Pentamidine reduces expression of hypoxia-inducible factor-1α in DU145 and MDA-MB-231 cancer cells.

Jung HJ, Suh SI, Suh MH, Baek WK, Park JW.


Chronic Disease Research Center, School of Medicine, Keimyung University, Daegu 704-701, Republic of Korea.

Abstract

Pentamidine is an aromatic diamine used for the treatment of human protozoa infections. Recently, pentamidine has been reported to exhibit anticancer properties. In this study, we report that pentamidine inhibits expression of hypoxia-inducible factor (HIF)-1α in cancer cells. Pentamidine decreased HIF-1α protein translation and enhanced its protein degradation in DU145 prostate cancer and MDA-MB-231 breast cancer cells. In parallel with reduction of de novo synthesis of HIF-1α, pentamidine was able to suppress global protein translation, an effect accompanied by the reduction of elf4F complex formation and also the induction of elf2α phosphorylation. These results show that pentamidine is a potential inhibitor of HIF-1α and its potential as a cancer therapeutic reagent warrants further study.

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