

Syllabus for **Immunotherapy for Cancer**
Edward Roy, Instructor
OLLI Fall 2020

Recommended Readings

No textbook is required, but several books might be useful:

Texts

Abbas, AK. **Basic Immunology**, 6th edition, 2020. The book we used for first year med students, because it's short. Available online. Earlier editions are very similar.

Murphy, K and Weaver, C. Janeway's **Immunobiology**, 9th edition. More detail than you need, too much for med students.

General Audience Books

Hall, Stephen S. **A Commotion in the Blood**, 1998. Reads like a novel about cancer and immunotherapy. A bit dated but excellent.

Kinch, MS. **The End of the Beginning**, 2019. Good historical background from a biotech point of view.

You may ask, "What about Mukherjee's **The Emperor of all Maladies: A Biography of Cancer** (2011)?" Good book, but it doesn't even mention immunotherapies!

Tentative Schedule

Week 1. Oct 5.

History of Immunotherapy, Coley's Toxin
Manipulating the Immune System: Success and Limitations of Vaccines
Functions of the immune system; Self/Non-self, Danger, Enhancing Harmony
Overview of Response to a Wound
Innate and Adaptive Immune Systems
Proteins (Antibodies and Cytokines)
Antibodies and Cells that recognize Pathogens and Tumors

Week 2. Oct 12.

Where in the Body these things happen: blood and immune organs
Immune Cell Types
Cellular Communication by Cytokines and Surface Receptors
Antigens recognized by Immune System
B Cells, Antibodies, and T cells

Generating the Repertoire to compete with rapidly evolving pathogens
Monoclonal Antibodies for Cancer Treatment
Antigen Processing and Presentation
Two-Factor Authentication
Dendritic Cells; “Immunology’s Dirty Little Secret”

Week 3. Oct 19.

How Immune system enhances cancer, modifies cancer, and eliminates cancer
MHC and cellular altruism
Complementary roles of T cells and NK cells
Immune Memory
Negative Regulation of Immune Responses and the Tumor Microenvironment
Checkpoint Inhibitors: Local Boy makes good
Bringing Immune Therapies to Market and Clinical Practice

Week 4. Oct 26.

Tumor Infiltrating T cells
Engineered T cells
CAR-T cells (Chimeric Antigen Receptor T cells)
Vaccines to Treat Cancer; what’s the Best Target
Oncolytic Viruses
What can Go Wrong
Combination Therapies