

Cell line for screening demethylating agents using an endogenous epigenetically silenced reporter (P-1045)

Key facts

- reporter cell line based on H1299 lung cancer cells
- usage of endogenous promoter instead of artificial promoter sequences
- readouts EGFP and G418 resistance
- z-score 0.75

Abstract

Methylation, especially of promoter DNA, is considered to be a key mechanism in the development and progression of cancer. Consequently, high-throughput screening systems for agents that influence DNA methylation are a prerequisite for drug development in this area of cancer research.

Development Stage

In vitro screening assay established.

The Technology

Using the Zinc Finger Nuclease (ZFN) technique, EGFP and G418 resistance genes were stably integrated in the genome of the cell line H1299 under the control of an endogenous promoter. Since the promoter in this cell line is methylated (epigenetically silenced), the reporter genes are not expressed. After the addition of demethylating agents GFP or G418 can be used as a readout in a screening assay for epigenetic reactivation.

Applications and Commercial Opportunity

The cell line can be used for screening demethylating, epigenetic agents in a high-throughput format.

Inventors

The investigators are C. Schmidt, C. Oakes and C. Plass, all members of DKFZ.

Intellectual Property

No patent application has been filed.

Reference

"Evolution of DNA methylation is linked to genetic aberrations in chronic lymphocytic leukemia" in [Cancer Discov. 2014 Mar;4\(3\):348-61](#). doi: 10.1158/2159-8290.CD-13-0349. Epub 2013 Dec 19th by Oakes C.C. et al.

DKFZ Contact:

Dr. Frieder Kern
Deutsches Krebsforschungszentrum
Technology Transfer Office T010
Email: F.Kern@dkfz.de
Tel.: +49-(0)6221-42-2952
Fax: +49-(0)6221-42-2956

Figure:

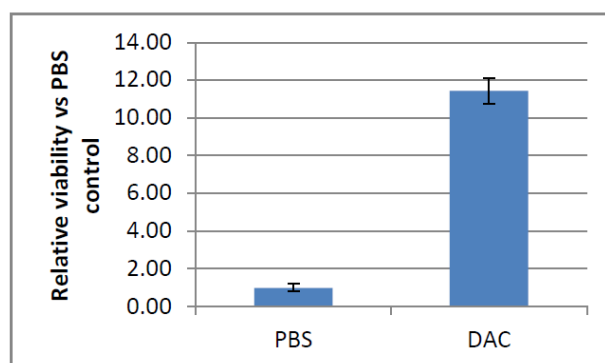


Figure 1: Relative viability of reporter cells treated with 5-aza-2'-deoxycytidine (DAC) compared to control cells after selection with G418