MALAT1 as a new biomarker in cancer biology

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Abstract

Background & Aim*:* Long non-coding RNAs are regulatory molecules that adjust many vital intracellular processes. MALAT1 is a long non-coding RNA playing a key role in the regulation of intracellular important processes and also involved in biology of various cancers. The purpose of this study was to investigate the functions of MALAT1 and overview of its role in cancer biology.

Methods**:** in this review, Elsevier, Science Direct, PubMed and Google Scholar databases were searched for the following keywords" "long non-coding RNA", "MALAT1", "cancer" and "metastasis". The results were limited to the period of 1992-2016. Totally, 213 papers were chosen and at the end, 63 of them were included in the study.

Results**:** MALAT1 is involved in adjusting two important biological processes including regulation of gene expression and alternative splicing. MALAT1 plays a role in the regulation of cell cycle, early stages of cancer metastasis, activation of p53 and its target genes, expression and activity of oncogenic transcription factor B-MYB, regulating the activity of E2F1 transcription factor, apoptosis pathway, regulation of hyperglycemia and many other processes.

Conclusion**:** Discussing about effect of on regulation of cellular critical processes, this study tries to better understand the mechanisms of cancer progression by this regulatory RNA. Comprehending the role of these regulatory RNAs and exploring their influence on biology of various cancers can be helpful in prognosis, predicting response to treatment, staging of disease and treatment of malignancies. Furthermore, these molecules could potentially be proposed as novel therapeutic targets.

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***Keywords*:** Long non-coding RNA, MALAT1, Cancer, Metastasis

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