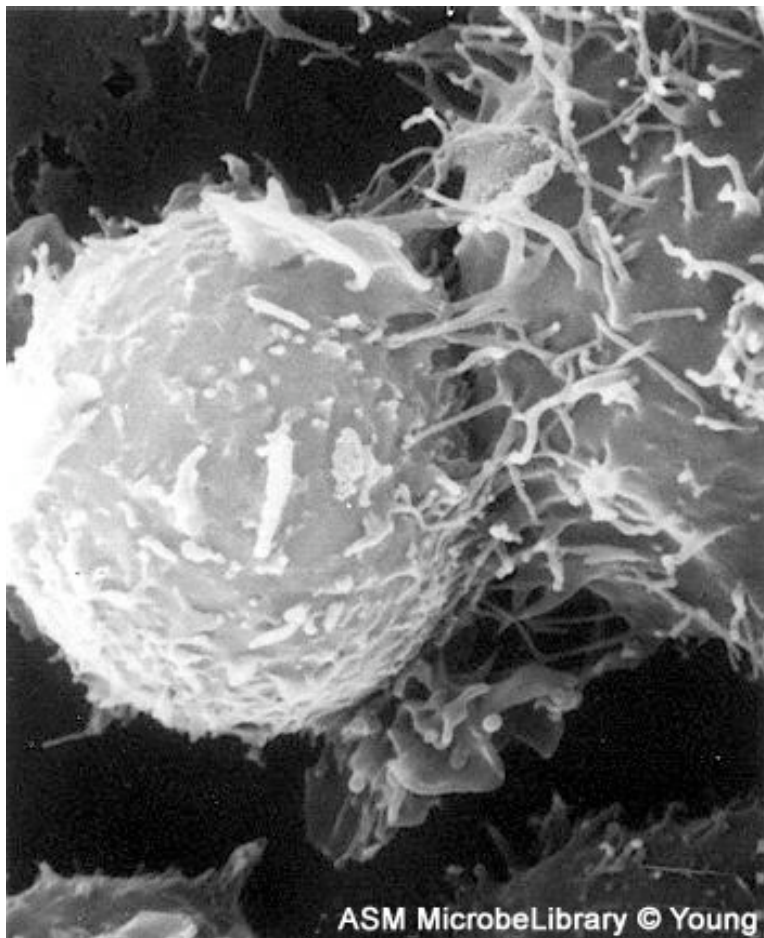# Lecture 16. Tumor Immunology

Learning Objectives and Summary

Cytotoxic Lymphocyte Destroying a Tumor Cell. ©
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16. Tumor Immunology

Learning objectives

1. To understand how the immune system mounts an immune response against tumors
2. To understand how tumors evade immunity
3. To review strategies to combat tumors based on immunotherapy, including passive and active immunization

SUMMARY

1. Immunological recognition of tumor occurs in humans and in experimental animal models. Tumor-specific T cells are found in patients, but are ineffective.

2. Tumors arise in individuals whose immunological surveillance mechanisms have been disrupted. Experimental data from mice are provided showing that immunological surveillance prevents tumor development and there are examples in humans in which cancers emerge in immunodeficient individuals.

3. Immune evasion mechanisms by tumors include reduced tumor antigen presentation and local immunoregulatory factors: inhibitory cytokines and cells.

4. Reversal of tolerogenic response is an important goal of immunotherapy. Strategies to accomplish this include: passive immunization (antitumor antibodies, adoptive T cell therapy) and active immunization (vaccine=antigen plus adjuvant). The goal is to induce antigen specific effector T cells while eliminating regulatory negative immunoregulatory pathways.