Actin cortex dynamics and structure upon myosin II inhibition

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In the frame of the project A9, Structure and dynamics of the cell cortex before, during and after adhesion, the cortex of cells has to be characterized in both initial (suspended) and final (adhered) states. The dynamics of the cortex is measured by FRAP (Fluorescence Recovery After Photobleaching) while its structure is investigated by electron microscopy. The first results will be presented in this poster. Via analysis of the FRAP experiments, it is possible to extract some insights of the content of the cortex, especially the ratio between long formin mediated actin filaments and short Arp2/3 mediated ones. Cells were also treated with Para-nitro blebbistatin (a non-photodegradable version of the well-known blebbistatin) in order to inhibit the motor protein myosin II. Changing the activity of the motor protein modifies, as expected, the dynamics of the entire cortex. More surprisingly, we show here that the changes between suspended and adhered states go in opposite directions: while the turnover rate of actin decreases in adhered cells, it is increased in the suspended case.