



# Cancer immune cycle: a video introduction to the interaction between cancer and the immune system

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## ABSTRACT

This educational video discusses and visualises the key steps of the complex interaction between cancer and the immune system. Essential steps of the cancer immune cycle take place in the tumour itself and in regional lymph nodes, with immune cells travelling between these distinct sites. Antigen-presenting cells such as dendritic cells migrate into the tumour micro-environment and take up tumour antigens. Antigen-presenting cells travel to regional lymph nodes, where they present the tumour antigens to naïve T cells in order to initiate a tumour-specific T cell response. Activated tumour-specific T cells multiply by clonal expansion and enter the blood flow and travel from the regional lymph node to the tumour site. As

soon as activated T cells arrive at the tumor site they start a tumour-specific immune response. Co-inhibitory receptors modulate the immune response and may be exploited by tumour cells to escape immunological destruction. In summary, the cancer immune cycle involves several pivotal steps that are essential for generation of a successful specific antitumour immune response. Importantly, dysfunction of a single step may interrupt the entire cycle, thus impairing the immune-mediated control of tumour growth. Immune modulatory therapies such as vaccines or immune checkpoint modulators target specific steps of the cancer immune cycle with the ultimate aim of facilitating an antitumour immune response.