Precision Oncology in Solid Tumors: An Idea Whose Time Has Come

Presented by
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Friday, April 17, 2015
12:00pm-1:00pm
Compatriot’s Hall, Pomona
Simulcast to Heritage Hall B, COMP-NW

Lunch will be provided with RSVP to kking@westernu.edu (Pomona) or mguerrero@westernu.edu (COMP-NW) by noon, Wednesday, April 15.
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Cancer is, in general, a difficult disease to treat in spite of improvements in surgery, chemotherapy and radiotherapy. The problem is that many cancers have already metastasized at presentation or will metastasize in the course of the disease and have temporary or limited responses to available chemotherapies. In addition, toxicity is a major side effect, and resistance, and relapse do occur for most cancer patients that do eventually succumb to their disease.

The mapping of the human genome in 2001, the advent of rapid and affordable testing of genetic tests and Next-Generation Sequencing (NGS), the advances in bioinformatics, and the explosive growth of genomically-guided targeted therapies have become game-changers in oncology. These advances have ushered a Renaissance in medicine and in cancer in the way we screen, diagnose, and treat solid tumors in 2015.

Precision oncology refers to the novel field of integrated cancer treatment using genomically-based cancer treatment. In addition to conventional surgery, radiation and chemotherapy, it uses the specific mutations of a patient's cancer to establish the best targeted treatment to the specific mutations in the patient's tumor. It is highly efficient, has minimal adverse drug events, increases quality of life, progression free survival, and overall survival. However, resistance inevitably develops over time, but "next-generation therapies" are being developed and offer promising results in ongoing clinical trials.

The presentation will introduce the field of precision medicine with the paradigm of the miracle ABL targeted drug Imatinib in controlling chronic myelogenous leukemia. It will expand the concept to solid tumors for the screening, diagnosis, and personalized genomically-guided precise treatment of cancer in the oncology clinic. Finally, it will usher the novel concept of rapid real-time sequencing of tumors by NGS to select advanced or refractory cancer patients for genetically-targeted clinical trials.