

Blood might carry an untapped source of biomarkers

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Researchers have uncovered a potential source of blood-derived biomarkers for certain kinds of cancer, according to a study.

Cancer diagnosis based on the detection of cancer-related proteins in blood sometimes fails because the proteins are short-lived or hard to detect.

Arie Admon and colleagues have found that peptide fragments derived from the cancer-related proteins attached to immune molecules - called human leukocyte antigens, or HLA - could be used as a potential source of biomarkers in people with cancers such as multiple myeloma and leukemia.

The HLA molecules help ferry fragments of degraded proteins from the cytoplasm of cancer cells to the cell surface, where the HLA-peptide complexes are presented for inspection by <u>immune cells</u>. Whereas normal cells secrete small amounts of HLA-peptide complexes into the blood, <u>cancer cells</u> often secrete larger amounts.

The authors used biochemical methods to detect thousands of HLApeptide complexes in the patients' blood plasma; many of those complexes were derived from cancer-related proteins.

Further, the authors found similar HLA-peptide profiles for the same individual when blood was collected and analyzed on different days. Because HLA-peptide complexes can be rapidly isolated from blood, the



peptides could serve as a potential source of clinically useful cancer biomarkers if the findings are validated in large numbers of patients and healthy controls, according to the authors.

More information: "The soluble plasma HLA peptidome as a potential source for cancer biomarkers," by Michal Bassani-Sternberg et al. *Proceedings of the National Academy of Sciences.*

Provided by Proceedings of the National Academy of Sciences

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