Welcome to the 7th FICAN seminar

Wednesday 13.09.2023 at 15-16

Topic: Characterizing and overcoming chemotherapy resistance mechanisms in ovarian cancer

This time the seminar is organized by FICAN South. The seminar will be held online (Microsoft Teams) and is open to everyone interested in cancer research.

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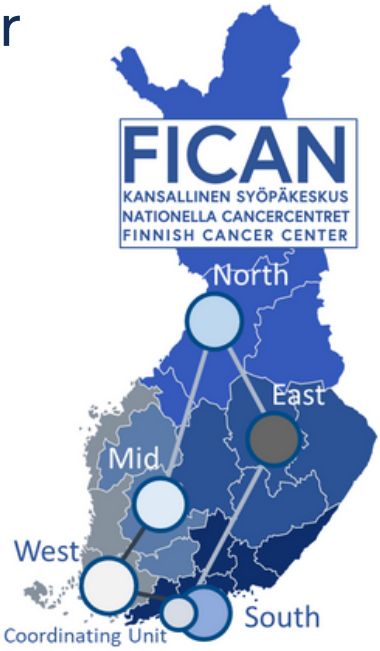

Speaker

Sampsa Hautaniemi

DTech, Professor of Systems Biology
Director, Research Program in Systems Oncology (ONCOSYS) & EU Horizon 2020 consortium DECIDER
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Get to know the Speaker: SYSTEMS BIOLOGY OF DRUG RESISTANCE IN CANCER (helsinki.fi)

Abstract

Chemotherapy resistance is one of the greatest contributors to cancer mortality. A prime example of the impact of our current inability to overcome treatment resistance is seen in ovarian high grade serous carcinoma (HGSC), which is the most common subtype of epithelial ovarian cancer. While 90% of HGSC patients show no clinically detectable signs of cancer after surgery and chemotherapy, tumors become progressively resistant to chemotherapy leading to five-year survival of <40%.

We have established a prospective, longitudinal, multiregion observational study DECIDER (ClinicalTrials.gov identifier NCT04846933) to characterize and overcome chemotherapy resistance in HGSC. In this presentation, I will discuss our latest findings on chemotherapy resistance mechanisms in HGSC, derived from comprehensive patient-level data and ex vivo experiments. Specifically, I will focus on highlighting computational methods that facilitate high-quality data collection from patient samples, HGSC tumor evolution before and during chemotherapy, as well as translating research findings to benefit patients.

Relevant references for this talk:

- Lahtinen A, Lavikka K, Virtanen A, Li Y, Jamalzadeh S, Skorda A, Lauridsen AR, Zhang K, Marchi G, Isoviita VM, Ariotta V, Lehtonen O, Muranen TA, Huhtinen K, Carpén O, Hietanen S, Senkowski W, Kallunki T, Häkkinen A, Hynninen J, Oikkonen J, Hautaniemi S. Evolutionary states and trajectories characterized by distinct pathways stratify patients with ovarian high grade serous carcinoma. Cancer Cell. 2023 May 11:S1535-6108(23)00143-5. https://doi.org/10.1016/j.ccell.2023.04.017
- Zhang K, Erkan EP, Jamalzadeh S, Dai J, Andersson N, Kaipio K, Lamminen T, Mansuri N, Huhtinen K, Carpén O, Hietanen S, Oikkonen J, Hynninen J, Virtanen A, Häkkinen A, Hautaniemi S, Vähärautio A. Longitudinal single-cell RNA-seq analysis reveals stress-promoted chemoresistance in metastatic ovarian cancer. Science Advances. 2022 Feb 25;8(8). https://science.org/doi/10.1126/sciadv.abm1831
- Häkkinen A, Zhang K, Alkodsi A, Andersson N, Erkan EP, Dai J, Kaipio K, Lamminen T, Mansuri N, Huhtinen K, Vähärautio A, Carpén O, Hynninen J, Hietanen S, Lehtonen R, Hautaniemi S. PRISM: recovering cell-type-specific expression profiles from individual composite RNA-seq samples. Bioinformatics. 2021 Sep 29;37(18):2882-2888. https://doi.org/10.1093/bioinformatics/btab178

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