



Special Colloquium

DR. IGNACIO RODRIGUEZ BRENES

UC IRVINE

"CELL LINEAGES AND TELOMERE DYNAMICS IN CANCER "

Human tissues are organized into cell lineages, which begin with stem cells and end with the highly differentiated cells that perform most tissue functions. In the first part of this talk we will present mathematical models of tissue regulation in cell lineages. We will then apply these models to characterize the type of phenotypic mutations that can lead to an escape from these regulatory mechanisms and eventually to cancer. Finally we will discuss the role of cellular lineages and feedback mechanisms in the success of chemotherapy treatment.

In the second part of this talk we will focus on telomere biology and replicative senescence in the context of cancer. Telomeres are sequences of DNA that cap both ends of linear chromosomes. During cell division telomere length shortens, and as a consequence, the majority of normal human cells are able to divide only a limited number of times. This phenomenon, known as replicative senescence or Hayflick's limit, is a mechanism that protects against cancer. In this talk we will discuss the mathematics of telomere length regulation and present mathematical models that explore the effectiveness of replicative senescence in cancer protection.

Wednesday, February 22nd, 2017

Tea Time @ 2:40 p.m. in Surge 282

Talk Begins @ 3:10 p.m. in Surge 284

Ends @ 4:00 p.m.

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