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Expression and Purification of Human Fibroblast Growth Factor-1 and Its in Vitro Interaction Studies with Kanamycin TORI BUCKLEY, Western Kentucky University — Fibroblast growth factors (FGF's), work as modulators of different cell activities like mitosis, differentiation, survival etc. Among FGF's, Human FGF-1(hFGF-1) is the potent angiogenic factor, involved in the formation of new blood vessels in tissues. FGF-1 binds with heparin, which is glycosaminoglycan, and this complex further binds to Fibroblast growth receptors. Heparin potentiates the mitogenic activity of hFGF-1. Human FGF-1 activity is essential for cancer growth as it mediates the formation of blood vessels in the cancer tissues too. Recent studies found that an aminoglycoside antibiotic, Vancomycin, besides having antibacterial activity, also able to interact with fibroblast growth factors. These interactions of aminoglycoside are mainly because of structural resemblance to heparin. Vancomycin has been called as an anticancer antibiotic, because of its inhibiting effect on fibroblast growth factors in the cancerous tissues. This study is designed to study the possible interaction of kanamycin, another aminoglycoside, with fibroblast growth factor-1. Expression of FGF-1 in recombinant E.Coli was carried out, and expressed protein was purified using heparin affinity column chromatography. Both expression and purification were monitored through SDS-PAGE analysis. Conformational stability of protein was assessed through steady state fluorescence. Preliminary interaction study, thermal denaturation of FGF-1 in the presence and absence of kanamycin resulted in increased thermal stability FGF-1 with kanamycin compared to without.

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