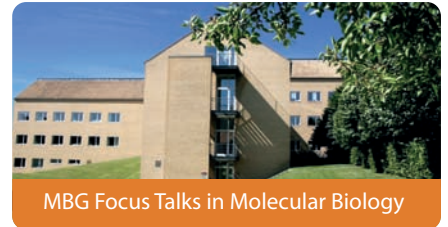


# MBG FOCUS TALK

hosted by Erik Østergaard Jensen



**Friday June 19 at 1:15 - 2:00 pm**

The conference room, building 3130-303, Gustav Wieds vej 10c

## Hesso Farhan

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### **Signaling by small GTPases and pseudophosphatases in the regulation of cell growth, cell migration and polarity**

Cellular signaling pathways orchestrate virtually all cellular processes and therefore it is of fundamental importance to understand the regulation of signal transduction in time and space.

Firstly, I will discuss how signaling on cellular endomembranes is capable of affecting cell growth, cell migration and cell polarity. In particular we are interested in signaling by small GTPases of Rho family and I will discuss how we find that different pools of Cdc42 (plasma membrane and endomembrane) differentially regulate cell polarity. I will show how deregulation is relevant for cancer.

Secondly, I will discuss our progress regarding pseudokinases and pseudophosphatases. These belong to the group of pseudoenzymes and it remains poorly understood why cells create or maintain catalytically dead enzymes. I will show how a pseudophosphatase called STYX is capable of regulating kinase signaling in a manner independent of catalysis. I will also show evidence that this pseudophosphatase is capable of regulating proteins apart from kinases and that its ability to do so is dependent on its catalytic inactivity. Finally, I will discuss the relevance of our findings for human disease.