TECHNOLOGY OFFER

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14-15 New therapeutic approach for Pediatric Glioblastoma

- ✓ **Therapeutics and companion diagnostics for patients suffering from K27M Histone H3.3 associated glioma**
- ✓ **Immunotherapy**
- ✓ **Tumor Diagnostic**

The Technology

Most tumor-associated antigens (TAAs) recognized by T cells are "self" antigens that may be quantitatively over-expressed by tumor cells or are selectively mutated in tumor cells (mutated TAA) of one or more histologic types. Clinical trials implementing vaccines and immunotherapies targeting such antigens have exhibited success in promoting increased numbers of specific CD4+ and/or CD8+ T cell populations in the peripheral blood of patients. There is a need to identify additional tumor associated antigens or combinations of antigens that can be used for cancer immunotherapy. We developed novel immunogenic peptide sequences that can be used as vaccines in the treatment of glioma based on the K27M mutated variant of the human Histone 3 and diagnostic methods based on the immunogenic capacity of the selected peptides.

Background

Pediatric glioblastomas (GBM) including diffuse intrinsic pontine gliomas (DIPG) are devastating brain tumors with no effective therapy. there is a continued need for gliomal therapies. Paediatric glioblastomas (GBM) are highly aggressive and lethal tumors. Recent sequencing studies have shown that ~30 % of paediatric GBM and ~80 % of diffuse intrinsic pontine gliomas show K27M mutations in the H3F3A gene, a variant encoding histone H3.3. H3F3A K27M mutations lead to global reduction in H3K27me3 and the mutation is used as prognostic marker indicating a poor prognosis. Therefore there is a continuing need to provide novel tumor associated antigens, as peptide or nucleic acids, which can be used as anti-cancer vaccines for the treatment of proliferative diseases. In particular the present invention provide new therapeutics and companion diagnostics for patients suffering from K27M Histone H3.3 associated glioma.

Patent application: WO2017009349 A1

Commercial Opportunity

- ✓ Immunotherapie with vaccines
- ✓ Companion diagnostic

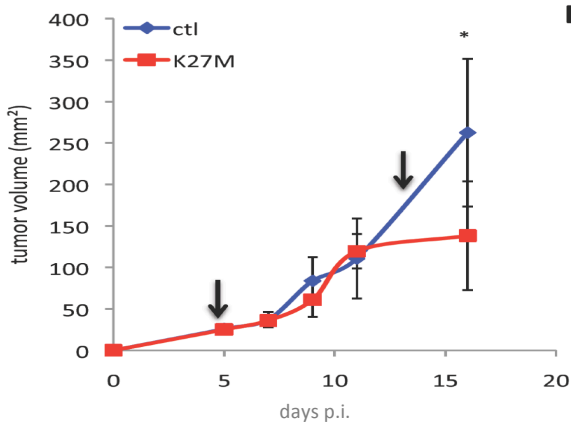

Fig.1) H3.3 K27M peptide vaccination reduces H3.3 K27M$^+$ tumor growth in MHC-humanized mice: Growth of pre-established H3.3 K27M over-expressing subcutaneous syngeneic tumors in A2.DR1 mice after peptide vaccination with H3.3 K27M$_{14-40}$ (red) or vehicle control (blue) in Montanide® on days 5 and 14 (arrows) (D) and ELISpots of IFNγ splenocyte responses to H3.3 K27M$_{14-40}$ (black), K27wt$_{14-40}$ (grey) or MOG$_{35-55}$ (white) after therapeutic vaccination of tumor bearing mice (E). Mean +/- s.e.m. of n=6 mice per group are shown. *p<0,05; **p<0,01.

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