

Welcome to 3<sup>rd</sup> FICAN Seminar! The speaker is FCI K. Albin Johansson Foundation Research Professor Johanna Ivaska from Turku Bioscience Centre and University of Turku.

Topic: Cancer cells crossing borders

Time: Thursday November 3<sup>rd</sup>, 2022 at 15 -16 EEST

The seminar is organized in [Teams](#) and will be open to everyone who is interested in cancer research.

Click below to join the meeting (note the passcode)

[https://teams.microsoft.com/dl/launcher/launcher.html?url=%2F\\_%23%2F%2Fmeetup-join%2F19%3Ameeting\\_YmNlZTg1OTgtYzJlZi00ZTU2LTg0ODMtOTcxYTViOGY0Y2Uz%40thread.v2%2F0%3Fcontext%3D%257b%2522Tid%2522%253a%2522e7889bbd-7cd8-4eee-9d07-18d05f9f48c1%2522%252c%2522Oid%2522%253a%2522f147fb4b-0c44-4b32-b58d-06090f8398d9%2522%257d%26anon%3Dtrue&type=meetup-join&deeplinkId=f7ac879a-887e-4974-8bf0-d5fc225b199d&directDI=true&msLaunch=true&enableMobilePage=true&suppressPrompt=true](https://teams.microsoft.com/dl/launcher/launcher.html?url=%2F_%23%2F%2Fmeetup-join%2F19%3Ameeting_YmNlZTg1OTgtYzJlZi00ZTU2LTg0ODMtOTcxYTViOGY0Y2Uz%40thread.v2%2F0%3Fcontext%3D%257b%2522Tid%2522%253a%2522e7889bbd-7cd8-4eee-9d07-18d05f9f48c1%2522%252c%2522Oid%2522%253a%2522f147fb4b-0c44-4b32-b58d-06090f8398d9%2522%257d%26anon%3Dtrue&type=meetup-join&deeplinkId=f7ac879a-887e-4974-8bf0-d5fc225b199d&directDI=true&msLaunch=true&enableMobilePage=true&suppressPrompt=true)

Meeting ID: 357 221 083 426

Passcode: j3ToWB

Regional Cancer Centers



Time: Thu 3.11. at 15.00 – 16

Speaker: Johanna Ivaska, PhD, FCI K. Albin Johansson  
Foundation Research Professor

Title: Cancer cells crossing borders

Get to know the Speaker: <https://ivaskalab.utu.fi/>

This time the seminar is organized by FICAN West

Abstract: Our research focuses on the fundamental role of cell-cell and cell-extracellular matrix crosstalk in maintaining tissue homeostasis. During tumour development, these pathways are altered and trigger the formation of environments that are physically and biochemically more conducive to cancer growth. Recently, we showed that expression of a motor protein MYO10, and MYO10-dependent filopodial extensions, while detrimental in invasive breast cancer and associated with poor patient survival, is protective at the early stage. In pre-invasive ductal carcinoma in situ

(DCIS), MYO10 maintains a continuous basement-membrane border around the tumours and prevents dissemination into the surrounding stroma. Therefore, any therapeutic targeting of MYO10 must consider the dual actions of this motor protein and cancer stage. In another work (unpublished), we employed microfluidics to mimic cancer cell interaction with the vasculature (endothelial cell layer) under flow. We found that the method used by cancer cells to cross the endothelial cell barrier differs across cell types but is dependent on cancer-cell–endothelial-cell interaction, often involving the extension of filopodia-like protrusions. We are now employing single-cell mass CyToF and other innovative techniques to understand the molecular details of this interaction and identify a potential therapeutic target.

Relevant references for this talk:

E. Peuhu\*, G. Jacquemet\*, C. Scheele, A. Isomursu, M-C. Laisne, L.M. Koskinen, I. Paatero, K. Thol, M. Georgiadou, C. Guzmán, S. Koskinen, A. Laiho, L.L. Elo, P. Boström, P. Hartiala, J. van Rheenen, and J. Ivaska\*. *MYO10-filopodia support basement membranes at pre-invasive tumor boundaries*. *Developmental Cell* (In Press). An earlier version available in the pre-print server bioRxiv. <https://doi.org/10.1101/2021.10.22.464987>.

Jacquemet G, Paatero I, Carisey AF, Padzik A, Orange JS, Hamidi H, Ivaska J. *FiloQuant reveals increased filopodia density during breast cancer progression*. *J Cell Biol*. 2017 Oct 2;216(10):3387-3403. doi: 10.1083/jcb.201704045.

Arjonen A, Kaukonen R, Mattila E, Rouhi P, Högnäs G, Sihto H, Miller BW, Morton JP, Bucher E, Taimen P, Virtakoivu R, Cao Y, Sansom OJ, Joensuu H, Ivaska J. *Mutant p53-associated myosin-X upregulation promotes breast cancer invasion and metastasis*. *J Clin Invest*. 2014 Mar;124(3):1069-82. doi: 10.1172/JCI67280.