Directed Developmental Reprogramming of Prostate Cancer Cells to Stem-Like Cells

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Abstract

A significant hindrance to pre-clinical prostate cancer (PCa) research is the lack of models necessary to study the disease and it’s many presentations. Prostate cancer is a highly heterogeneous disease. That heterogeneity is only magnified under treatment in patient tumours. Upon detailed microarray examination of a classical model of Neuroendocrine Transdifferentiation (NEtD), a notable amplification of genes associated with neural/neural crest lineage, development and function were observed. Previously, NEtD of prostate adenocarcinoma to neuroendocrine-like cells was thought to occur without a stem cell intermediate. In the below publication we demonstrated that NEtD may occur through a transient neural/neural crest stem cell-like intermediate, and developed a method to capture and study that intermediate in a number of PCa cell models. Four different AR+/PSA+ PCa cell lines cultured in Stem Transition Media (STM) underwent a similar morphological transition, readily formed spheroids, over-expressed neural crest stem cell genes, became highly invasive, metastatic, and tumour initiating. Through the culture-mediated protocol, described below, we were able to capture these “Developmental Reprogrammed” stem-like PCa cells, and add four unique PCa models to the arsenal of PCa researchers.

Introduction

See attached Article file: "Nouri et al. Prot. Exchange 2017":http://www.nature.com/protocolexchange/system/uploads/5363/original/Article*file*-_Nouri_et_al_Protocol_Exchange_2017.docx?1490972676

Reagents

See attached Article file

Equipment

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Procedure

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Timing

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Troubleshooting

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Anticipated Results

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References

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Acknowledgements

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Supplementary Files

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Article_file_-_Nouri_et_al_Protocol_Exchange_2017.docx

Therapy-induced developmental reprogramming of prostate cancer cells and acquired therapy resistance

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