

# Development of microtentacles in suspended cells upon inhibition of myosin

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Circulating tumor cells (CTCs) form microscopic tentacles (microtentacles or McTN), that are enriched with microtubules. Previous studies suggest that McTN may play an important role in the reattachment of metastatic CTCs within the microvasculature [1]. We observed the formation of similiar tentacles in vitro in suspended non-cancerous cells upon inhibition of myosin. Furthermore we observed softening in these cells as well; this phenomenon may be closely related to the ability of metastatic tumor cells to squeeze through the narrow microvasculature [2].

Our work focuses on the McTN and their formation in suspended non-cancerous cells upon myosin inhibition in vitro. The goal of this project is to understand how the McTN are formed and how the cortical composition influences their formation. We observed that myosin inhibition impacts the cortex in regards to the dynamical properties of cortical actin. Thus we ask if the change in dynamics of cortical actin serves as a prerequisite for the formation of McTN.

[1] Matrone et al., Cancer Research (2010).

[2] Chan et al., Biophysical Journal (2015).