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Role of resident memory T cells in cancer immunotherapy

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Recent studies show that tissue resident memory T cells (TRM) are emerging as essential actors involved in tissue immunosurveillance. This role partly relies on their specific expression of adhesion molecules (CD103 or CD49a integrins, chemokine receptors) facilitating their retention into tissues and consequently into tumor. Their well-positioned location in close contact with tumor cells, their enrichment in tumor specific T cells, as well as their higher cytotoxic capacities explain that their tumor infiltration is correlated with good clinical outcome in many cancers. We and other groups have shown that the efficacy of cancer vaccines depends on their ability to elicit TRM. In adoptive cell therapy, the transfer of cells with the ability to establish TRM at the tumor site correlates with the potency of this therapy. Interestingly, TRM express immune checkpoint molecules and preliminary data showed that they could expand early during anti-PD-1 treatment, and thus be considered as a surrogate marker of response to immunotherapy. Overall, TRM cells appear to represent important components in cancer immunology both as a potential biomarker of response to immunotherapy and as critical effector cells required for the success of various immunotherapy approaches.