AFPep, a Novel Agent with Potential of Development for Treatment of Glioblastoma

Fassil B. Mesfin MD PhD; Natalie Dowell-Mesfin PhD

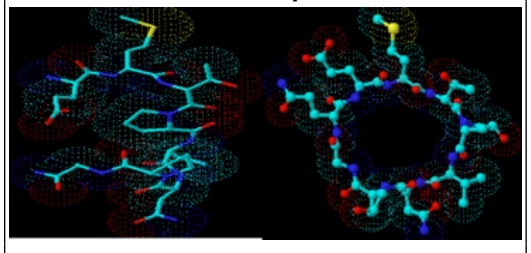
Divsion of Neurolgical Surgery

MIZZOU School of Medcine

Introduction

Glioblastoma Multiforme (GBM) is the most frequent malignant primary tumor of the central nervous system. Patients with a diagnosis of glioblastoma have a poor prognosis despite advances in cancer treatment and surgical techniques. Consequently, new therapeutic agents are in demand for management. Recently, AFPep has been shown to have an effect on the proliferation, migration and invasion of glioblastoma cells. AFPep is a nine amino acid sequence cyclic analog of Alpha-fetoprotein (AFP), which is a glycoprotein produced during pregnancy by the fetal yolk sac and by fetal liver. AFPep is a peptide derived from a natural product and is well tolerated in animal studies. The data reported in this abstract showed a potential of development of AFPep for treatment of GBM.

AFPep



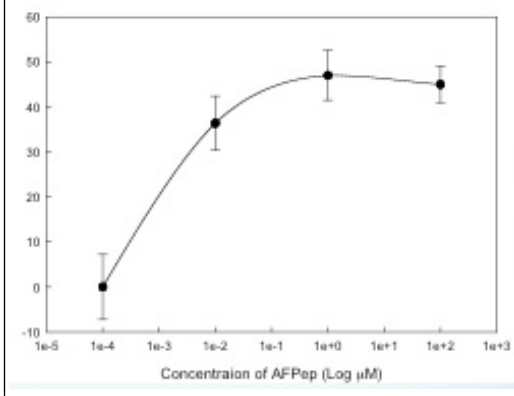
Linier and Cyclo-(EMTOVNOGQ)

Methods

AFPep was synthesized commercially . The anti-proliferative effect of APep was determined in MTT growth inhibition assay against cultured U87 human GBM. Chemotactic migration of GBM cells in response to serum was carried out by using a modified Boyden chamber assay and matrigel invasion assay. The in vivo anti-proliferative effect of AFPep was determined using human GBM xenografts growth assay using SCID mice.

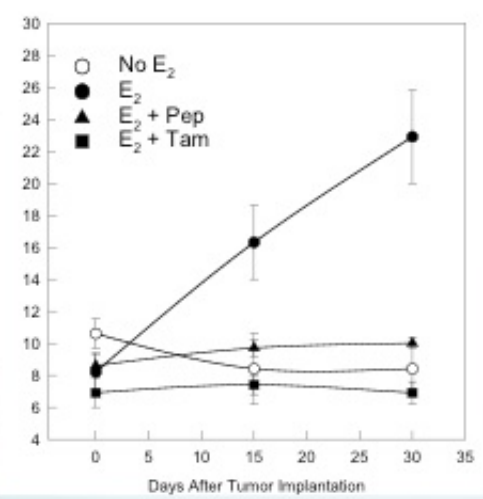
Results

Effect of AFPep on U87 cells in Culture



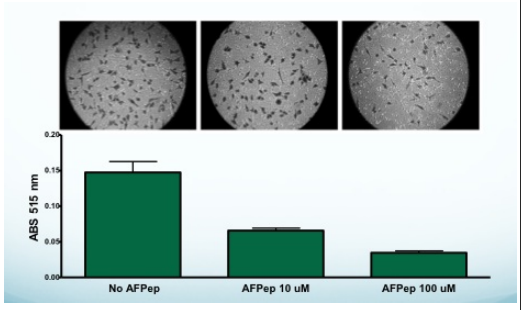
AFPep inhibits the proliferation of cultured human U87 cells in ad ose-dependent manner with and IC50 of 1 nM.

The Effect of AFPep in U87 Xenograft Assay



Treatment of SCID mce bearng U87 xenografts with 4 mg/kg/day resulted in a significant inhibition of tumor growth.

The Effect of AFPep on U87 Invasion



AFPep inhibited theinvasion of U87 cells in dose-dependent manner in matrigel invason assay.

Conclusions

The data reported here showed that AFPep inhibits the growth and invasion of human glioblastoma. Therefore, AFPep can be developed as chemotherapeutic agent for treatment of patients with GBM.

Learning Objectives

By the conclusion of this session, participants should be able to:

1) Describe the importance and demand for new therapeutic agents for treatment patient with GBM

2) Discuss a potential development of novel agent AFPep for treatment of patients with GBM.

References

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