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Webinar on

Cancer Genomics Translates Basic Research Into Clinical Practice

by

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Thursday, 24th September, 2020, 4 pm

Session will be held through Zoom platform

Registration is Free

Click here to register: https://forms.gle/XdjhxEpu94wvvLor7

Please Register by 22nd September 2020

All are cordially invited!

Cancer Genomics Translates Basic Research Into Clinical Practice

Abstract: The pioneering discovery of the Philadelphia chromosome in the cells of chronic myeloid leukemia first indicated genomic alterations as a likely cause of cancer in the year 1960. It took 30 years to identify the BCR-ABL fusion gene as a cause of CML. In 2001, Gleevec, a BCR-ABL inhibitor, showed dramatic improvement in the survival rate of these patients. Translation of basic research into clinical practice thus took enormous efforts and time. The miracle drug Gleevec demonstrated that by understanding the biology of a disease, one can develop effective treatment strategies.

Human genome sequencing completed in 2003 paved the way for identifying genome-wide alterations in cancer cells. The next- generation deep sequencing technologies made it possible to sequence the entire human genome in a couple of days and also considerably reduced the cost of sequencing.Cancer genomic analysis showed that most cancers are driven by 2 to 8 driver genetic alterations, which impart the characteristic hallmarks like unlimited proliferation, resistance to cell death, the invasive capacity.

Conventional diagnosis of cancer is based upon microscopic observation of the tumor tissues. Several cancers were found to consist of multiple subtypes based upon the underlying genetic alterations, which also correlated with their clinical behavior, indicating the inadequacy of histopathological diagnosis. Cancer genetic testing is now being increasingly used for accurate diagnosis and thereby for appropriate treatment design. For decades scientists have been looking for a blood biomarker-based diagnosis for early detection of cancers. Analysis of circulating DNA, microRNAs is being developed as a non-invasive strategy for early detection of various cancers. Targeted therapy based upon the underlying genetic alterations is often a treatment option for some cancers like Herceptin for HER2-positive breast cancer. Cancer genomics has opened the doors to novel strategies for early detection, prognostication, and treatment design. In-depth basic and clinical research is necessary for exploring the full potential of the knowledge gained from the cancer genomics data.