Indian Journal of Experimental Biology
Vol. 64, March 2026, pp. 197-207
DOI: 10.56042/ijeb.v64i03.20659

# Effect of tunicamycin and calpeptin on cell migration and signaling molecules in fibronectin adherent ovarian cancer cell

Seda Mehtap Sarı Kılıçaslan[1]*

[1]Faculty of Education, Anadolu University, Eskisehir26470, Turkey

*Received 26 June 2025; revised 2 December 2025*

This study aims to investigate the effect of Tunicamycin (Tu), which increases intracellular calcium, and calpeptin (Cp), an inhibitor of calpain 1 and 2 enzymes, on cell migration and molecules involved in migration in fibronectin (FN) adherent normal and ovarian cancer cells. The effect of Tu, Cp and, Tu and Cp together (Tu-Cp) treatments on FN-adherent/non-adherent IHOSE-SV40 normal and SKOV-3 ovarian cancer cells on cell migration was tested with real time cell analysis method. Protein expressions of p-FAK, Pyk2, p-Src, Cdc42 and Rac1 signal molecules were determined by western-blot method. Localizations of cytoskeleton proteins of p-FAK, p-paxillin and vinculin were examined by immunofluorescence method. The results show that ovarian cancer cells must adhere to FN for migration, while normal ovarian cells can migrate without adhering to FN. FN stimulated protein expressions of p-FAK in IHOSE-SV40 cells and p-Src and Rac1 in SKOV-3 cells. Tu, Cp and Tu-Cp treatments significantly inhibited cell migration in both FN-adherent normal and ovarian cancer cells at 24 hours. In particular, Tu treatment in normal and Cp treatment in cancer cells have a decreasing effect on the expression of signaling molecules. In conclusion, we showed in this study that FN stimulates different signaling molecules involved in migration in normal and ovarian cancer cells. Additionally, Tu, Cp, and Tu-Cp treatments inhibited significantly cell migration in FN bound normal and ovarian cancer cells. Tu inhibited the migration of FN-adherent ovarian cancer cells more effectively than Cp and combined Cp and Tu applications. As a result, this study indicated that Cp might be promising agent for ovarian cancer treatment due to its down regulatory impact on the Rac1/Cdc42 proteins and migration inhibitory effect.

**Keywords:** Calpain, SKOV-3, IHOSE-SV40, Cdc42