

17. Tumor immunity I: Basic concepts

1 unit, Ming Li, February 24, 2026

1) Tumors represent a specific pathological state that elicits immune responses distinct from those induced by pathogenic microbes.

2) Chronic inflammation can be a cancer instigator, promoting tumor growth and invasion.

“Tumors: wounds that do not heal.”

Harold Dvorak *N. Engl. J. Med.* 1986 315: 1650-1659.

3) Cancer immunosurveillance, defined as spontaneous tumoricidal immune responses against primary non-transplanted tumors, may engage antigen-specific conventional T cells and innate lymphocytes.

The selection pressure of anti-tumor immune responses can shape the immunogenicity of tumor cells, and trigger cancer immunoediting.

4) Cancer immunotolerance of conventional lineage of T cells is observed in tumor models with minimal mutation burden or immune activation.

--- tolerogenic antigen-presenting cells

--- immune suppression of adaptive immune responses

* Regulatory T cells

* Suppressive cytokines (e.g. TGF-beta)

* Inhibitory receptors (e.g. CTLA-4, PD-1)

5) Immunotherapy of cancer

--- mobilization of antigen-presenting cells

--- immune checkpoint blockade

Discussion paper

“cDC1 prime and are licensed by CD4⁺ T cells to induce anti-tumour immunity.”

Nature 2020 584: 624-629.

Background paper

“Pas de Deux: Control of Anti-tumor Immunity by Cancer-Associated Inflammation”

Immunity 2019 51: 15-26.

“Cancer immunoediting: integrating immunity's roles in cancer suppression and promotion.”

Science 2011 331: 1565-70.