

## THE ROLE OF miRNA IN ACUTE MYELOID LEUKEMIA

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### Introduction

MicroRNAs (miRNAs) are small, non-coding RNA molecules that play a vital role in the post-transcriptional regulation of gene expression. Deregulated miRNA expression is a prominent feature in acute myeloid leukemia (AML) – an hematologic malignancy with a particularly high rate of mortality.

### Keywords

miRNA, deregulated expression, acute myeloid leukemia (AML).

### Purpose

Identifying the involvement of miRNAs in AML (Figure 1) to determine pathogenicity, early diagnosis and potential miRNA-based therapeutic strategies.

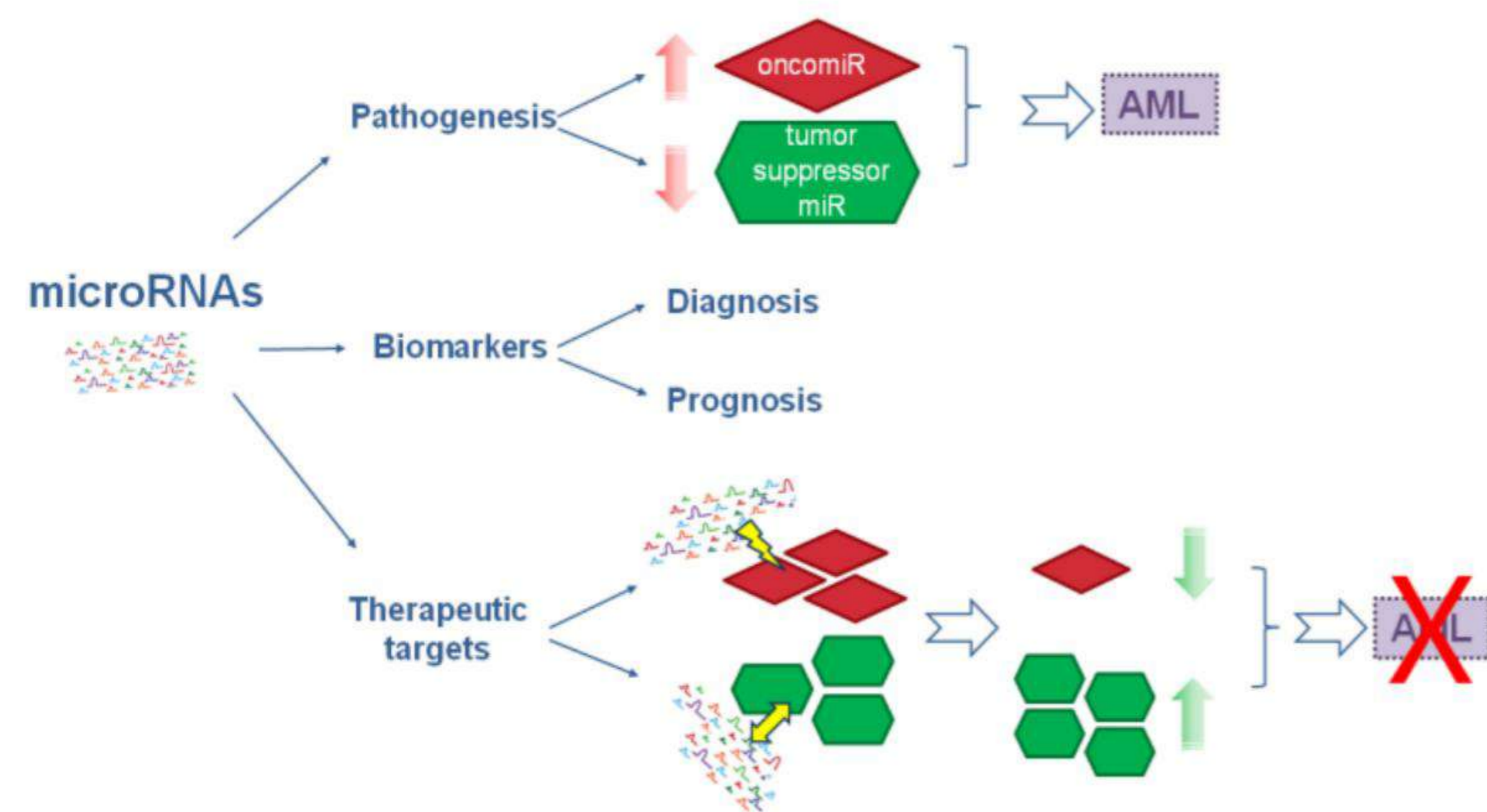


Figure 1. Schematic diagram of microRNAs role in AML.

### Material and methods

The bibliographic analysis of the scientific literature regarding the involvement of miRNA through various mechanisms in AML, published in the last 10 years, was performed using the search portals: PubMed, HINARI and MedScape.

### Results

The most common mechanisms by which miRNA expression becomes differentiated in AML are epigenetic and targeting changes with deregulated transcription factors or oncogenic fusion proteins. The existence of distinct miRNA profiles in different AML subtypes indicates that they have contributed to the heterogeneity of AML and requires potential inclusion in the clinical diagnostic strategy. Approximately 100 aberrant miRNAs were identified in AML (Table 1). Changes in miRNA expression levels can increase the body's sensitivity to chemotherapy or other drugs.

Subtype	Genetic subtype	Up-regulated miRNA	Down-regulated miRNA
AML	(15; 17)	miR-127, miR-134, miR-299-5p, miR-323, miR-376a, miR382, miR-29b-3p, miR-224, miR-368, miR-181a-5p	miR-17-5p, miR-20a, miR126, miR-126*, miRNA-181a3p, miR-126-5p
AML	t (8; 21)	miR-27a, miR-126, miR-150, miR-223, miR-29b-3p	miR-126-5p

Table 1. miRNAs that are involved in the pathogenesis of AML

### Conclusions

(1) miRNA expression profile is aberrant in AML and hold a diagnostic and prognostic relevance (2) With in-depth studies, further clarifying the expression, function and regulatory mechanism of miRNAs will provide promising strategies for AML treatment.