

Cell line-derived cancer stem-like cell: A useful tool for understanding cholangiocarcinoma

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Abstract: Cancer stem cell (CSC) has been demonstrated as the most responsible target to tumor metastasis, therapeutic resistance, and recurrence. For cholangiocarcinoma (CCA), the study of CSC is limited due to the lack of CSC model. In this study, we have established a cell line-derived cancer stem-like cell from KKU-055 CCA cell lines and named it as "KKU-055-CSC". The karyo-typing and STR analysis confirmed that KKU-055-CSC was originated from KKU-055 CCA cell line. The KKU-055-CSC exhibited self-renewal and multi-lineage differentiation properties. It was able form a malignant tumor in xenotransplantation model. Comparing with its parental cancer cell line, the KKU-055-CSC expressed higher level of stem cell markers including SOX2, Olig-2, c-myc and CD44. Using chemosensitivity assay, KKU-055-CSC was found to have the higher chemo-resistance against 5-FU and cisplatin than parental KKU-055 cell line. Taken all together, we have successfully established and characterized a new cell line-derived cancer stem-like cell of CCA, which is possibly a useful tool for studying the biology of CCA. The knowledge that subsequently generated from this cancer stem-like cell may lead to a curative treatment of CCA in the future.

Keywords: cholangiocarcinoma; cancer stem cell; stem cell; stemness; cancer; bile ducts

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