Effects of prolactin on migration of T47D breast cancer cells through the actin cytoskeleton

Objective: This study aimed at determining the effects of prolactin on the migration of the T47D breast cancer cells and analyze T47D Actin rearrangement and modulation of cytoskeleton by prolactin.

Methods: For this purpose, the cells, cultured in 6 well dishes with supplemented medium, were divided in 4 different assays: Assay1 (T47D-control); Assay2 (T47D+25ng/ml of prolactin); Assay3 (T47D+50ng/ml of prolactin) and Assay4 (T47D+100ng/ml of prolactin). The migration analysis, as well the immunoblotting evaluation of Focal Adhesion Kinase (FAK) and Membrane-Organizing Extension Spike Protein (Moesin), were performed 24 hours after the treatment. The actin's cytoskeleton modulation were analysed, by immunofluorescence, 30 minutes after the treatment. Results: The results showed that prolactin, in Assay3 (50 ng/ml) and Assay4 (100 ng/ml), enhanced the migration of T47D cells. Furthermore, the expression of FAK and Moesin as well as the cell membrane thickness were increased in those Assays (p<0,001). Conclusion: In summary, prolactin enhanced T47D breast cancer cell motility. This result is probably related to an activation of Actin adjustment on the cytoskeleton and formation of focal adhesion complexes. Our findings may extend the knowledge about the physiological and pathological processes associated with prolactin and cell motility, nevertheless further studies are necessary to better understand these correlations.