GERMAN CANCER RESEARCH CENTER
IN THE HELMHOLTZ ASSOCIATION

Research for a Life without Cancer

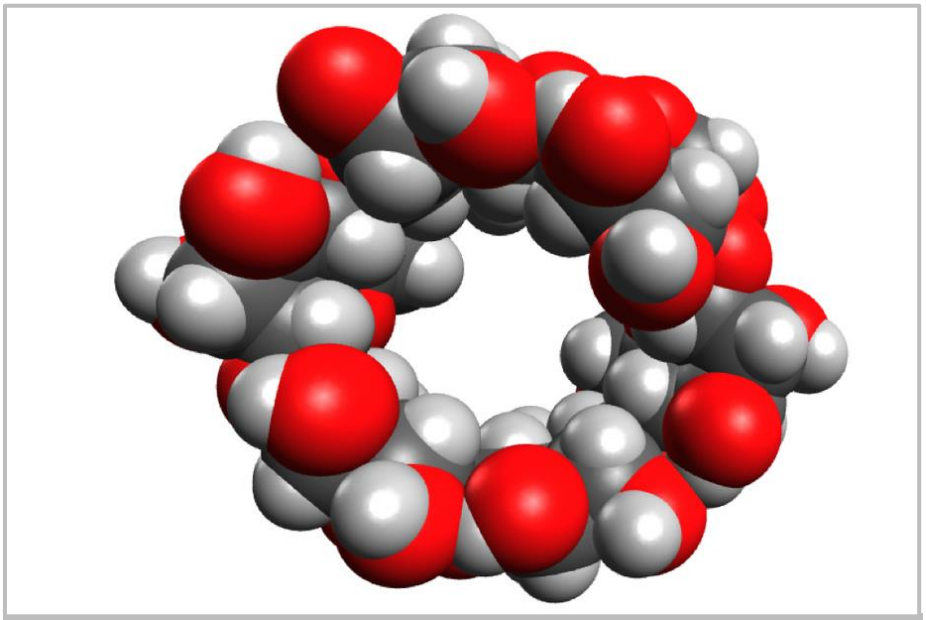
TECHNOLOGY OFFERS

Compositions Comprising Dithiocarbamate and Cyclodextrin (P-1306)

Novel therapy for small cell lung cancer with a synergistic anti-tumour effect

EXECUTIVE SUMMARY

DKFZ-608 is a novel, dinuclear Gold-dithiocarbamatecomplex for the treatment of Small Cell Lung Cancer (SCLC) as Maintenance Therapy after SOC with Etoposide/Cisplatin. DKFZ-608 shows an extraordinary tumor-selective cytotoxicity for SCLC cells tested in a large cell line panel and shows an 100 times less cytotoxic activity on normal cells or NSCLC. The drug is resistance breaking and a PoC in mouse xenografts experiments showed impressive efficacy, DKFZ-608 effectively and permanently prevents tumor recurrences after SOC. Mechanism of action is elucidated and described and serves as marker for patient stratification. Currently, confirmation of the findings in a mouse clinical trial with SCLC PDX models as well a an orthotopic mouse xenograft model is under way.



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Category	Indication	Development stage	Seeking
Therapeutics	Lung cancer	Lead compound	Licensing, Development partner

BENEFITS

- Effective maintenance therapy for SCLC after Cisplatin/Etoposide treatment
- A synergistic potentiation of the anti-tumor effect when a dithiocarbamate/heavy metal mixture was combined with a cyclodextrin.
- Synthesis route is well established and suitable for scale-up
- Biomarker for patient stratification

TECHNOLOGY BACKGROUND

SCLC accounts for about 12-15% of all lung cancers, is an aggressive form of lung cancer, tends to metastasis, has a fatal prognosis. In the treatment of SCLC patients, complete remission is often achieved in primary therapy, but over **90% of patients suffer a relapse** with a therapy-resistant tumor within 6-12 months and usually die within one year. SCLC is also known as the “graveyard for drug development” because many drugs have failed in this indication.

DEVELOPMENT STAGE

Synergisms between disulfiram and aurothiomalate can be observed in cyclodextrin formulation in all tested cells. This effect differs from one cell line to the other by up to 4 orders of magnitude. Surprisingly, the tested T-cell lymphoma/leukemia, carcinoma, non-T-cell leukemia and SCLC cells are hypersensitive to aurothiomalate/disulfiram treatment in cyclodextrin formulation.

APPLICATIONS

- Treatment of SCLC as maintenance therapy
- Pharmaceutical composition
- Biomarker

INTELLECTUAL PROPERTY

Patent applications submitted.

- WO2018069525A1: Compositions comprising a metal source, dithiocarbamate and cyclodextrin , Application Date 13.10.2017
- Nationalized as EP3525886A1, CA3040352A1 and CN109803686A, all pending.

PUBLICATIONS & REFERENCES

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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