

Cancer Biology

Biology 445

Summer Session I, 2009

M-F, 9:45 – 11:15 AM

Stone Center 0210

Syllabus

(the syllabus will be updated as the summer proceeds so check back blackboard regularly!)

Text book: The Biology of Cancer by Robert A. Weinberg

(SC) = Subhashini Chandrasekharan (PM) = Paul Medina

Date: _____ Lecture: _____

May 12 **Basic properties of cancer cells/multigenic nature of cancer/basic genetics** (SC)
Weinberg Chapter 2 (pp. 25-57)

May 13 **Research Day**

May 14 **Basic properties of the cell cycle as determined by studies in model organisms** (PM)
Weinberg Chapter 8 (pp. 255-262)

May 15 **Cell cycle control via cyclin/cdk's and cdk inhibitors** (PM)
Weinberg Chapter 8 (pp. 262-273)

May 18 **Cell cycle checkpoints: What are they for?** (PM)
Paper (spindle assembly checkpoint and cancer)

May 19 **Viral oncogenes—the story of src** (PM)
Weinberg Chapters. 3.1-3.3 (pp. 57-65), 3.5-3.13 (pp. 69-90), 5.2 (pp. 123-126), 5.8 (pp. 147-149)

May 20 **Current thoughts about src function** (PM)
Weinberg Chapter 6.3 (pp. 166-171)
Paper (src in cancer)

May 21 **The discovery of cellular oncogenes—the story of ras** (PM)
Weinberg Chapters 4.1-4.3 (pp. 91-99), Table 4.1, 4.4 (pp. 103-107), 5.9 (pp. 150-153)

May 22 **How did model organisms inform our understanding of ras function** (PM)
Weinberg Chapters 6.2 (pp. 164-165), 6.4-6.5 (pp. 171-176)

May 26 **Continued** (PM)

Paper (raf-1 in Drosophila)

- May 27 **EXAM 1 (Material: May 12 through May 26)**
- May 28 **Chromosomal rearrangements—abl and oncogenesis (PM)**
Weinberg Chapters 4.6 (p.112), 16.11 (pp. 757-765)
- May 29 **Growth factors and growth control and the influence on cell cycle regulation (PM)**
Weinberg Chapter 10 (pp. 357-367)
Paper (cyclin E and chromosome instability)
- Jun 01 **Basic properties of tumor suppressors—the story of pRb (SC)**
Weinberg Chapter 7 (pp. 209-221)
- Jun 02 **Current thoughts about pRb function (SC)**
Weinberg Chapter 8 (pp. 273-284)
- Jun 03 **Current thoughts about pRb function continued (SC)**
Weinberg Chapter 8 (pp. 296-298)
Paper (pRb and restriction point control)
- Jun 04 **EXAM 2 (Material: May 28 through June 03)**
- Jun 05 **Family studies to identify tumor suppressors—the APC story (SC)**
Weinberg Chapt. 6.10 (189-191), Chapt 7.11 (pp. 235-241)
- Jun 08 **Cell Adhesion, cell migration and metastasis (PM)**
Weinberg Chapters 14.1 (pp. 587-594), 14.3 (pp. 597-605), 14.6 (621-624)
- Jun 09 **Apoptosis and tumor suppression—the story of p53 (SC)**
Weinberg Chapter 9 (pp. 307-317)
- Jun 10 **DNA damage and cancer—Current thoughts about p53 function (SC)**
Weinberg Chapter 9 (pp. 317-333)
Paper (p53 restoration in tumors)
- Jun 11 **Modeling Breast Cancer (SC)**
Paper to be assigned
- Jun 12 **The battle against cancer: traditional chemotherapy, drug resistance and personalized medicine (SC)**
Weinberg Chapters 16.1(pp.725-732), 16.6- 16.10 (pp.747-757), 16.12 (pp. 765-769)
Paper (To be assigned)
- Jun 15 **FINAL EXAM (Material: 75% June 05-12, 25% May 12 – June 03)**