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Evaluation of Antiproliferative Activity of Enoxacin on a Human Breast Cancer Cell Line

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ABSTRACT Breast cancer is the leading cause of cancer in women world wide both in the developed and developing countries. Thus effective treatment of breast cancer with potential anti-tumor drugs is important. In this study, human breast cancer cell line MCF-7 has been employed to evaluate the antiproliferative activity of fluoroquinolone antibiotic enoxacin in culture. The present investigation shows that enoxacin induced growth inhibition of MCF-7 cells at significant level. The growth inhibition is dose dependent, time dependent and irreversible in nature. Increase in population doubling time and decrease in saturation density were also observed in enoxacin treated cells. Growth inhibitory effects were also found to be independent of concentration of serum growth factors in medium. Enoxacin also altered cellular morphology in *in vitro* culture condition. After enoxacin treatment accumulation of MCF-7 cells at G₂/M phase suggested cell cycle arrest and in turn inhibition of cell growth, which needs further investigation. Thus, this study clearly demonstrates that human breast cancer cell MCF-7 is highly responsive to fluoroquinolone antibiotic enoxacin treatment.

[Home](#)

[Back](#)
