

TECHNOLOGY OFFERS

Cell Line for Screening Demethylating Agents Using an Endogenous Epigenetically Silenced Reporter (P-1045)

High-throughput screening systems for agents that influence DNA methylation, for drug development in cancer research.

EXECUTIVE SUMMARY

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.



Kirsty Pargeter, stock.adobe.com, 111271745

<p>Category Research Tools</p>	<p>Indication Cancer</p>	<p>Development stage Prototype</p>	<p>Seeking Licensing</p>
---	-------------------------------------	---	-------------------------------------

BENEFITS

- 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

TECHNOLOGY BACKGROUND

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.

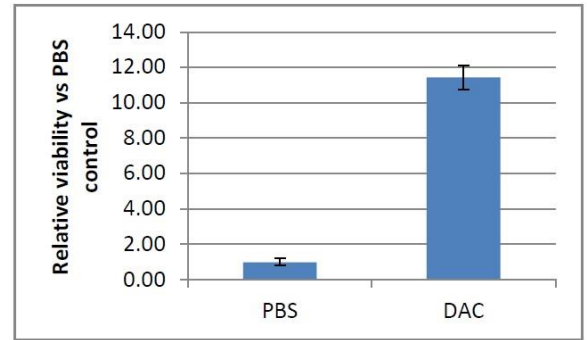


Figure 1: Relative viability of reporter cells treated with 5-aza-2'-deoxycytidine (DAC) compared to control cells after selection with G418

DEVELOPMENT STAGE

In vitro screening assay established.

APPLICATIONS

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

INTELLECTUAL PROPERTY

- No patent application has been filed.

PUBLICATIONS & REFERENCES

- "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:

Lana Semykina
Deutsches Krebsforschungszentrum
Innovation Management T010
Email: s.semykina@dkfz.de
Tel.: +49-(0)6221-42-2953
Fax: +49-(0)6221-42-2956

ABOUT THE DKFZ INNOVATION MANAGEMENT

Working at the interface of research and industry, the Innovation Management of the German Cancer Research Center (DKFZ) helps to get new cancer medications, diagnostic tests, and research instruments onto the market as quickly as possible.

The DKFZ with its more than 3,000 employees is the largest biomedical research institution in Germany. At the Center more than 1,300 scientists investigate how cancer develops, identify cancer risk factors and endeavor to find new strategies to prevent people from getting cancer. They develop novel approaches to make tumor diagnosis more precise and treatment of cancer patients more successful. DKFZ is a member of the Helmholtz Association of National Research Centers, with ninety percent of its funding coming from the German Federal Ministry of Education and Research and the remaining ten percent from the State of Baden-Württemberg