C Cameron Yin, J Blood Disord Transfus 2016, 7:5(Suppl)
http://dx.doi.org/10.4172/2155-9864.C1.019

Clinical applications of immunoglobulin expression in acute myeloid leukemia

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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 studied 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 (AML cell lines) or biased (primary myeloblasts) V usage. Moreover, 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. 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 monitoring minimal residual disease or designing target therapy. Study on the correlation between level of AML-Ig expression and morphologic and molecular genetics features as well as clinical outcome of AML patients is in progress.

Biography

C Cameron Yin has received MD from Beijing Medical University and 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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