B1 cells and the metastatic process of murine melanoma cells: participation of the surface protein MUC18 as detected by Phage Display

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B1 cells constitute a subpopulation of B cells present mainly in the peritoneal and pleural cavities of mice, whose functions are not fully established. They express surface markers typical of both, lymphoid B and myeloid cells with (B1a) or without (B1b) the expression of CD5. Herein we report that both, deletion by localized irradiation or by the use of Xid mice (which lack B1 cells) of this population showed to be enough to abrogate the growth and the metastatic capacity of murine melanoma cells. Also, that this result was dependent on the clustering of B1 cells around melanoma cells in vitro. By using Phage Display methodology, it was demonstrated that that clustering was achieved through the homotypic binding of a surface molecule known as MUC18 which was known to correlate with the malignancy of melanoma. Furthermore, after binding, MUC18 was over-expressed by melanoma cells but not by B1 cells, corroborating epidemiological human data. These results show, for the first time that, on the one hand, B1 cells express MUC18 and, on the other, that melanoma can recruit components from the host immune system to become even more malignant.