

Vacthera GmbH, Austria

- Oncolytic Influenza Virus -

Problem

Patients with gastro-intestinal (GI) cancers still face a 40-50 % overall mortality rate*, indicating the urgent need for novel treatment options. Vacthera will therefore focus with its therapy on following cancers:

1. **Colorectal cancer:** e.g. 447.000 new cases/year in Europe, third most common cancer worldwide,
2. **Adenocarcinoma of gastro-oesophageal junction:** e.g. 45.000 new cases/year Europe,
3. **Cholangiocellular Carcinoma:** e.g. 20.000 new cases/year Europe,

Other targets will follow.

Standard treatment against GI cancer implies surgery mostly combined with chemotherapy or radiotherapy. Advances in tumor-immunology indicate, that tumor cells suppress the potential tumor-ablative property of the immune system. The current challenge is to design therapies re-stimulating the immune system to cure the tumor.

Solution

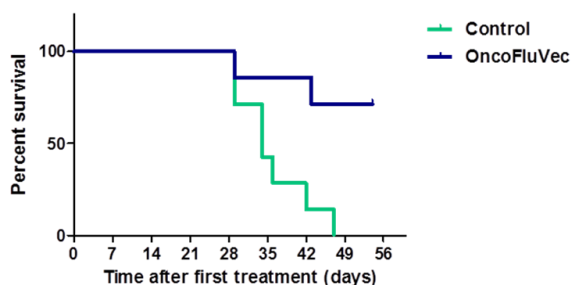
Oncolytic virus therapy has become a valuable part in the advances of immunotherapy. Viruses, engineered to conditionally replicate in the tumor induced an immunogenic cell death, stimulating an anti-tumor immune response. Multiple studies have shown that oncolytic viruses well enhance the effect of checkpoint inhibitor, currently the most promising immunotherapy in solid cancer. Prototypes of oncolytic viruses have been defined for each virus family. The founders of Vacthera have developed the first oncolytic influenza virus prototype. Vacthera's candidate OncoFluVec (VTH202) is an optimized oncolytic influenza virus to be used in the clinic. It offers the following value proposition:

- High treatment efficacy due to inherent property of the influenza virus vector to induce interferon.
- Enhanced efficacy due to expression of a bacterial transgene as booster
- High safety profile
- Efficient and robust production technology with high yields

Proof of Concept - Efficacy

Cancer (murine melanoma) was artificially induced in a mouse model subsequently treated with OncoFluVec. A statistical significant difference was observed between the treated and non-treated group in terms of cancer survival.

OncoFluVec enhances survival of B16 melanoma bearing mice (intratumoral injection):

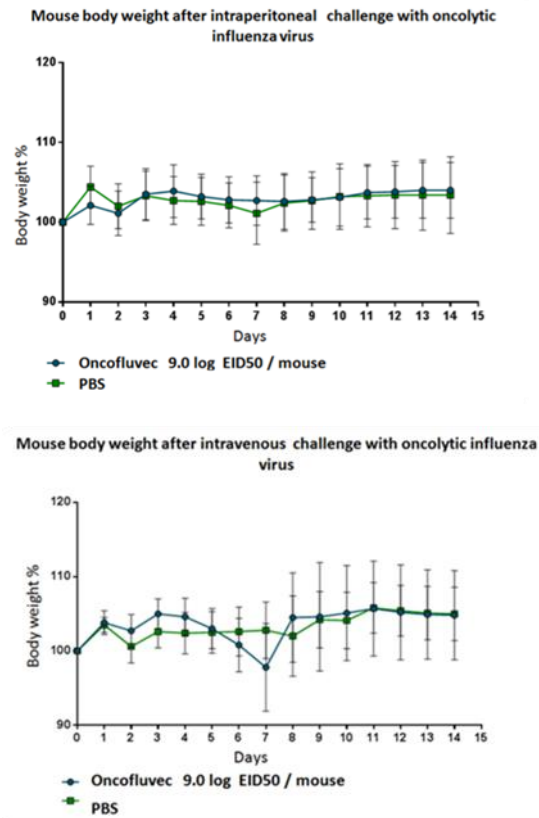


* World Cancer Research Fund International, colorectal cancer statistics, accessed October 27th, 2017

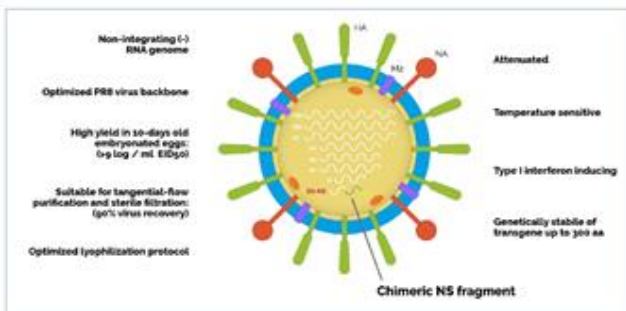
* <http://eco.iarc.fr/eucan/Default.aspx>

Proof of Concept - Safety

This effect was accompanied by full attenuation and no safety signals even when applied at doses as high as 109 EID/animal:



Technology



Market

The market for cancer immunotherapy is developing very rapidly due to an increasing number of medicines and therapies available. Within this decade it should reach about USD 30bn.

Intellectual Property

WO 2017078577 A2

Attenuated influenza vectors for the prevention and/or treatment of infectious diseases and for the treatment of oncological diseases.

Outlook

The proof of concept animal studies and small scale production has been successfully completed. Vacthera's development plan includes large scale production, purification and preclinical toxicity studies according to EMEA guidelines allowing clinical phase I and phase II trials. The successful completion of this program will allow a potential exit, such as trade sale of Vacthera or of individual projects to a global or emerging player in the respective field.

Required Funding* / Use of Proceeds**

- €1,5M GMP production
- €0,5M preclinical toxicity studies
- €2,0M Phase I
- €2,0M Phase I

* Mix of public and private funding

** Budget estimation, company quotations ongoing

Management

Michael Bergmann, CMO

- M.D., Associate Professor for Surgery
- Senior Physician, Dept. of General Surgery
- Head Surgical Research Laboratories
- Leader Subgroup Oncology/Inflammation
- Consultant, Specialist Colorectal Surgery
- Scientific co-founder

Martin Götting, CEO

General Manager of Capricorn Consilium GmbH - Consulting and Interim Management for the vaccine industry.

Over 30 years of experience in the vaccines industry, e.g.:

- Global Head of Production & Sales Logistics, Chiron Vaccines
- Director Commercial Operations, Chiron Vaccines
- VP Marketing, Sales & Supply, Intercell AG (today Valneva)

Andrej Egorov, CSO

- MD, Professor
- Virologist > 30 years experience in influenza research and vaccinology
- Expert respiratory diseases
- Lecturer: innate immunity and antiviral drugs
- Advisor at the Institute of Influenza, St. Petersburg, Russia
- Scientific co-founder and product inventor