Technology Offer

Suicide gene-armed oncolytic virus for enhanced cancer treatment - Ref.-No.: 0204-4297-IKF

Cancer stands as the second-leading cause of human death worldwide, following closely behind cardiovascular and cerebrovascular diseases, with a prevalence that continues to rise. In particular, **hepatocellular carcinoma** is a significant health concern, ranking as the **third leading cause of cancer-related deaths**, and with a **rising incidence** rate due to increasing levels of cirrhosis and NAFLD/NASH.

Despite recent advancements in cancer therapies, including targeted therapy and immunotherapy, the **curative options remain limited**, and median **survival times have improved marginally**.

Virotherapy, a novel biological approach in cancer treatment, uses oncolytic viruses to **directly target tumor cells** and stimulate a potent, long-lasting **anti-tumoral immune response**. However, the **success rate** of virotherapy remains **unsatisfactory**.

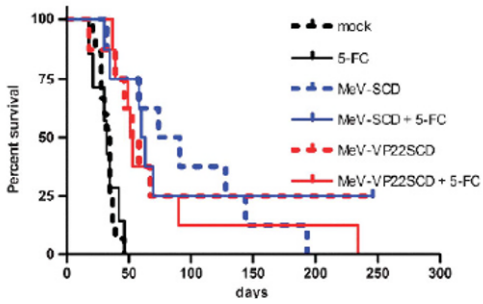
Technology

Researchers at the University Hospital Tübingen and the Max Planck Institute for Biochemistry have developed an innovative **suicide gene-armed virotherapeutic vector** that significantly enhances oncolytic effectiveness.

The suicide gene function **selectively activates an inert prodrug of 5-FU** at the tumour level, leading to cancer cell death and lysis, and allowing to **overcome tumor resistance** and **enhance immune response**. This makes our vector ideal to **increase response rate to immune checkpoint inhibitors**.

Key Advantages:

- **Enhanced Oncolytic Effectiveness**: The suicide gene enhances oncolytic effect, even in cases of low-level virus replication within infected tumor cells.
- **Improved Survival**: *In vivo* studies on HCC xenograft models show a **5-fold improvement in survival**.
- **Safety**: The vector is **well tolerated** in mice and rhesus macaques, with **no adverse effects** observed in organs, blood parameters, and liver enzymes.



Current Status:

- **Preclinical development**, including toxicity studies, has been **completed**.
- First **GMP lot** has been produced and fully characterized
- First-in-human **Phase I clinical trial will be initiated in Q1 2024**.

Patent Family and Publications

International Patent Application No. PCT/EP2011/004200, extended and granted in **Europe**, **Japan**, **Mexico** and **United States**. A list of selected **publications** is available at this link.

Opportunity

We are open to discuss license agreements to accelerate the integration of this promising oncolytic virus into the clinical practice.

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