Antioxidants as Potential Therapy for Human Diseases

- Aging - Correlative (dietary antioxidants correlated with longevity)

- Stem Cell Loss and Dysfunction - Unknown/untested in human models

- Diabetes - Inconclusive (may help with secondary complications)

- Neurodegenerative Diseases - Shows promise in animal models (conflicting data in clinical trials using NAC, vit E., lipid peroxidation inhibitors; promise in ischemic injury)

- Heart Disease - Inconclusive (randomized trials don't show significant benefits; in cases of low HDL, vit. supplements can reduce efficacy of drugs used to raise HDL levels).

- Cancer - Unpromising

Tumor Cells and Elevated ROS Levels

• Most oncogenes produces ROS that modulate tumor growth and invasiveness (last week's discussion)

•Cells derived from tumors typically have high ROS levels

• The problem is: Relative to what?

• Comparing a normal cell to a tumor cell may not be relevant since they might have different metabolic rates that complicate the comparison.

• A partial solution: Use of isogenic cell lines