Tentative Outline

Special/Thematic Issue for the Journal
MicroRNA

Modulatory Roles of Non-coding RNAs in cancer therapy.

Guest Editor: Prof. Dr. Surajit Pathak

Scope of the Thematic Issue:

Relevant diagnostic or prognostic biomarkers may prove valuable for assessing the initial stages, advancement, and responses to the therapy of colorectal cancer (CRC) malignancies. Advanced (sometimes metastatic) CRC stages, where several indicated intrinsic and drug-dependent processes are likely to present, are routinely treated with chemotherapy and radiotherapy. However, it is difficult to determine their relative significance and tag them with particular roles. Moreover, recent research shows that radiation and chemotherapy treatments are mostly ineffective against cancer cells. To increase patient survival and lower the prevalence of CRC, it is crucial to comprehend the molecular basis of the resistance and continue treating CRC malignancies that are resistant to standard chemotherapeutic drugs and radiotherapy.

Non-coding RNAs (ncRNAs) have been the subject of discussions about their precise roles in the development of CRC for several years. The functional RNA transcripts are made up of regulatory ncRNAs like PIWI-interacting RNAs, microRNAs, small nucleolar RNAs, transfer RNAs (tRNA)-derived small RNAs, siRNAs, circular RNAs, and long non-coding RNAs, as well as housekeeping ncRNAs like highly abundant ribosomal RNAs (rRNAs) and tRNAs. A significant number of research has recently shown that ncRNAs exhibit regulatory roles in several human malignancies, including CRC. The intracellular signaling pathways through which ncRNAs affect tumor cells have been studied, and in CRC, multiple dysregulated ncRNAs have been found to function as oncogenes or tumor suppressors through an array of mechanisms. Numerous studies have demonstrated that ncRNAs, in particular, circular RNAs, microRNAs, and long non-coding RNAs play a significant role in the regulation of cancer drug resistance. By altering the expression of specific target genes involved in cellular apoptosis, autophagy, drug efflux, epithelial-to-mesenchymal transition (EMT), and cancer stem cells (CSCs), their dysregulation aids in the development of cancer drug resistance. Furthermore, several ncRNAs have significant potential to be therapeutic targets for cancer patients as well as effective, precise biomarkers in diagnosis and prognosis.

This thematic issue aims to elucidate the most recent research on ncRNAs in CRCs and discuss the importance and difficulties that may arise in applying this tool on a regular clinical basis.

Keywords: Colorectal cancer, non-coding RNAs, diagnosis, prognosis, drug resistance, therapy.

Sub-topics:

- Non-coding RNAs in early diagnosis or prognosis
- Non-coding RNAs targeted genes and signaling pathways
- Recent updates in PIWI-interacting RNAs, small nucleolar RNAs, tRNA-derived small RNAs, and siRNAs
- Relation between cancer stem cells (CSCs) and non-coding RNAs
- Non-coding RNAs and epithelial-to-mesenchymal transition (EMT)
- Modulatory Roles of Non-coding RNAs in cancer drug resistance
- Modulatory Roles of Non-coding RNAs in Radiotherapy
- In-silico drug discovery based on lncRNA, circRNA, and microRNAs
- Encapsulated non-coding RNAs in Nanomedicine
- Targeted drug delivery of nanoparticles and non-coding RNAs
- Therapeutic efficacy of non-coding RNAs
- Exosomal non-coding RNAs
- Non-coding RNAs in tissues
- Metastatic non-coding RNAs
- Non-coding RNAs in clinical trials

Schedule:

➢ Complete Thematic issue submission deadline: **5th February 2024**

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