"The Emerging Role of Patient-Calibrated Computational Modeling in Cancer Research: A Case Study in Ductal Carcinoma in Situ (DCIS)"

FRIDAY, MAY 18, 2012

NOON - 1:00 P.M.

Q & A to follow

(Pizza and beverages will be served for attendees at 11:45 a.m.)

HARKNESS AUDITORIUM
HSC - Clinical Sciences Building, 2nd Floor
2250 Alcazar Street, Los Angeles, CA

ABSTRACT:

Current clinical oncology practice can generate a wide variety of data for patients. Radiology is used both to detect and plan surgical excisions. Immunostains performed on pre-surgical biopsies are used to diagnose (and grade) the cancers and select therapeutic agents. Molecular profiling may also help stratify patients and select therapeutic agents. However, there is currently no technique to quantitatively combine these diverse data sources, along with novel in vitro measurements, to improve surgical and therapeutic planning. In this talk, we will discuss efforts by my lab (MathCancer.org) and the Center for Applied Molecular Medicine to solve this issue. We will focus on developing and calibrating biologically-grounded computational models to individual patients (particularly ductal carcinoma in situ), encouraging (and validated!) results in quantitatively predicting clinical progression, the implications for making and quantitatively testing biological hypotheses, and the role of mathematical modeling in facilitating a deeper understanding of biology, pathology, and radiology. We anticipate that such efforts will play an increasing role in driving experimental cell biology, testing and challenging current cancer biology orthodoxy, and ultimately improving clinical care.

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