MELANOMA AND MELANOCYTIC NAEVI

ACTIVATION OF CYTOKINE SIGNALLING THROUGH STAT5 IS ASSOCIATED WITH SURVIVAL IN PATIENTS WITH THICK OR ULCERATED LOCALLY INVASIVE MELANOMAS

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Background: There is an ever-increasing interest in identifying novel melanoma prognostic biomarkers with superior capabilities compared to current clinicopathological measures to further stratify individual patient prognosis and personalize individual treatment. Studies are now looking at other factors within the tumour microenvironment and host immune response to find novel biological correlations with melanoma outcome. The immune system plays a vital role in tumour progression and survival, with studies looking at the gene expression signatures in melanoma highlighting the importance of immune-related genes in melanoma prognosis. We reasoned that in primary melanoma tumours, an active immune system would result in cytokine production such as interferon alpha and gamma. We therefore analysed activation of cytokine receptor signalling through the biomarker phosphorylated signal transducer and activator of transcription 5 (pSTAT5).

Objective: To analyse the activation of cytokine receptor signalling through the biomarker pSTAT5 and evaluate its association with melanoma recurrence and survival.

Materials and Methods: 189 primary invasive melanoma tissues were analysed for pSTAT5 expression by immunohistochemistry. p-STAT5 status was tested for association with clinicopathological factors such as age, sex, Breslow thickness, ulceration, and SLN status using chi-square analysis and t-test. The effect of each clinicopathological factor and pSTAT5 on recurrence and survival was assessed using cox proportional hazards regression models.

Results: High pSTAT5 expression was found to be independently associated with improved melanoma-specific survival (HR 0.265 [0.076-0.921] p=0.037). A novel prognostic nomogram score featuring pSTAT5 and previously validated biomarkers CD163, p16, and clinicopathological factors was strongly predictive of melanoma survival (HR 1.95

[1.147-3.323] p=0.014), with comparable prognostic power to SLN status.

Conclusion: This study showed promising results for the potential to include pSTAT5 as a prognostic melanoma biomarker. Further testing in independent cohorts to validate our results would be valuable.