Since the 1970s, research into the treatment of cancer has yielded numerous new modalities to combat cancer. Yet the biggest stumbling block to ensuring long-term survival is cancer metastasis. A patient with cancer is considered cured when cancer remains undetected for five or more years (van Eys, 1987). However, for some reason, over a period of time, cancer may begin to regenerate, and a patient can present with metastasis beyond that five-year period. The cause must be the result, in part, of cancer cells’ ability to make their own blood supply or the stimulation of dormant micrometastasis through a process known as angiogenesis. Angiogenesis also has been implicated in the initial progression from a premalignant tumor to cancer. This article presents an overview of angiogenesis, including the regulation of angiogenesis, the process of tumor angiogenesis, and potential antiangiogenic therapy.

Definition of Angiogenesis

Angiogenesis is defined as the development of blood vessels. Angio means related to blood vessels, and genesis means development. Angiogenesis is fundamental to the reproduction, development, and repair of blood vessels. Blood vessels are formed from endothelial cells that connect to form a tubular structure to maintain blood flow and tissue perfusion. Normally, in an adult, blood vessels are formed from preexisting vessels such as capillaries through the process of angiogenesis (Volpert, 2000). This process is regulated tightly by numerous proangiogenic and antiangiogenic...