Ten years ago the relationship between tumors and the lymphatic system was perceived to be rather passive. Since then, the dramatic increase in our understanding of the molecular biology of lymphatic endothelial cells and the regulation of lymphangiogenesis has revealed that tumors can actively interact with the lymphatics by inducing lymphangiogenesis. In turn, this interaction promotes the entry of tumor cells into the lymphatic vasculature and their subsequent transport to regional lymph nodes, a process that stimulates the formation of metastases. Tumor-induced lymphangiogenesis has thus emerged as an important new target in the fight against metastatic cancer. Nevertheless, there is still much to be learned about the relationship between tumors and the lymphatics that will have important ramifications for the design of clinical trials aimed at the application of anti-lymphangiogenesis therapies in the management of cancer. This Lymphangiogenesis Review focuses on these issues.