

Special Issue on
Cancer Stem Cells in Cancer Chemoresistance and Malignancy

CALL FOR PAPERS

The survival of patients with various forms of cancer has improved over the past few decades, largely due to screening and diagnostic advances as well as developments in targeted biologic therapeutics. Nevertheless, even after systemic adjuvant treatment, a significant number of patients experience recurrence and metastasis. Treatment failure is caused mainly by primary drug resistance, acquired resistance, or both. Cancer stem cells (CSCs), also known as “tumor-initiating cells” or “tumorigenic cells,” have been shown to contribute significantly to therapeutic resistance and metastasis in a variety of malignancies, including colorectal cancer, glioblastoma multiforme, and melanoma. Moreover, they are thought to be the source of all cell types of the heterogeneous tumor cell population. In overcoming the main barriers to successful cancer treatment, including therapeutic resistance and metastasis, targeting CSCs represents a promising strategy.

There are several major challenges to understanding the role of CSCs in cancer progression and how best to target these tumorigenic subpopulations. It is clear that certain signaling pathways, such as those activated by Wnt or TGF- β , are necessary for maintaining CSCs. Targeting molecules that are integral to these pathways and whose inactivation may destroy CSC populations, however, has proven to be difficult. Furthermore, screening for novel, pathophysiologically relevant genes and molecules that modulate cell phenotype should occur with consideration of the tumor microenvironment, which likely impacts the developmental course of CSC subpopulations. In addition to targeting CSCs directly, there is also the possibility of treating the tumor microenvironment itself—though this approach harbors challenges commensurate with the attendant biological complexity.

The aims of the special issue are to present a comprehensive, though not unified, portrayal of the current state of research with regard to the role of CSCs in disease and treatment. While CSCs are the focus of this issue, we highly encourage research that adds complexity to, or even calls into question, the cancer stem cell hypothesis. High original research articles will be valued more highly than review articles, though the latter are welcome.

Potential topics include but are not limited to the following:

- ▶ The role of the tumor microenvironment
- ▶ CSC multilineage differentiation capacity
- ▶ Therapeutic resistance
- ▶ Reprogramming through genetic and epigenetic alterations
- ▶ Epithelial-to-mesenchymal transition (EMT)
- ▶ Signaling pathways altered in CSCs
- ▶ Targeting CSCs therapeutically
- ▶ Non-CSC plasticity

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/sci/cast/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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