Prostate Cancer

Hindawi

Special Issue on

Models and Assays Developed toward Implementing Precision Prostate Cancer Therapy

CALL FOR PAPERS

Advances in high-throughput sequencing have elucidated the complexity of the genomic and epigenomic landscapes in prostate cancer and have led to the identification of recurrent genomic alterations that can be targeted for therapy. These advances have understandably shifted the treatment of cancer to a more personalized approach. In the past, our prediction of how well a novel compound would have achieved safety and efficacy in clinical trials was relied on testing cancer cell lines that were cultured from samples collected and propagated from decades ago. These handful of prostate cancer cell lines lacked the genetic and phenotypic heterogeneities that are evident in patient samples, and they were devoid of the mixture of clonal dynamics and interactions with extracellular matrix, stromal and immune cells present in human tumors. These fundamental concerns have been addressed by the development of patient-derived organoid, xenograft, and metastatic models that are, yet, limited but have defined genomic origins, could faithfully recapitulate the complexity of human tumors, and are biologically stable for the time of the assays. Patient-derived prostate cancer models have potential advantages that could transform the fields of cancer drug discovery and personalized medicine, both for hormone naïve disease, stages of treatment with androgen deprivation therapy, and castration resistant disease. These models would particularly impact target discovery, biomarker testing, tumor-stromal interactions, heterogeneity between primary and metastatic sites, clonal evolution, drug activity screening, assessment of combination and immunotherapies, and therapy resistance. Despite the promising advantages of patient-derived prostate cancer models, we must continue to refine these platforms and assess the utility and limitations of these models in order to ensure the greatest impact on improving therapies for men with prostate cancer.

This special issue welcomes the submission of original research and review articles that describe advances over existing technologies, show an increase in the successful "take rate", make a model more "humanized", or involve the underlying biology of prostate tumor cells.

Potential topics include but are not limited to the following:

- The use of patient-derived prostate cancer models, including patient-derived xenografts (PDXs) in murine, zebrafish and chicken hosts, humanized PDXs, and orthotopic subrenal capsule models
- Prostate tissue-derived organoids, prostate cancer stem cell-derived organoids, tumor slices, spheroids, and conditionally reprogrammed cells (CPCs)
- Studies on the utility of specific prostate cancer models or comparisons of two or more prostate cancer models to predict prostate cancer patient response to therapy
- Studies focused on the critical evaluation of prostate cancer intratumoral heterogeneity, prostate tumor-stromal interactions, and prostate cancer clonal evolution
- Studies addressing prostate cancer therapy resistance, prostate cancer bone metastasis models, and prostate cancer therapeutic approaches based on personalized genomic, epigenomic, and proteomic prostate cancer profiling and/or prostate cancer precision therapeutic approaches are encouraged.

Authors can submit their manuscripts through the Manuscript Tracking System at https://mts.hindawi.com/submit/journals/pc/madt/.

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

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