OPEN ACCESS Freely available online

ISSN: 2157-7633
Journal of
Stem Cell Research
& Therapy

Commentary

Mesenchymal Stem Cells used in the Treatment of Liver Disease

Wager Rui*

Department of Bacteriology, Immunology, and Mycology, Suez Canal University, Ismailia, Egypt

DESCRIPTION

Pancreatic cancer is currently, the fourth most common cause of cancer-related death with a typical survival time of 4 to 6 months; just 5% of patients live for 5 years after diagnosis. Although surgical excision is seen to be the most effective form of treatment, it still has a poor chance of success due to early metastases and local progression. Additionally, chemotherapy is regarded as a significant alternative in clinical therapy, but it typically has negative outcomes. Therefore, it is crucial to understand the mechanisms underlying the pancreatic cancer cells' extreme chemoresistance [1].

Cancer stem cells, also known as tumour starting cells, have recently been found to play a crucial role in a variety of solid tumour types. Cancer metastasis, relapse, and resistance to chemotherapy or radiation therapy are all caused by cancer stem cells, in addition to the genesis and growth of tumours. Therefore, more research on identifying and eliminating pancreatic cancer stem cells is still needed to overcome the challenges in clinical therapy. Recent research on adult stem cells and cancer stem cells has linked the characteristics of stem cells to the appearance of colonies formed from single cells. The colonies were labelled as holoclones, meroclones, and paraclones in accordance with the criteria of colony size and boundary set by groundbreaking works in keratinocyte cell lines. Cancer stem cells from the prostate and glioma have been shown to exist in holoclones, just like stem cells in hair follicles, the eye, and the epidermis. Holoclones produced from the prostate cancer cell line PC3 exclusively induced tumour development in NOD/SCID animals and multiplied vigorously *in vitro* [2].

In serum-free conditions, cells in holoclones produced from the glioma cell line U251 were able to form tumour spheres and develop into the neuronal, astrocyte, and oligodendrocyte lineages. Interestingly, holoclones produced from both prostate cancer and glioma cell lines have high expression levels of stem cell-related genes. These hints suggested that a different method for enriching cancer stem cells would be to propagate holoclones from cancer cell lines [3]. However, holoclones have not been discovered in pancreatic cancer, and its relationship to the characteristics of cancer stem cells has not yet been established.

Based on the shape of colonies formed from individual cancer cells, examine the heterogeneity in the pancreatic cancer cell lines BxPC3 and PC3 in the current study and showed that holoclones were the only ones with abundant cancer stem cell characteristics [4]. Additionally, our research revealed the role that holoclone-forming cells play in chemoresistance, suggesting its potential value in the development of chemotherapeutic medicines. One of the primary reasons for cancer-related death is pancreatic cancer. One of the main challenges in clinical treatment is a high level of chemoresistance. Cancer stem cells have been widely identified and suggested as the cause of chemoresistance in a variety of solid tumour forms in recent years. More and more evidence points to the presence of cancer stem cells in cells that can continually produce holoclones. Holoclone-forming cells in pancreatic cancer have not yet been identified, though. To identify the holoclone-forming pancreatic cancer stem cells and create an in vitro continuous colony formation method, which will substantially improve the research of pancreatic cancer stem cells, were the objectives of the current study [5].

REFERENCES

1. Shimono Y, Zabala M, Cho RW, Lobo N. Downregulation of miRNA-200c links breast cancer stem cells with normal stem cells. cell. 2021; 3: 592-603.
2. Yu F, Deng H, Yao H. Mir-30 reduction maintains self-renewal and inhibits apoptosis in breast tumor-initiating cells. Oncogene. 2021; 5: 4194-4204.
3. Feldmann G, Dhara S, Fendrich V, Bedja D. Blockade of hedgehog signaling inhibits pancreatic cancer invasion and metastases: a new paradigm for combination therapy in solid cancers. Cancer Res. 2021; 5:2187-2196.
4. Singh S, Srivastava SK. CXCL12–CXCR4 signalling axis confers gemcitabine resistance to pancreatic cancer cells: a novel target for therapy. Br J Cancer. 2010; 11: 1671-1679.
5. Park JK, Lee EJ, Esau C, Schmittgen TD. Antisense inhibition of microRNA-21 or-221 arrests cell cycle, induces apoptosis, and sensitizes the effects of gemcitabine in pancreatic adenocarcinoma. Pancreas. 2009; 7: 190-199.

Correspondence to: Wager Rui, Department of Bacteriology, Immunology, and Mycology, Suez Canal University, Ismailia, Egypt, Email: rui.w@email.com

Received: 27-Oct-2022, Manuscript No. JSCRT-22-19242; **Editor assigned:** 31-Oct-2022, Pre QC No. JSCRT-22-19242(PQ); **Reviewed:** 16-Nov-2022, QC No. JSCRT-22-19242; **Revised:** 22-Nov-2022, Manuscript No. JSCRT-22-19242(R); **Published:** 30-Nov-2022, DOI: 10.35248/2157-7633.22.12.562.

Citation: Rui W (2022) Mesenchymal Stem Cells used in the Treatment of Liver Disease. J Stem Cell Res Ther. 12:562.