

# White blood cell count predicts response to lung cancer immunotherapy

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White blood cell counts can predict whether or not lung cancer patients will benefit from immunotherapy, according to research presented at the European Lung Cancer Conference (ELCC).

"Immune checkpoint inhibitors such as [nivolumab](#) and pembrolizumab significantly improve overall survival in some - but not all - patients with non-small cell lung cancer (NSCLC)," said lead author Dr Marcello Tiseo, Coordinator of DMT Thoracic Oncology, University Hospital of Parma, Italy. "Researchers are looking for a predictive biomarker to select patients that will benefit from this treatment to avoid unnecessary toxicity and a waste of resources in patients who will not respond."

He continued: "PD-L1 expression in a biopsy of tumour tissue is used to select patients but it is not completely accurate, possibly because it does not reflect the evolving immune response. Biomarkers in the blood are easier to obtain and may be better indicators of [immune response](#)."

This study assessed the ability of white blood cell counts to predict whether [lung cancer patients](#) responded to treatment with nivolumab. The study included 54 patients with NSCLC who received nivolumab at a dose of 3 mg/kg every 14 days. White blood cell counts were performed at baseline, after two nivolumab cycles, and after four nivolumab cycles. The researchers compared white blood cell counts between responders and non-responders to nivolumab.

The researchers found that white blood cell counts at baseline and during

therapy predicted whether patients would respond to nivolumab treatment. A greater number and concentration of natural killer cells at baseline was associated with response to nivolumab, as was an increase in the number of natural killer cells during treatment. Responders to nivolumab also had a greater number and concentration of CD8 positive T cells that expressed PD-1.

Tiseo said: "The number and function of [natural killer cells](#) and the frequency of PD-1 expression in CD8 positive T cells could be predictive biomarkers for nivolumab treatment in advanced NSCLC. The identification of a panel of [blood](#) predictive biomarkers would enable the early identification of patients most likely to benefit from anti-PD-1 and anti-PD-L1 treatment."

Commenting on the findings, Dr Stefan Zimmermann, Senior Consultant, Medical Oncology Department, HFR - Hôpital Cantonal, Fribourg, Switzerland, said: "In the current era of precision medicine and increasing healthcare costs we urgently need proper predictive biomarkers to select patients that will benefit from a specific therapy."

He continued: "This study found that baseline levels of certain [white blood cells](#) do have a role in predicting response to immunotherapy in patients with [lung cancer](#). These new factors should be investigated in future clinical trials, together with tumour PD-L1 expression and other markers that constitute the cancer immunogram predict whether or not [patients](#) will benefit from treatment."

**More information:** Abstract 30PD - 'Circulating immune-profile as predictor of outcome in NSCLC patients treated with Nivolumab' will be presented by Dr Marcello Tiseo during the Poster Discussion session 'Epidemiology and innovations in biomarker development' on Saturday, 6 May, 16:45 (CEST).

Provided by European Society for Medical Oncology

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