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Deficient regulatory innate lymphoid cells and differential expression of miRNAs in patients with haematological diseases

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Abstract

Background: A new regulatory subpopulation of ILCs, ILCregs, has been identified in mouse and human intestines. ILCregs constitutively express id2, id3, sox4, tgfbr1, tgfbr2, il2rb and il2rg genes and share characteristics with both innate lymphoid cells and regulatory cells. However, the significance of ILCregs and its associated miRNAs in patients with haematological diseases, such as AML, MDS, AA, has yet to be explored. In this study, we evaluate ILCregs frequency, associated miRNA quantification, and their significance in patients with AML, MDS, AA and normal donors (ND).

Methods: Using four color combinations of surface and intracellular antibody staining CD45+Lin-CD127+IL-10+ ILCregs from 30 ND patients, 42 diagnosed with AML, 30 with MDS, and 30 with AA were measured by flow cytometry. miRNAs quantification from plasma and bone marrow cells were measured by NGS.

Results: Our results showed that the frequencies of ILCregs in AML, MDS, and AA patients were significantly lower than that in ND ($p < 0.01$). Variable frequency differences of ILCregs among these four groups were also observed. miRNA detection results showed a variety of miRNA expression patterns in ND and these different patient groups. Analysis of miRNAs from ILCregs associated genes, including id2, id3, sox4, tgfbr1, tgfbr2, il2rb, and il3rg, from ND, AML, MDS, and AA demonstrated significant difference between ND and these three different patient groups. The relationship between ILCregs and its associated miRNAs was explored between ND and AML, MDS, and AA patients.

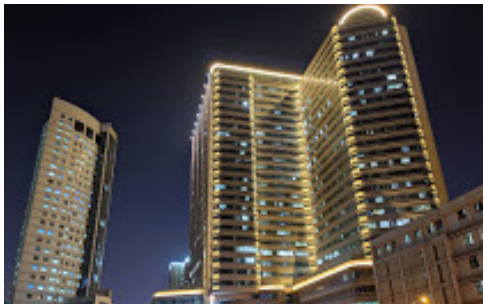
Conclusion: Our study enumerated ILCregs and measured miRNAs in AML, MDS and AA patient samples at the first time. The results demonstrated deficiency of ILCreg and miRNA differential expression in patients with AML, MDS, and AA.

Biography

Jifeng Yu completed his MD degree at the age of 22 from Henan Medical University, China. He is a distinguished professor and chief physician at the first Affiliated Hospital of Zhengzhou University, China. He has over 30 publications. He has contributed to 6th, 7th and 8th workshops of HLDA (Human Leukocytes Differentiation Antigens), particularly in antibody cross-examination and classification.

Publications

1. Gene mutational analysis by NGS and its clinical significance in patients with myelodysplastic syndrome and acute myeloid leukemia, December 2020, Experimental Hematology and Oncology 9(1), DOI: 10.1186/s40164-019-0158-5
2. Clinical implications of recurrent gene mutations in acute myeloid leukemia, December 2020Experimental Hematology and Oncology 9(1), DOI: 10.1186/s40164-020-00161-7
3. Advances in targeted therapy for acute myeloid leukemia, December 2020Biomarker Research 8(1), DOI: 10.1186/s40364-020-00196-2
4. SPOP promotes acute myeloid leukemia initiation and development through miR-183-mediated METAP2 inhibition, August 2020Molecular Therapy - Nucleic Acids, DOI: 10.1016/j.omtn.2020.08.002



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