

Special Issue on MicroRNAs in Cancer Management: Big Challenges for Small Molecules

Call for Papers

In the last decade, increasing attention has been devoted to the study of microRNAs (miRNAs), 22 nt long RNAs able to exert a negative posttranscriptional regulation on cohorts of target mRNAs, thus playing a role as master regulators of entire biological processes. In the cancer field, investigation led to the identification of miRNAs as potential biomarkers for tumor diagnosis and prediction of patient's prognosis or response to treatment. In addition, a number of miRNAs have been shown to directly participate to tumorigenesis by acting as "oncoMirs" or "tumor suppressive miRNAs," thus becoming potential key targets or tools for anticancer therapy. However, a number of technical issues still need to be solved before miRNAs may actually enter the clinical armamentarium as either markers or therapeutic agents. In particular, our knowledge about the mechanisms of miRNA function and expression regulation is still fragmentary when compared to what is needed for the development of reliable and safe miRNA-based clinical strategies. This issue is intended to provide evidence of the potential usefulness of miRNAs in cancer management as well as focus on the still unsolved technical and conceptual challenges in miRNA research. Potential topics include, but are not limited to:

- MiRNAs as markers for cancer detection, risk assessment, and prediction of therapy response
- MiRNAs as oncogenes or tumor suppressors: relevance in cancer development and progression, functional targets
- MiRNA detection: methods for miRNA isolation and quantification, in situ detection, subcellular localization, miRNA profiling, normalization and identification of endogenous controls, and bioinformatics applied to miRNA research
- Complexity of miRNA biogenesis: transcription, host genes, processing, posttranscriptional modifications, and miRNA degradation
- MiRNA target prediction and identification: tools, experimental validation, factors affecting miRNA-target interaction, and ceRNAs
- MiRNA inhibition/overexpression for functional studies and therapeutic approaches: strategies, off-target effects, in vivo applications, and use of miRNA-based

therapies as a "one hit-multitarget approach" for direct antitumor effect or in combination with conventional treatments

- MiRNA knock-out and knock-in in vivo

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Manuscript Due	Friday, 6 June 2014
First Round of Reviews	Friday, 29 August 2014
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