Podoplanin-expressing macrophages: the missing link between tumor lymphatics and metastasis

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Abstract: Among all tumor-infiltrating immune cells, Podoplanin (PDPN) appears to be exclusively expressed by tumor-associated macrophages (TAMs). Here, I demonstrate that Pdpn is required for TAM migration and adhesion to lymphatic endothelial cells (LECs). A defect in perilymphatic TAM recruitment upon macrophage Pdpn knockout impairs lymphangiogenesis and lymphatic dissemination of cancer cells to the lymph nodes, preventing breast cancer metastasis to the distant organs such as lungs. In breast cancer patients, association of Pdpn-expressing macrophages (PoEMs) with tumor lymphatics strongly correlates with the incidence of lymph node and distant organ metastasis.

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