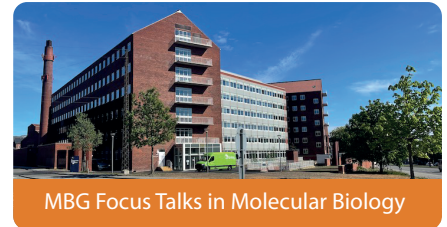


MBG FOCUS TALK

hosted by Gregers Rom Andersen Section for Protein Science

Thursday, 26 October 2023 at 11:00

Faculty club (1870-816)



Susanna Fagerholm

Faculty of Biological and Environmental Sciences, University of Helsinki

Beta2-integrins in immunity: new roles for old players

Beta2-integrins are important adhesion- and mechanoreceptors in immune cells. They are well known to play essential roles in immunological processes such as leukocyte trafficking, phagocytosis, T cell activation and T cell effector functions. Dendritic cells (DCs) are the main antigen presenting cells of the immune system, and are essential for anti-tumor responses.

We have shown that beta2-integrins play unexpected, novel roles in regulation of dendritic cell biology. In particular, loss of beta2-integrin-mediated adhesion leads to increased activation of dendritic cells, through cellular reprogramming with changes in epigenetic and transcriptional profiles. In addition, we also demonstrated that loss of beta2-integrin-mediated adhesion of DCs also leads to an altered metabolic profile of these cells, which is associated with cellular reprogramming. In addition, targeting beta2-integrins or downstream events in DCs leads to improved DC-mediated anti-tumor responses in vivo in melanoma cancer models.

In conclusion, our results indicate that loss of cellular adhesion may act as a new “danger signal” for dendritic cells, leading to epigenetic and metabolic reprogramming of these cells. Furthermore, targeting integrins or integrin-regulated epigenetic or metabolic pathways may be a useful way to optimize DC-based immunotherapeutic approaches to tumors.