

Brief Report

Novel aminopeptidase N (APN/CD13) inhibitor 24F can suppress invasion of hepatocellular carcinoma cells as well as angiogenesis

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Conflict of Interest:

Abstract

Aminopeptidase N (APN)/CD13 is a widely expressed transmembrane protein and its altered expression has been detected in various cancer cells. Several APN inhibitors have been developed and some of them have been found to

Keywords: APN, CD13, HCC, cancer growth, invasion, angiogenesis

1. Introduction

Aminopeptidase N (APN), which is also known as CD13, is a membranous glycoprotein expressed in a variety of cells and tissues (1,2). Several studies have suggested.....

Various natural or artificially-synthesized compounds with an ability to work as an inhibitor of APN have been developed (8). One well investigated APN inhibitor

Hepatocellular carcinoma (HCC) is a common malignant disease, especially in eastern Asia. Various therapeutic strategies of HCC treatment including.....

2. Materials and Methods

2.1. Compound

The hydroxamic acid derivative 24F was synthesized as one of a series of cyclic-imide peptidomimetics with a free amino group using a 3D-QSAR model (11). In the present study, this compound was

2.2. Cell lines

HCC cell line HuH-7 and human promyelocytic leukemia cell line HL-60 were obtained from Health Science Research Resources Bank (HSRRB; Osaka, Japan).....

2.3. Cell growth assay

Continuously-cultivated HuH-7 cells were harvested in tubes and resuspended in DMEM containing 10% FBS after washing with.....

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3. Results and Discussion

The enzyme reaction assay was performed to confirm whether newly-synthesized compound 24F can inhibit the activity of aminopeptidase that is expressed on the surface of cell membranes. HL-60 cells are positive for

Next, the effect of 24F on HCC cell growth was analyzed using HuH-7 cells that were confirmed to have positive expression of APN by flowcytometric analysis (data not shown). HuH-7 cell growth was inhibited by

Cell invasion is the essential event for cancer progression and metastasis (15). Therefore, for cancer therapy, inhibition of cancer cell invasion is an important strategy, along with inhibition of cancer cell growth. This study analyzed the effect of 24F on HuH-7 cell invasion by means of.....

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In conclusion, our newly-developed compound 24F can inhibit the activity of the targeted enzyme APN and suppress the invasive capacity of HCC cells. Furthermore, it was also suggested that

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Figure legends

Figure 1. Chemical structure of 24F.

Figure 2. *In vitro* analyses of 24F. (A) Effect of 24F on the inhibition of APN enzyme activity. The absorbance, the level of enzyme reaction of APN, was decreased in samples with 24F in a dose-dependent manner. (B) Staining of HuH-7 cells that invaded Matrigel. The number of cells stained was decreased when incubating cells with 100 µg/ml of 24F (*right*) compared with