

ZIC5 Inhibitor

~ Anti-Tumor Agent inhibiting New Target Factors ~

KEY INVENTION

A novel anti-tumor agent that targets ZIC5 (Zinc Finger of the Cerebellum 5) has been developed.

Characteristics of ZIC5

- ZIC5 is a protein which has five (5) C2H2 Zinc Fingers and belongs to Zic Family.
 - No expression is observed in human normal cells. The expression is only observed in brain and testis.
 - The expression is observed in various cancer cells, and it promotes cell proliferation and cell movement.
- ➡ As the apoptosis is inducible in various cancer cells by inhibition of ZIC5, ZIC5 inhibitor is expected as a new anti-tumor agent.

SUMMARY of INVENTION

[Roles of ZIC5 in Melanoma]

The expression of the **platelet derived growth factor (PDGFD)** is induced by **ZIC5**.

FAK/Src proteins are activated by **PDGFD** through Receptor Tyrosine Kinase (RTK), and **FAK & Src** are mutually activated.

STAT3 is activated by **Src** proteins.

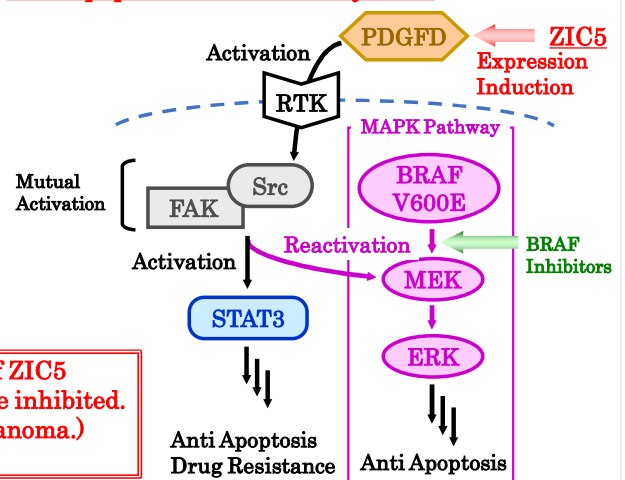
FAK reactivates **MAPK Pathway** inhibited by **BRAF Inhibitors**.

Anti apoptosis is activated.
Drug resistance is enhanced.

Anti apoptosis is activated.

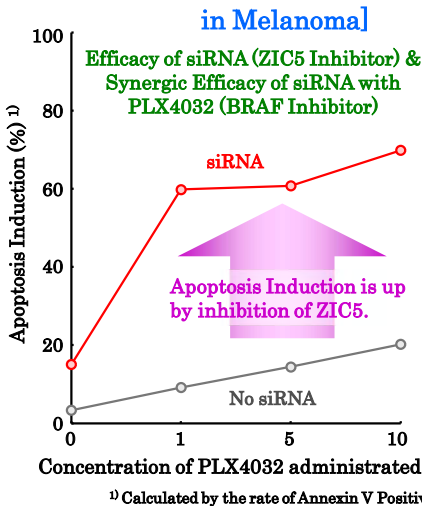
Anti apoptosis and drug resistance are inhibitable by inhibition of ZIC5 since reactivation of anti apoptosis signal and MAPK Pathway are inhibited. (Similar efficacies are observed in other cancers as well as in melanoma.)
➡ ZIC5 inhibitor is expected as a new anti-tumor agent.

Anti Apoptosis Mechanism by ZIC5



EFFECT of INVENTION

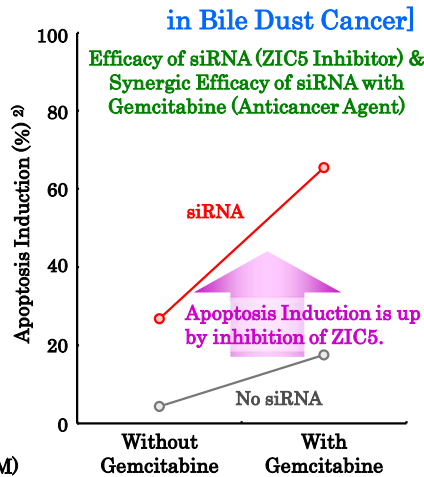
[ZIC5 Inhibition Effect in Melanoma]



Apoptosis induction is up by inhibition of ZIC5, and up more in combination with PLX4032.

Satow et al., Cancer Res., 2017

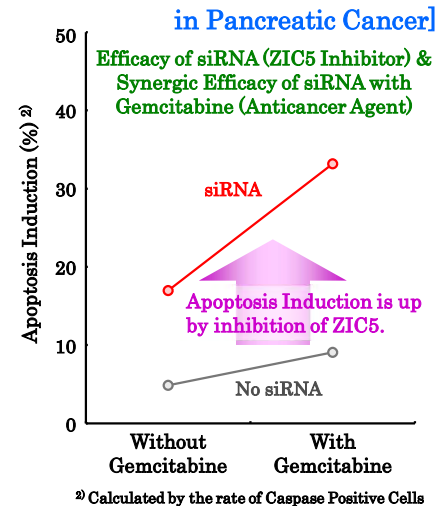
[ZIC5 Inhibition Effect in Bile Dust Cancer]



Apoptosis inductions are up by inhibition of ZIC5 and are up more in combination with gemcitabine both in bile dust and pancreatic cancers.

➡ The *in vivo* trials are currently being conducted.

[ZIC5 Inhibition Effect in Pancreatic Cancer]



APPLICATION expected

© Application as a novel anti-tumor agent by single application or in combination with existing anticancer agents

Representative Inventor: Reiko Satow (Lecturer, Tokyo University of Pharmacy and Life Sciences)

Licensable Patent

Title of Invention:

International Publication No.:

Contact:

Tumor Cell Malignant Transformation Suppressor and Anti-Tumor Agent

WO2016178374

IP Management & Licensing Group,

Department of Intellectual Property Management, JST

TEL) +81-3-5214-8486

EMAIL) license@jst.go.jp

URL) www.jst.go.jp/chizai/

