

MicroRNAs as Prospective Recognition Strategy in Cancer Patients with COVID-19

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Abstract

Introduction

Nowadays, miRNAs are found in liquid biopsies such as saliva, tears, urine, and plasma, and one of the reasons they are used in plasma from recovered COVID-19 patients is the presence of antiviral miRNAs to antibodies from previous SARS-CoV-2 infection. Furthermore, a cutting-edge approach known as "Salivaomics" may assess the genome, transcriptome, proteome, and biomarkers such as miRs in oral diseases and cancers. This review aims to introduce some potential miRNAs in diagnosing SARS-CoV-2 infection in cancer patients.

Methods

This review was conducted using keywords such as microRNAs, miRNAs, COVID-19, SARS-CoV-2 Infection, Diagnosis, Biomarkers, Therapeutic approaches, in PubMed, Scopus, Medline, Science Direct, and Web of Science based on the Cochrane Highly Sensitive Search Strategy.

Results

The human miRs can be used as biomarkers for viral infection and cancer diagnosis because they are regulators and impact gene-related expression. For instance, miR-338-3p (Liver, lung, and gastric cancers), miR-4778-3p (Cervical cancer radioresistance), miR-6864-5p (Urothelial Carcinoma of the Bladder), miR-5197-3p (Squamous cell lung carcinoma), miR-548c-5p (Colorectal Cancer), miR-548d-3p and miR-409-3p (Osteosarcoma), miR-30b-5p (Esophageal squamous cell carcinoma), miR-505-3p (Prostate cancer), miR-23c (Hepatocellular carcinoma), miR-30d-5p and miR-5197 (Non-small cell lung cancer), miR-4684-3p (Colorectal cancer), miR-518a-5p (Gastrointestinal tumors), miR-3934 (Colon cancer, lung cancer, NSCLC, rectal carcinoma mucosa), and miR-1468-5p (Glioma, hepatocellular carcinoma) can be utilized in the diagnosis of cancer patients who are suffering from COVID-19 disease.

Conclusion

Undoubtedly, microRNAs have versatile functions in the cell and molecular biology. Alternation in human miRs' expression, including overexpression or mimic replacement, inhibition, or suppression, helps block viral entry or replication in host cells. In contrast, decreasing human miRs against SARS-CoV-2 infection provides more viral replication and accessibility to the immune system. This study listed the potential miRNAs for detecting COVID-19 in cancer patients.

Key words

microRNAs; SARS-CoV-2 Infection, COVID-19, Cancer, Biomarker.

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Biography

Amir Hossein Aalami is an energetic, motivated, and highly qualified Molecular Biologist with more than three years of research and teaching experience in the areas of Gene regulation and expression, Cancer Genomics, and Oncological

Sciences. I am interested in exploring a career in research-related opportunities, which will allow me to apply my knowledge and expertise for the progress and betterment of scientific communities. My research interests include; Molecular Pathology and Oncology, Clinical diseases, Immuno-oncology research, and Cancer Biology. I have extensive experience with clinical laboratory procedures and am highly proficient in writing scientific manuscripts, meta-analysis, and managing data collection strategies.