Influence of ipilimumab on expanded tumour derived T cells from patients with metastatic melanoma - DTU Orbit (19/03/2019)

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Introduction: Tumour infiltrating lymphocyte (TIL) based adoptive cell therapy (ACT) is a promising treatment for patients with advanced melanoma. Retrospective studies suggested an association between previous treatment with anti-CTLA-4 antibodies and long term survival after subsequent ACT. Thus, we hypothesized that treatment with anti-CTLA-4 antibodies can induce favourable changes to be detected in TILs.

Results: Expanded T cells from Ipilimumab treated patients had a higher proportion of cells expressing CD27, intracellular CTLA-4, TIM-3 and LAG-3. In addition, broader and more frequent T cell responses against common tumour antigens were detected in patients treated with Ipilimumab as compared to anti-CTLA-4 naive patients.

Materials and methods: Expanded TILs were obtained from patients with advanced melanoma who had received Ipilimumab in the previous six months, or had not received any type of anti-CTLA-4 antibody. T cell specificity and expression of phenotypic and exhaustion markers were scrutinized as well as functional properties.

Conclusions: Ipilimumab may induce tumor-infiltration of T cells of a more naive phenotype expressing markers related to activation or exhaustion. Additionally, Ipilimumab may increase the frequency of T cells recognizing common tumour associated antigens.

General information
State: Published
Organisations: National Veterinary Institute, T-cells & Cancer, University of Copenhagen
Contributors: Bjørn, J., Lyngaa, R. B., Andersen, R., Rosenkrantz, L. H., Hadrup, S. R., Donia, M., Svane, I. M.
Pages: 27062-27074
Publication date: 2017
Peer-reviewed: Yes

Publication information
Journal: OncoTarget
Volume: 8
Issue number: 16
ISSN (Print): 1949-2553
Ratings:
Web of Science (2018): Indexed yes
Scopus rating (2017): CiteScore 4.65 SJR 1.942 SNIP 1.039
Web of Science (2017): Indexed yes
Scopus rating (2016): CiteScore 4.73 SJR 1.994 SNIP 1.062
Web of Science (2016): Impact factor 5.168
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 4.91 SJR 2.26 SNIP 1.116
Web of Science (2015): Impact factor 5.008
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 4.96 SJR 2.551 SNIP 1.285
Web of Science (2014): Impact factor 6.359
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 5.26 SJR 3.061 SNIP 1.261
Web of Science (2013): Impact factor 6.627
ISI indexed (2013): ISI indexed yes
Scopus rating (2012): CiteScore 6.54 SJR 2.512 SNIP 1.065
Web of Science (2012): Impact factor 6.636
ISI indexed (2012): ISI indexed no
Scopus rating (2011): CiteScore 3.38 SJR 1.505 SNIP 0.489
Web of Science (2011): Impact factor 4.784
ISI indexed (2011): ISI indexed no
Original language: English
Electronic versions:
oncotarget_08_27062.pdf
DOIs:
10.18632/oncotarget.16003

Bibliographical note
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