AbstractID: 14442 Title: Basic Cellular and Molecular Biology of Chemoradiotherapy and Molecular Imaging

Using easily understood language suitable for non-biologists, this presentation will discuss the biological underpinnings, clinical significance and research directions for two increasingly important techniques in radiation oncology: the use of concurrent chemotherapy with radiation to achieve tumor sensitization; and the use of molecular imaging for the detection, characterization, treatment planning, and ultimately, the eradication of especially resistant types of cells in tumors. Special emphasis will be place on discussing methodology, strategies and clinical goals discussed by the other speakers in this educational session.

Learning Objectives:

At the end of this session, the attendee should be able to:

1. Better understand why chemotherapy is often given concurrently with radiotherapy as a means of producing tumor radiosensitization, based on our growing knowledge of molecular, cellular and tumor biology.
2. Describe the biological basis for molecular imaging, how it can be used for radiotherapy treatment planning purposes, and how it can facilitate the detection, characterization and ultimately, the eradication, of tumors containing therapy-resistant cell populations.
3. Evaluate different techniques used to study drug-radiation interactions and tumor resistance, and how these have helped guide new diagnostic and therapeutic developments.