, E.-R., Siitonen, T., Ellonen, P., Kallioniemi, O., Wennerberg, K., Ding, W., Stern, M.-H., Huber, W., Anders, S., Tang, J., Aittokallio, T., Zenz, T., Herling, M., Mustjoki, S., 2018. Discovery of novel drug sensitivities in T-PLL by high-throughput ex vivo drug testing and mutation profiling. **Leukemia** 32, 774–787. https://doi.org/10.1038/leu.2017.252

Sheffer, M., Lowry, E., Beelen, N., Borah, M., Amara, S.N.-A., Mader, C.C., Roth, J.A., Tsherniak, A., Freeman, S.S., Dashevsky, O., Gandolfi, S., Bender, S., Bryan, J.G., Zhu, C., Wang, L., Tariq, I., Kamath, G.M., Simoes, R.D.M., Dhimolea, E., Yu, C., Hu, Y., **Dufva, O.**, Giannakis, M., Syrgkanis, V., Fraenkel, E., Golub, T., Romee, R., Mustjoki, S., Culhane, A.C., Wieten, L., Mitsiades, C.S., 2021. Genome-scale screens identify factors regulating tumor cell responses to natural killer cells. **Nat Genet** 1–11. https://doi.org/10.1038/s41588-021-00889-w

Toledo, M.A.S., Gatz, M., Sontag, S., Gleixner, K.V., Eisenwort, G., Feldberg, K., Hamouda, A.E.I., Kluge, F., Guareschi, R., Rossetti, G., Sechi, A.S., **Dufva, O**., Mustjoki, S., Maurer, A., Schüler, H.M., Goetzke, R., Braunschweig, T., Kaiser, A., Panse, J.P., Jawhar, M., Reiter, A., Hilberg, F., Ettmayer, P., Wagner, W., Koschmieder, S., Brümmendorf, T.H., Valent, P., Chatain, N., Zenke, M., 2020. Nintedanib Targets KIT D816V Neoplastic Cells Derived from Induced Pluripotent Stem cells of Systemic Mastocytosis. **Blood**. https://doi.org/10.1182/blood.2019004509

Brück, O., Keränen, M., **Dufva, O**., Kreutzman, A., Mustjoki, S., 2016. T cells and cancer - why do the killers become exhausted? **Duodecim** 132, 1984–1992.

Kämpjärvi, K., Järvinen, T.M., Heikkinen, T., Ruppert, A.S., Senter, L., Hoag, K.W., **Dufva, O**., Kontro, M., Rassenti, L., Hertlein, E., Kipps, T.J., Porkka, K., Byrd, J.C., de la Chapelle, A., Vahteristo, P., 2015. Somatic MED12 mutations are associated with poor prognosis markers in chronic lymphocytic leukemia. **Oncotarget** 6, 1884–1888. https://doi.org/10.18632/oncotarget.2753

Kuusanmäki, H., Leppä, A.-M., Pölönen, P., Kontro, M., **Dufva, O**., Deb, D., Yadav, B., Brück, O., Kumar, A., Everaus, H., Gjertsen, B.T., Heinäniemi, M., Porkka, K., Mustjoki, S., Heckman, C.A., 2020. Phenotype-based drug screening reveals association between venetoclax response and differentiation stage in acute myeloid leukemia. **Haematologica** 105, 708–720. https://doi.org/10.3324/haematol.2018.214882

Schubert, C., Chatain, N., Braunschweig, T., Schemionek, M., Feldberg, K., Hoffmann, M., **Dufva, O**., Mustjoki, S., Brümmendorf, T.H., Koschmieder, S., 2017. The SCLtTAxBCR-ABL transgenic mouse model closely reflects the differential effects of dasatinib on normal and malignant hematopoiesis in chronic phase-CML patients. **Oncotarget** 8, 34736–34749. https://doi.org/10.18632/oncotarget.16152

Wiener, Z., Högström, J., Hyvönen, V., Band, A.M., Kallio, P., Holopainen, T., **Dufva, O**., Haglund, C., Kruuna, O., Oliver, G., Ben-Neriah, Y., Alitalo, K., 2014. Prox1 promotes expansion of the colorectal cancer stem cell population to fuel tumor growth and ischemia resistance. **Cell Rep** 8, 1943–1956. https://doi.org/10.1016/j.celrep.2014.08.034