T11-036

Tohoku University's Invention

HDAC and PI3K inhibitor for cancer treatment

low molecular weight compound with anti-cancer activity for nano-molarity

Summary

PI3K / AKT pathway is known as the major signaling pathway involved in survival and proliferation of cells. This is also known as the therapeutic target for cancer because this is aberrantly-activated for various cancer cells.

Therefore, the inventors screened compounds with PI3K inhibitory activity from hundreds of compound. The results show that FK228 (a.k.a. Istodax®), HDAC inhibitor, and its analogs have PI3K inhibitory activity.

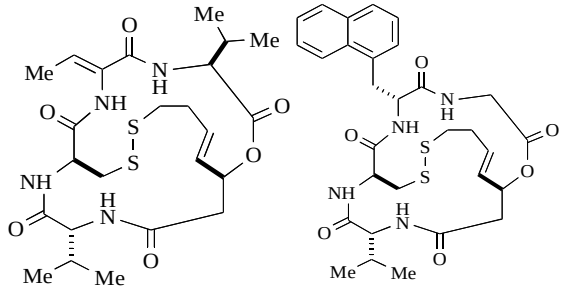
Effect & Application

Cytotoxic effects of FK228 and its analogs were evaluated *in vitro* with colon cancer cell lines.

These results show that some of analogs have cytotoxic effects on HDAC inhibitor resistance cell (RKO and CO115) as well as HDAC inhibitor sensitivity cell (HCT116). Also, they show highly cytotoxic effects than concurrent administration of SAHA (HDAC inhibitor) and LY294002 (PI3K inhibitor). In addition, nano mol concentration of analogs don't have cytotoxic effects on non-cancer cell (KMST6).

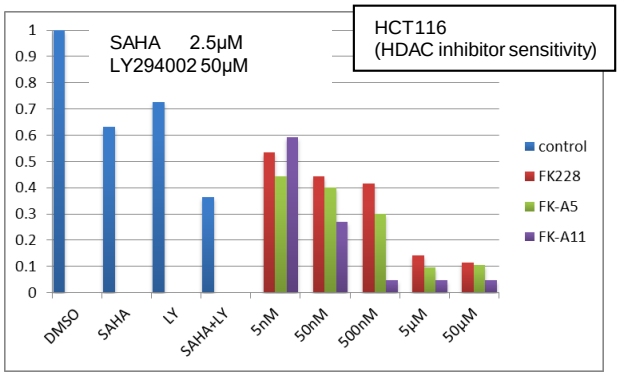
Patent Information
Application No.: WO2013/047509
Inventor: Dr. SAIJO, Prof. ISHIOKA, Prof. KATO

1. Chemical structure

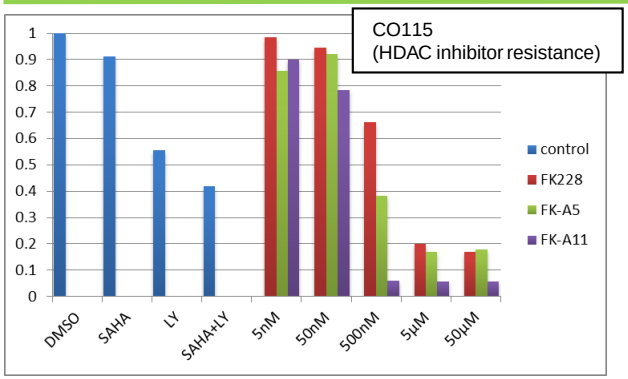


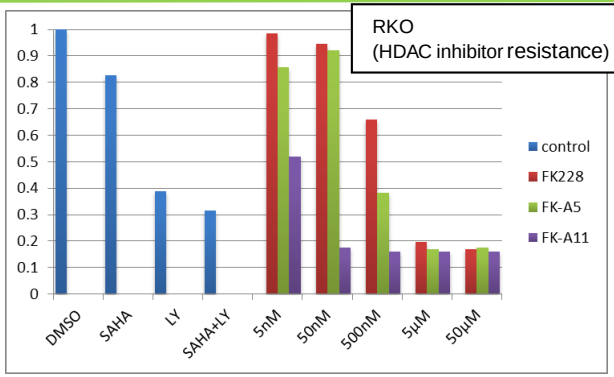
FK228 (Istodax®) Analog (FK-A11)

2. Cytotoxic effects on colon cancer cell (HCT116)



3. Cytotoxic effects on colon cancer cell (CO115, RKO)





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