

Exosome Diagnostics Obviates Tissue Biopsies:

Exosome Diagnostics presents evidence that breast cancer exosomes isolated from plasma of stage 1 and stage 2 breast cancer patients gives the same RNA signature as matched tumor tissue.

Waltham, MA – April 17, 2018 - This groundbreaking observation is presented as Late Breaking Research at the AACR Annual Meeting in Chicago on Tuesday by Dr Sudipto Chakraborty. Liquid biopsies have emerged as a way to get tumor-specific information from biofluids such as blood or plasma. As every tumor has unique molecular changes - the ability to monitor these changes with a blood sample, instead of an invasive tissue biopsy, is important to give patients access to the most optimal treatment. The data to be presented today is an unexpected leap forward, showing the ability to see the unique RNA profiles of breast cancer tissue in blood, without the need for tissue samples.

Exosomes are small vesicles actively secreted from tumor cells as well as normal cells, containing all the information from the cell that released it, including RNA and proteins. Biofluids, such as blood or plasma, are very complex and contain material from both the tumor and from the normal processes in the body. This study used a breast cancer specific marker to isolate breast cancer specific exosomes from blood and analyzed the total RNA content from the samples using RNAseq. The investigators also sequenced RNA from matched FFPE tissue samples from these patients.

“I was blown away by the result. Not only could we accurately identify breast cancer RNA signatures from the plasma samples, but we could even see that the breast cancer exosomes from a patient clustered perfectly next to its matched FFPE tissue sample. This is remarkable, considering that every patient is unique,” said Johan Skog, Chief Scientific Officer at Exosome Diagnostics.

“We have previously shown that we can increase performance of mutation testing compared to cell-free DNA assays by combining exosome RNA and cell-free DNA, but this study with cancer specific exosome enrichment changes the game completely. This capability (Exosome’s patented EDDE technology) allows us to see the actual RNA signatures from the tissue from as little as 1 ml of plasma, obviating the need for tissue to analyze tumor specific RNA changes. We saw the same breadth and diversity of RNA as we saw from the tissue samples, with more than 12,000 different mRNAs and over 1000 lincRNAs. The breast cancer specific exosomes looked almost identical to the matched tissue. This was not seen when sequencing plasma exosomes without the enrichment. This leap forward has not been easy and builds on years of research at Exosome Diagnostics on how to best enrich tissue specific exosomes from biofluids, methods that are built into the proprietary EDDE platform,” continued Dr. Skog.

“Dr. Johan Skog has pioneered the field of exosomal research and has for more than a decade built analysis methodologies within Exosome Diagnostics that enable analysis of disease specific RNA, DNA and proteins from biofluids such as urine and plasma.” stated John Boyce, President and CEO of Exosome Diagnostics. “It is through the use of these patented methodologies (such as EDDE) and proprietary analysis pipelines that allows Exosome Diagnostics to achieve sensitive results, with very low sample volumes, that others in the field have not been able to achieve,” Boyce continued. “This first of its kind data proves that Exosome Diagnostics’ liquid biopsy is the solution to obviate tissue biopsies and improve patient care. Combined with the company’s AI capabilities for gene selection and commercial channels, Exosome Diagnostics is poised to change the landscape of medicine,” Boyce concluded.

Want to hear more about this study? Attend the Poster Session at the AACR Annual Meeting 2018.

Title: Exosomal liquid biopsy reveals mRNA and lincRNA biomarkers in early stage breast cancer patient plasma

Session Title: Late-Breaking Research: Clinical Research 2

Session Date and Time: Tuesday Apr 17, 2018 8:00 AM - 12:00 PM

Session Location: Poster Section 43

Poster Board Number: 16

Permanent Abstract Number: LB-226

About Exosome Diagnostics

Exosome Diagnostics is a privately held company focused on developing and commercializing revolutionary biofluid-based diagnostics to deliver personalized precision healthcare that improves lives. The company's novel exosome-based technology platform, ExoLution™, and point of care instrument for protein capture and analysis, Shaky™, can yield comprehensive and dynamic molecular insights to transform how cancer and other serious diseases are diagnosed, treated and monitored.

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