Thursday, December 3, 13.00, at the BBB, Auditorium 4

Regulation of epithelial cell migration, invasion and EMT

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One of the main interests in our laboratory is to understand the co-operation between integrins and the cytoskeleton in regulation of cells invasion. Epithelial-to-mesenchymal transition (EMT) is a critical event in the progression towards cancer metastasis. The intermediate filament protein vimentin is an important marker of EMT and a requisite regulator of mesenchymal cell migration. Past work in the laboratory has shown a role for vimentin in the regulation of integrin traffic and cell migration. More recently, we have identified that EMT induced by transcription factors is critically dependent on upregulation of vimentin.

In epithelial sheets cells are normally bound to each other and to the extracellular matrix to form ordered structures. In intercellular adhesions tight junctions are essential for the mechanical strength and barrier function of the epithelium. Integrin mediated cell-matrix adhesions, on the other hand, link the extracellular matrix to the cellular cytoskeleton. We have recently shown that migration of lung cancer cells is controlled by a novel, spatially restricted $\alpha 5$ integrin-ZO-1 interaction, which is dynamically regulated by PKCε, triggers persistent migration of these cells. This may be clinically relevant, as loss of a tight junction protein, zonula occludens-1 (ZO-1), from intercellular adhesions, upregulation of $\alpha 5\beta 1$ integrin and activation of PKCε, have all been shown to correlate with increased invasion and poor prognosis in lung cancer.

Host: James Lorens <jim.lorens@biomed.uib.no>, Department of Biomedicine