

## TECHNOLOGY OFFERS

# Improved Version of the Chorionallantoic Membrane (CAM) Assay (P-1148)

*Ethical, cost-effective and reliable alternative in vivo test with no need for animal test proposals*

## EXECUTIVE SUMMARY

The offered method is based on the standard CAM assay and uses TaqMan probes in combination with real-time reverse transcriptase technology for accurate quantification of metastatic cells in different organs of the chicken embryo. Even it is an *in vivo* test system, which can be used e.g. for testing the effect of genetic alterations on the metastatic process of tumor cells, no animal test proposals are needed according to German law. Compared to other systems for monitoring intravasation, invasion and metastasis of tumor cells like matrigel assays the CAM assay offers superior comparability to the *in vivo* situation than pure *in vitro* assays.



DKFZ

### Category

Research  
Tools

### Indication

Tumor Cells

### Development stage

Prototype

### Seeking

Licensing

## BENEFITS

- Rapid and reliable *in vivo* test with no need for animal test proposals
- *in vivo* simulation of intravasation, invasion and metastasis of tumor cells
- *in vivo* test for determining the effect of drugs on intravasation, invasion and metastasis of tumor cells
- *in vivo* test for genetic alterations interfering with above mentioned processes

# TECHNOLOGY BACKGROUND

The chorionallantic membrane assay, is a well established *in vivo* assay for simulation of intravasation, invasion and metastasis of tumor cells. Basically tumor cells are placed in the space outside the chorionallantic membrane of a fertilized chicken egg at day 10 p.c. After different time points the presence of tumor cells inside the chicken embryo or its germinal membranes or vessels can be used to determine the invasive and metastatic capacity of the used tumor cells.

## DEVELOPMENT STAGE

Well established, robust and rapid *in vivo* experimental system [see References].

## APPLICATIONS

DKFZ and the University of Heidelberg offer this *in vivo* test as a service for industrial and academic institutions, for collaboration purposes and for licensing.

## INTELLECTUAL PROPERTY

- Know-how based
- No patent filed.

## PUBLICATIONS & REFERENCES

- TaqMan-based quantification of invasive cells in the chick embryo metastasis assay. Van der Horst et al. 2004.
- MicroRNA-21 (miR-21) post-transcriptionally downregulates tumor suppressor Pcd4 and stimulates invasion, intravasation and metastasis in colorectal cancer. Asangani et al. 2008.
- Cetuximab attenuates metastasis and u-PAR expression in non-small cell lung cancer: u-PAR and E-cadherin are novel biomarkers of cetuximab sensitivity. Nikolova et al. 2009.
- Enzastaurin inhibits invasion and metastasis in lung cancer by diverse molecules. Körner et al. 2010.

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## 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