



Clinical applications of immunoglobulin expression in acute myeloid leukemia

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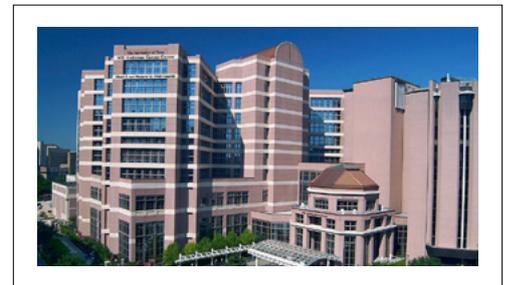
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Abstract

It has been assumed that immunoglobulin (Ig) can only be produced by B-cells and plasma cells. Recently, we have reported that Ig can be expressed by other types of cells such as epithelial cancer cells. In this study, we assessed Ig expression in acute myeloid leukemia (AML). We found that Ig was expressed at a high frequency and level in AML cell lines and primary myeloblasts, but not in monocytes or neutrophils from healthy controls, by RT-PCR, immunohistochemistry and flow cytometry. We further assessed rearrangements of IgG VHDJH transcripts, and found that AML-IgG had restricted or biased V usage, and its gene rearrangements showed evidence of somatic hypermutation. Anti-human IgG reduced cell viability and induced apoptosis in AML cell lines, whereas anti-human IgK increased cell migration and chemotaxis. Furthermore, using receiver operating characteristic (ROC) curve analysis, we identified two distinct groups of AML patients with different expression of Ig and different clinical outcomes. High-levels of Ig expression are associated with monocytic differentiation, multilineage dysplasia, TET2 and KRAS mutations, and poor overall survival. Our findings suggest that AML-Ig may play a role in leukemogenesis and AML progression, and it may serve as a useful molecular marker for prognostic stratification, monitoring minimal residual disease, and target therapy.

Biography

C Cameron Yin has received her MD from Beijing Medical University and her PhD from the University of Wisconsin-Madison. She is currently an Associate Professor in the Department of Hematopathology at the University of Texas MD Anderson Cancer Center. In addition to clinical responsibilities on the Leukemia, Lymphoma and Molecular Diagnostic services, she has been actively participating in multiple research projects in the molecular genetic abnormalities in leukemia and lymphoma, which has led to over 100 research papers and over 20 book chapters.



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