Program: The Potential of Biopsy-Free Diagnosis: Discovering Vesicle Biomarkers in Plasma and Urine
Speaker: Anton Iliuk, Ph.D.
Introduced by: Alison Brown
Attendance: 106
Guests: Marvin Miller, Howard Creveling, Martha Boon, Dawn Marie, Andy Hurwiz
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The speaker is President and Chief Technology Officer Tymora Analytical Operations, affiliated with Purdue University. He is responsible for development, optimization and commercialization of Tymora Analytical technologies.

The first part of the lecture covered the differences of tissue biopsies and liquid biopsies in tumor diagnosis. Tissue biopsy is time consuming, is limited to localized sampling, is invasive and expensive, and has high failure rate. Liquid biopsy is quick, comprehensive, applicable to all tumors, is low cost, and is less invasive. Currently, liquid biopsy is performed by using blood samples from Circulating Tumor Cell or Circulating Tumor DNAs. However, it is limited because it does not provide proteome information which will provide direct correlation to cancer phenotype. It is found that a normal cell is changed into a cancer cell by kinase, mis-regulation and, if one can introduce kinase inhibitors, then it will exert therapeutic action. Using this principle, Novartis developed Gleevec®, the first FDA approved kinase inhibitor for cancer treatment. Other similar drugs are now also on the market.

Another area of current research is using phosporylation for diagnosis. It is known that normal cells and cancer cells shed microvesicles; these EVs are different and could be used for early diagnosis of cancer when they are identified in the plasma or urine. Tymora has two new products, PolyMAC and pIMAGO. They are currently marketed to research laboratories for research in breast cancer, bladder cancer and, in the future, ovarian cancer and prostate cancer as well.

Anton Iliuk, Ph.D