Th17 cells in melanoma microenvironment

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An inflammatory infiltrate, consisting mainly of lymphoid cells, plays a key-role in the prognosis of melanoma as well as in immunotherapy efficiency. The inflammatory tumor microenvironment is notably composed of T helper 17 (Th17) cells, a subtype of CD4+ T lymphocytes. Clinical data on their involvement in melanoma are lacking. In this work, we characterized the Th17 infiltration related to different stages of melanoma.

Immunohistochemistry on human cutaneous biopsies using an anti-interleukin (IL)-17 antibody allowed the location of IL-17+ cells closed to vessels, in the papillary dermis and in the uppermost part of the reticular dermis whatever the melanoma stage. Furthermore, a preliminary semi quantitative analysis based on the scoring of cell density within "hotspots" on patient biopsies highlights an increase of IL-17+ cells according to the stage of melanoma. This increase reaches a significant level ($p < 0.05$) between advanced stages (n=11) of melanoma and nevi (used as negative control) (n=19).

In order to characterize cells producing IL-17, double immunolabellings IL-17/CD4 and IL-17/CD8 using confocal microscopy have been performed. Indeed, other cells than CD4+ like γδ T cells, CD8+ T cells and macrophages could express this cytokine. Our results show that most of IL-17+ cells are Th17 cells and express CD4, only a small proportion of IL-17+ cells express the CD8.

In conclusion, our results show a more important infiltration of IL-17+ cells, mainly Th17 cells, in the microenvironment of advanced stage melanoma. These data suggest that Th17 cells could be a good factor which determines the outcome of the disease and the orientation of immunotherapy. Therefore, the study of their controversial protumor or antitumor function is planned by our team.