MS10-3 Role of angiogenesis in cancer and Bevacizumab (Avastin) development

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Angiogenesis is usually activated in various solid tumors, where vascular endothelial growth factors (VEGFs) are being involved in the process. The hypothesis that suppression of angiogenesis in tumors seemed to be an attractive target for cancer therapy was originally proposed by Folkman in 1971. Based on his concept, intensive research was focused on identification of VEGFs, and on generation of novel anticancer drugs which inhibited aggressive blood vessel generation in the tumor tissues.

Humanized anti-human VEGF monoclonal antibody; bevacizumab (AVASTIN®) was generated from "humanization" of mouse monoclonal antibody, A4.6.1. In pre-clinical research, bevacizumab bound to and neutralized VEGFs, resulted in tumor growth suppression in mouse xenograft models.

Bevacizumab was approved for colorectal cancer in 2003 in US, and in 2007 in Japan. Research and development of bevacizumab is to be briefly reviewed.