Prostate Cancer Cheat Sheet Cheat Sheet

by ACD Marketing Team (ACD Marketing) via cheatography.com/36805/cs/11872/

One Minute Pitch

The study of the tumor microenvironment expands the understanding of the role of the tumor microenvironment in cancer initiation, progression and metastases. Examination of the TME offers a more comprehensive understanding of the composition of the stroma in normal tissues, with the goal of delineating the mechanisms of tumor-stromal interactions in cancer.

Prostate Cancer Related Probes

ACACA AKT1 APC AR ARNTL BCL2 CAMKK1 CAMSAP1 CASP3 CAV1 CAV2 CCNA1 CCND1 CCND2 CDH1 CDKN2A CLN3 CREB1 DAXX DKK3 DLC1 ECT2 EDNRB EGFR EGR3 ERG ETV1 FASN FOXO1 GNRH1 GPX3 GSTP1 HAL HMGCR IGF1 IGFBP5 IL6 KLHL13 KLK3 LGALS4 LOXL1 MAPK1 MAX MGMT MKI67 MSX1 MTO1 NDRG3 NFKB1 NKX3-1 NRIP1 PDLIM4 PDPK1 PES1 PPP2R1B PRKAB1 PTEN PTGS1 PTGS2 RARB RASSF1 RBM39 SCAF11 SEPT7 SFRP1 SLC5A8 SOCS3 SOX4 SREBF1 STK11 SUPT7L TFPI2 TIMP2 TIMP3 TMPRSS2 TNFRSF10D TP53 VEGFA ZNF185

Applications

Reactivation of WNT by SOX9 drives PCa: SOX9 has been implicated in PCa but the SOX9-dependent genes and pathways involved are not well known. Ma et al. used SOX9 ChIP-Seq and transcriptome profiling to identify the spectrum of SOX9-related genes and pathways in PCa. RNAscope® ISH validated the microarray results in human PCa samples and showed that SOX9 levels correlated with WNT pathway components. http://bit.ly/2-q9JrDB

Correlation of the lncRNA SChLAP1 with PCa disease progression: Mehra et al. used RNAscope® ISH to demonstrate that PCa patients with high expression of the lncRNA SChLAP1 had a significantly higher chance of developing lethal disease, suggesting SChLAP1 could be a tissue-based prostate cancer biomarker. http://bit.ly/2-qHzfFn

Identification of the cellular localization of the secreted factor IL6 in PCa: IL6 is known to contribute to the development and/or progression of PCa. Yu et al. used RNAscope® ISH to reveal that IL6 expression was nearly exclusively restricted to the prostate stromal compartment. http://bit.ly/2qOGp93

Marketing Materials

Recorded Webinar: "Elucidating tumor heterogeneity in prostate cancer by combined IHC & novel RNA ISH" presented by Nallasivam Palanisamy, PhD, Associate Scientist Department of Urology Henry Ford Health System, Detroit, MI.

Spotlight Interview: Interview with Dr Rohit Mehra: "Realising the potential of lon noncoding RNA as a cancer biomarker - From NGS discovery to validation with RNA In Situ Hybridization"

Spotlight Interview: Interview with Dr Nallasivam Palanisamy: "Development of Prostate Cancer Personalized Medicine - Advancing analysis of prostate tumor molecular heterogeneity by combined immunohistochemistry and novel RNA in situ hybridization"

Related publications: http://bit.ly/2rtjsem

Special Case: AR-V7 - CRPC

Despite removal of the prostate and a reduction in androgen levels, some cases of prostate cancer still rely on androgen signaling

--> Known as castration-resistant prostate cancer (CRPC)

Many drug therapies for CRPC focus on attenuating androgen pathway

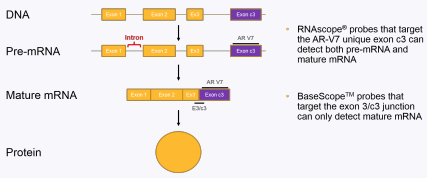
--> Enzalutamide and Abiraterone

20-40% of CRPC patients have no response to these drugs

--> Referred to as drug-resistant CRPC or androgen-independent CRPC

Correlation between drug-resistant CRPC patients and AR-V7 status

BaseScope and RNAscope probes for AR detection



AR-V7 Detection Methods

Detection method	Target specimen	Pros	Cons
RT-PCR	Fresh frozen primary tumor, mCRPC autopsies, mCRPC biopsies, liquid biopsies such as CTC	Highly sensitive	Sensitivity lower in FFPE tissues
RISH	FFPE or fresh frozen mCRPC specimens	*In situ* visualization of mRNA	Sometimes pre-mRNA is detected*
RNA-Seq	Fresh frozen mCRPC specimens	High quantitative capacity	Expensive
Western Blot	Fresh frozen mCRPC specimens	Allows for protein detection	Requires tissue in high quantity
IHC/IF	FFPE or fresh frozen mCRPC specimens	*In situ* visualization of protein	Current antibodies not robust enough

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