Predictive Assay for Cancer Therapy-Related Myelodysplasia and AML

DESCRIPTION
Therapy-related myelodysplasia, also known as acute myeloid leukemia (t-MDS/AML), is a lethal complication of cancer treatment (e.g. radiation and chemotherapy) which can occur years after treatment is complete. The pathogenesis of t-MDS/AML is not well understood; consequently, there is no known method to predict the risk of development of the condition in individual cancer survivors. The highlighted technology provides a validated and robust method for the prediction of t-MDS/AML based on a 38-gene expression profile of peripheral blood stem cells that can accurately distinguish between patients who will or will not develop t-MDS/AML. The genes assayed in this analysis include those related to mitochondrial function, protein synthesis, cellular metabolism, and hematopoietic regulation as well as DNA repair and DNA-damage checkpoint genes. Most importantly, this expression profile can accurately predict the t-MDS/AML onset several years before the disease becomes clinically overt. Such knowledge could be critical in guiding the course of preventative and therapeutic interventions.

KEY ASPECTS
- Validated gene-expression-based method for accurate prediction of the onset of therapy-related myelodysplasia
- Only method currently available to robustly predict the onset of t-MDS/AML
- Assayed genes include those related to mitochondrial function, protein synthesis, cellular metabolism, and hematopoietic regulation as well as DNA repair and DNA-damage checkpoint genes
- Click on the link to view the Cancer Cell publication: “Altered hematopoietic cell gene expression precedes development of therapy-related myelodysplasia/acute myeloid leukemia and identifies patients at risk.” Cancer Cell. 2011 Nov 15;20(5):591-605. PMID: 22094254

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