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Advances in Therapeutic Targeting of Cancer Stem Cells

Over the past decade, the initiation and propagation of cancer are increasingly being linked to stem cells. Support for this link comes from identifying a small subpopulation of ‘stem cell-like cells’ within tumors of multiple organs, termed the cancer stem cells (CSCs), which both functionally and phenotypically resemble the normal tissue-specific, stem cells. These cells have self-renewal and differentiation capabilities like normal stem cells, and only these cells have been proposed to possess the ability to initiate and maintain the tumor. Traditionally, chemotherapy has been based on the ability of cytotoxic drugs to destroy rapidly proliferating cancer cells. It has been reported that only the rare populations of cells having stem cell-like characteristics drive tumor initiation/maintenance, while the rest of the cancer cells are non-tumorigenic. Hence, chemotherapy directed against the rest of the cancer cells may cause tumors to shrink but leaves the rare CSCs, leading to relapse. Therefore, it is hypothesized that frequent relapse of cancer may be due to the inability of anticancer drugs to target CSCs. Hence, the aim of cancer therapy should be specific to CSCs for complete elimination of tumorigenic cells. Therefore, this webinar enlighten the hypothesis of CSCs, mechanisms of drug resistance in CSCs, methods of identifying and isolating CSCs, and strategies employed in targeting CSCs.

Biography

Dr. Naseer Maliyakkal has completed his PhD in Pharmacology from Manipal Academy of Higher Education (MAHE), Manipal, India and postdoctoral studies from Indian Institute of Science (IISc), Bangalore, India. He is the Assistant Professor in Clinical Pharmacology and Therapeutics at King Khalid University, Saudi Arabia. He has published more than 20 papers in reputed journals and has been serving as peer reviewer and editorial board member of reputed journals.