A method of identifying a B cell malignancy as Hodgkin's Lymphoma

Duke LICENSING & VENTURES

Unmet Need

Malignancies derived from mature B cells are common and constitute the majority of blood cancers. The biology of these leukemias and lymphomas reflect defined stages of normal B-cell differentiation. Correct diagnosis of B cell malignancies is important from both a clinical standpoint and from the standpoint of setting appropriate patient expectations. A misdiagnosed B cell malignancy may lead to an inappropriate therapy, which can unnecessarily endanger the patient's life and/or be an ineffective treatment for the B cell malignancy. For instance, if diagnosed and treated appropriately, nearly 80% of patients with Burkitt lymphoma (BL) can be cured with intensive (high dose) chemotherapy regimens. However, BL is frequently misclassified as the more common but biologically aggressive diffuse large B cell lymphoma (DLBCL). A misclassification of BL as DLBCL can result in a missed opportunity to cure the malignancy. On the other hand, misclassification of DLBCL as BL leads to unnecessarily morbidity from intensive chemotherapy regimens. This practical issue was highlighted by the experience of a multicenter clinical trial, CALGB trial#925119, in which nearly half of the 100 patients with an assigned diagnosis of BL were found to have another diagnosis upon further pathology review. Thus, methods that improve the diagnosis of BL, and other B cell malignancies, can provide better outcomes in patients.

Technology

Duke researchers have reported a method for identifying a B cell malignancy that can be used to accurately diagnose patients. This invention uses microRNAs, a novel class of biomarkers that provide new opportunities for clinical translation. Intact microRNAs can be isolated from tissues preserved using standard methods, such as formalin fixed, paraffin embedded (FFPE) tissue. Thus, microRNA-based biomarkers could be easy to translate to clinical use. Additionally, microRNAs can be readily assayed using real-time PCR and other methods available in conventional pathology. Expression of these lineage-specific microRNAs could correctly predict the lineage of B-cell malignancies in

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more than 95% of the cases.

Advantages

- Can help correctly diagnose B cell malignancies, offering a method to identify patients for clinical trials
- Uses microRNA-based biomarkers that can be easily translated to clinical use
- Demonstrated strong potential in diagnosing chronic lymphocytic leukemia, follicular lymphoma, Hodgkin's lymphoma, activated B-cell diffuse large B cell lymphoma, germinal center-like DLBCL, and Burkitt lymphoma

Publications

- Patterns of microRNA expression characterize stages of human B-cell differentiation (Blood, 2009)
- Issued US Patent 10,047,400

Patents

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