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GYN Pathology

Ectopic expression of Vascular Cell Adhesion Molecule-1 (VCAM-1) by tumor cells allows them to escape from immune attack

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Tumor escape from anti-tumor immune response has long been recognized as a major obstacle for the development of effective cancer immuno-therapeutics. Here, we describe a systematic approach for identifying genes co-opted by tumors to resist immune attack. Through multiple rounds of in vivo immune selection, we created a mouse model of tumor escape by deriving a highly resistant cell line (P3) from a susceptible cell line (TC-1/Po). Microarray analysis of the susceptible cell line (Po) and its resistant variant (P3) revealed VCAM-1 as one of the genes differentially up-regulated in P3. Retroviral transfer of VCAM-1 into Po significantly increases the resistance of Po against an anti-tumor immune response. As VCAM-1 has been reported to be expressed by some human cancers, VCAM-1 expression by tumor cells may represent a novel tumor evasion mechanism. Studies to determine how tumor expression of VCAM-1 impairs anti-tumor immune response are ongoing.