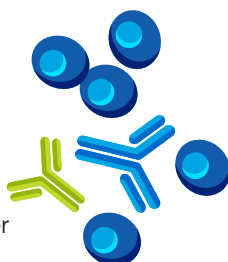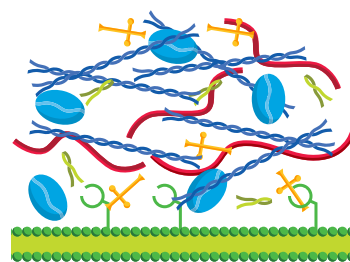# Cancer Progression: Local and Systemic Influences

Solid tumors are much more complex than an isolated mass of proliferating cancer cells because cancer initiation, development, and progression are strongly influenced by interactions among cancer cells and numerous factors in their tissue environment. Among the components of the tumor microenvironment are:
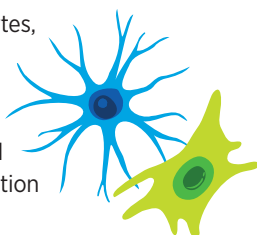
Immune cells can identify and eliminate cancer cells, although in many cases the immune system is suppressed, permitting the formation and progression of a tumor. However, in some situations of chronic inflammation, the immune system can promote cancer development and progression.

The **matrix** of proteins that surrounds the cancer cells can influence cancer formation, metastasis, and other processes.
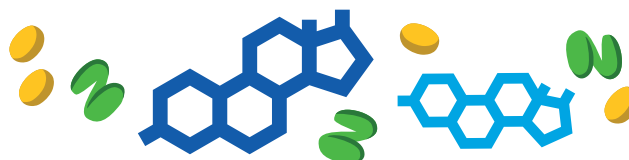
Other tissue-specific **tumor-associated cells**, such as pericytes, fibroblasts, and astrocytes, can support tumor growth through various mechanisms including stimulating tumor cell multiplication, triggering formation of new blood vessels, and enhancing survival of cancer cells.

Cancer cells can stimulate 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).

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

A growing body of evidence suggests the presence of differential tumor microenvironment components among different racial and ethnic populations. These differences in the tumor microenvironment can put certain populations at a higher risk for developing aggressive types of cancer and may affect clinical outcomes. A better understanding of differences in the tumor microenvironment is critical for novel therapeutic interventions to bridge the disparities in clinical outcomes for patients from different racial and ethnic groups.