Scientific Foundation SPIROSKI, Skopje, Republic of North Macedonia
South East European Journal of Immunology. 2025 Mar 27; 8(CITIM):069
https://doi.org/10.3889/seejim.2025.6132
eISSN: 1857-9388
Category: *CITIM - Cancer Immunotherapy & Immunomonitoring (CITIM2025)*
Section: *Posters*

Adipokines and gut microbiome shape the outcome of cutaneous melanoma: preliminary insights

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Citation: Constantin C, Dobre E-G, Munteanu AN, Surcel M, Zurac SA, Neagu M. Adipokines and gut microbiome shape the outcome of cutaneous melanoma: preliminary insights. SEE J Immunol. 2025 Mar 27;8(CITIM):069. https://doi.org/10.3889/seejim.2025.6132
Keywords: Adipokines; Gut Microbiome; Melanoma Progression
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Received: 01-March-2025
Accepted: 25-March-2025
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Funding: The study was financed by grants ELI-RO/RDI/2024_017 and NASR PN23.16.01.03. Authors acknowledge the cooperation through COST Action CA21108 - European Network for Skin Engineering and Modelling, NETSKINMODELS.
Competing Interests: The authors have declared that no competing interests exist

Abstract

An emerging area of research in cutaneous melanoma is related to the interference of associated co-morbidities such as obesity as an important metabolic alteration, and microbiome characteristics. Such alterations occur in chronic inflammation, immune evasion, and carcinogenesis, impacting antitumor immunity and response to therapy. Increasing data regarding the effect of metabolic disorders in tumor progression associate high levels of adipokines as having an influence on the tumor microenvironment and immune response. A series of cytokines/chemokines support chronic inflammation in cancer in conjunction with metabolic imbalance. Among adipokines, a key hormone, *leptin* may mediate the effects of obesity on melanoma progression, having a direct effect on vital signaling pathways (e.g., JAK2/STAT3 and the MAPK/FOS cascade) and influencing T lymphocyte responses through the transition to the T helper-1 phenotype. Such soluble modulators of cancer dysbiosis can be integrated into complex melanoma study protocols that can encompass investigation of the microbiome at different stages of the disease or for monitoring the effects of therapy. Advanced molecular exploration technologies (e.g., NGS) provide refined data in a complex, multidimensional approach in dermato-oncology.
Acknowledgement: The study was financed by grants ELI-RO/RDI/2024_017 and NASR *PN23.16.01.03.* Authors acknowledge the cooperation through COST Action CA21108 - European Network for Skin Engineering and Modelling, NETSKINMODELS.