

Can larval tapeworms stimulate the immune response of mice to facilitate the reduced progression of melanoma cancer cells?

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Several studies on mouse models have reported that infection with some helminths can reduce the progression of specific cancer types. However, the critical anti-tumor effector mechanisms remain largely elusive. Here, we present our observations that mice infected with *Mesocestoides corti* or *Taenia crassiceps* dramatically suppress the proliferation and spreading of B16F10 melanoma cancer cells in the peritoneal cavity pre-occupied by the larval tapeworms. To dissect the role of host immunity in this protection, we performed a complex flow cytometry analysis of the sites affected by the tapeworms and melanoma (the peritoneal cavity, liver, and lungs) in ICR and C57BL/6J mice. Additionally, we tested the antigen-specific cytokine production of splenocytes stimulated by either tapeworm or melanoma antigens. While the cytokine profile of splenocytes generally remained unaltered after the restimulation, we detected a massive increase in CD8⁺ T cells and NK cells in the peritoneal cavity. As these cell types bear a powerful anti-tumor arsenal, their contribution to host protection against melanoma is being further investigated.

Acknowledgment: The study was supported by Czech Science Foundation (21-28946S).