A unique pathway in the homing of murine multiple myeloma cells: CD44v10 mediates binding to bone marrow endothelium

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Our group recently reported that multiple myeloma (MM) cells preferentially adhere to bone marrow (BM) endothelial cells and selectively home to the BM, suggesting the involvement of specific adhesive interactions in this process. The highly regulated expression of CD44 variant isoforms (CD44v) on the MM cells makes them good candidate adhesion molecules involved in this homing. We addressed this in the 5T experimental mouse model of myeloma. Fluorescence-activated cell sorting analysis demonstrated expression of CD44v6, CD44v7, and CD44v10 on the in vivo growing 5T2MM and 5T33MM myeloma lines. Antibody blocking experiments revealed the involvement of CD44v10 in the adhesion of 5T2MM and 5T33MM cells to BM endothelial cells. Coinjection of anti-CD44v10 antibodies with the myeloma cells into syngeneic mice demonstrated a selective blocking of their BM homing which resulted in a decreased BM tumor load and serum paraprotein at the end stage of the disease. The highly restricted expression of CD44v10 on MM cells, the blocking of MM adhesion to BM endothelial cells and of homing to BM by anti-CD44v10, and the decreased BM tumor load suggest that myeloma cells home to the BM via interactions mediated by this specific region of the adhesion molecule CD44.
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