

Potential miRNAs for miRNA-based therapeutics in breast cancer

ABSTRACT

MicroRNAs (miRNAs) are small non-coding RNAs that can post-transcriptionally regulate the genes involved in critical cellular processes. The aberrant expressions of oncogenic or tumor suppressor miRNAs have been associated with cancer progression and malignancies. This resulted in the dysregulation of signaling pathways involved in cell proliferation, apoptosis and survival, metastasis, cancer recurrence and chemoresistance. In this review, we will first (i) provide an overview of the miRNA biogenesis pathways, and in vitro and in vivo models for research, (ii) summarize the most recent findings on the roles of microRNAs (miRNAs) that could potentially be used for miRNA-based therapy in the treatment of breast cancer and (iii) discuss the various therapeutic applications.

Keyword: Breast cancer; MicroRNAs; Cell line; miRNA-based therapeutics