Neoantigen vaccine generates intratumoral T cell responses in phase Ib glioblastoma trial -
DTU Orbit (30/03/2019)

**Neoantigen vaccine generates intratumoral T cell responses in phase Ib glioblastoma trial**

Neoantigens, which are derived from tumour-specific protein-coding mutations, are exempt from central tolerance, can generate robust immune responses and can function as bona fide antigens that facilitate tumour rejection. Here we demonstrate that a strategy that uses multi-epitope, personalized neoantigen vaccination, which has previously been tested in patients with high-risk melanoma, is feasible for tumours such as glioblastoma, which typically have a relatively low mutation load and an immunologically 'cold' tumour microenvironment. We used personalized neoantigen-targeting vaccines to immunize patients newly diagnosed with glioblastoma following surgical resection and conventional radiotherapy in a phase I/ Ib study. Patients who did not receive dexamethasone—a highly potent corticosteroid that is frequently prescribed to treat cerebral oedema in patients with glioblastoma-generated circulating polyfunctional neoantigen-specific CD4+ and CD8+ T cell responses that were enriched in a memory phenotype and showed an increase in the number of tumour-infiltrating T cells. Using single-cell T cell receptor analysis, we provide evidence that neoantigen-specific T cells from the peripheral blood can migrate into an intracranial glioblastoma tumour. Neoantigen-targeting vaccines thus have the potential to favourably alter the immune milieu of glioblastoma.

**General information**

State: Published
Organisations: Genomic Epidemiology, Department of Bio and Health Informatics, Cancer Genomics, Harvard Medical School, Dana-Farber Cancer Institute, Broad Institute, Brigham and Women's Hospital, Oncovir Inc.
Number of pages: 4
Pages: 234-239
Publication date: 2018
Peer-reviewed: Yes

**Publication information**

Journal: Nature
Volume: 565
ISSN (Print): 0028-0836
Ratings:
- BFI (2019): BFI-level 3
- Web of Science (2019): Indexed yes
- BFI (2018): BFI-level 3
- Web of Science (2018): Indexed yes
- BFI (2017): BFI-level 2
- Scopus rating (2017): CiteScore 14.59
- Web of Science (2017): Indexed yes
- BFI (2016): BFI-level 2
- Scopus rating (2016): CiteScore 13.33
- Web of Science (2016): Indexed yes
- BFI (2015): BFI-level 2
- Scopus rating (2015): CiteScore 14.38
- Web of Science (2015): Impact factor 17.184
- Web of Science (2015): Indexed yes
- BFI (2014): BFI-level 2
- Scopus rating (2014): CiteScore 14.22
- Web of Science (2014): Impact factor 14.547
- Web of Science (2014): Indexed yes
- BFI (2013): BFI-level 2
- Scopus rating (2013): CiteScore 14.96
- Web of Science (2013): Impact factor 15.295