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Role of microRNA dysregulation in childhood acute leukemias: diagnostics, monitoring and therapeutics: A comprehensive review

Szczepanek J. miRNA as a biomarker in pediatric AL

Joanna Szczepanek

#### Abstract

MicroRNAs (miRNAs) are short noncoding RNAs that regulate the expression of genes by sequence-specific binding to mRNA to either promote or block its translation; they can also act as tumor suppressors (e.g., let-7b, miR-29a, miR-99, mir-100, miR-155, miR-181) and/or oncogenes (e.g., miR-29a, miR-125b, miR-143-p3, mir-155, miR-181, miR-183, miR-196b, and miR-223) in childhood acute leukemia (AL). Differentially expressed miRNAs are one of the important factors associated with the initiation and progression of AL. As shown in many studies, they can be used as noninvasive diagnostic and prognostic biomarkers, which are useful in monitoring early stages of AL development or during therapy (e.g., miR-125b, miR-146b, miR-181c and miR-4786), accurate classification of different cellular or molecular AL subgroups (e.g., let-7b, miR-98, miR-100, miR-128b, miR-223), and identification and

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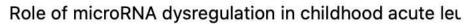
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