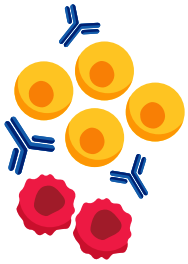
Cancer Growth: Local and Systemic Influences

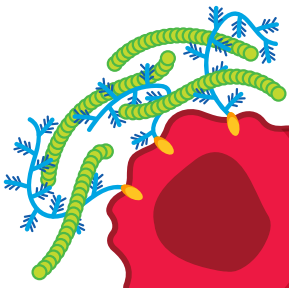
Solid tumors are much more complex than an isolated mass of proliferating cancer cells. Cancer development is strongly influenced by interactions between cancer cells with numerous factors in their environment. Among the components of the tumor microenvironment are the following:

Immune cells can identify and eliminate cancer cells, although in many cases the immune system is suppressed, permitting the formation and progression of a tumor. However, in some situations of chronic inflammation, the immune system can promote cancer development and progression.

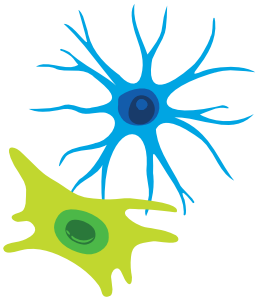


Cancer cells can stimulate a process called tumor angiogenesis, the growth of **blood and lymphatic vessel networks**, which supply the cancer cells with the nutrients and oxygen required for rapid growth and survival and provide a route for cancer cell escape to distant sites (metastasis).

The **matrix** surrounds the tumor and provides structural and biochemical support. This ultimately regulates proliferation of cancer cells, supports tumor growth, and eventually aids in tumor metastasis.



Other tissue-specific **tumor-associated cells**, such as pericytes, fibroblasts, and astrocytes, can support tumor growth through various mechanisms including stimulating tumor cell multiplication, triggering formation of new blood vessels, and enhancing survival of cancer cells.



Systemic factors in the circulation, such as growth factors (e.g., hormones) and nutrients, influence the development and growth of cancer.