



Technology Opportunity, Ref. No. UZ-19/088

Prediction of response to anti-PD-1 prior to immunotherapy of cancer patients

The invention offers a diagnostic tool to physicians to stratify cancer patients prior to anti-PD-1 immunotherapy.

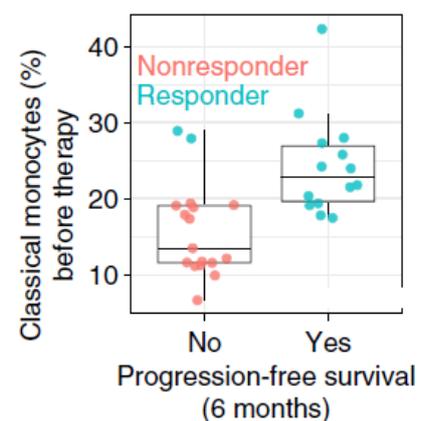
Keywords Immunotherapy, response to anti-PD-1 therapy, monocytes, classical monocytes (CD14+CD16-HLADRhi), flow cytometry, peripheral blood mononuclear cells (PBMCs), metastatic melanoma

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Reference <https://www.nature.com/articles/nm.4466>

Background Immunotherapy with anti-PD-1 aims to block the interaction of PD-1+ T cells with PD-1 ligands (PD-L1 and PD-L2) thus releasing the break on tumour-reactive T cells. The resultant clinical response was a game changer in cancer therapy since now up to half of the patients contrary to <10% of patients with advanced melanoma and other metastatic cancers initially show a response. Despite these encouraging results, clinical outcomes remain variable; only a fraction of patients show durable responses, some with early progression and others with a late response; whereas about half of treated patients show no beneficial clinical response.

Invention This invention shows that by taking one millilitre of blood, as a low risk minor invasive biopsy, before commencing therapy, the frequency of CD14+CD16-HLA-DRhi monocytes can be used as a strong predictor of progression-free and overall survival in response to anti-PD-1 immunotherapy. The inventors confirmed this by conventional flow cytometry in an independent, blinded validation cohort. Hence, the frequency of monocytes in PBMCs may serve in clinical decision support.



Fields of Use Based on the invention a diagnostic kit can be designed and developed which will provide valuable information on therapy response in metastatic cancer patients.

Patent Status Patent application filed

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