

## **Levamisole alters actin distribution and cell morphology in HT29 cells.**

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De-regulation of the actin network in tumour malignancy leads to inappropriate cell migration and metastatic cell invasion. Understanding the environmental signals which modulate the actin cytoskeleton may lead to antimetastatic cell therapies. Levamisole (lev), an immunomodulatory drug and inhibitor of the tissue non-specific isozyme of alkaline phosphatase, has previously been shown to inhibit cell migration during amphibian gastrulation (1). In the present study, actin dynamics were studied in the HT29 human adenocarcinoma cell line. Following culture with 0.5, 1 or 5 mM lev, cells were fixed at different time points and cellular actin was fluorescently labeled with Alexa Fluor Phalloidin 594 (Molecular Probes). Fluorescent images were captured using a Zeiss Axiovert 100M confocal microscope. At 5 mM lev, the cells retracted their cytoplasmic processes and rounded-up, forming actin stress fibres. Additionally, actin appeared as a band around the cell periphery. At lower concentrations of lev, cells had reduced filopodia with cytoplasmically localised actin-stress fibres. Actin was restricted to the peripheral edges of filopodia. The control cultures (no lev) lacked stress fibres and cells retained a fibroblast-like morphology with extensive cellular processes. Actin distribution differed, presenting in a punctate pattern within the cytoplasm. These changes in cellular actin distribution suggest that lev may be modulating small Rho-GTPases, upstream signaling molecules that regulate actin assembly (2).

<sup>1</sup> Penny, C.B. and Fabian, B.C. (1999). Levamisole inhibits activin induced extension of *Xenopus laevis* animal caps. *Molec. Biol. Cell* 10, 275a.

<sup>2</sup> Raftopoulou M. and Hall A. (2004) Cell migration: Rho GTPases lead the way. *Dev Biol.* 265, 23-32.