

PROSTATE CANCER MARKERS

Novel Antibodies for Prostate Cancer

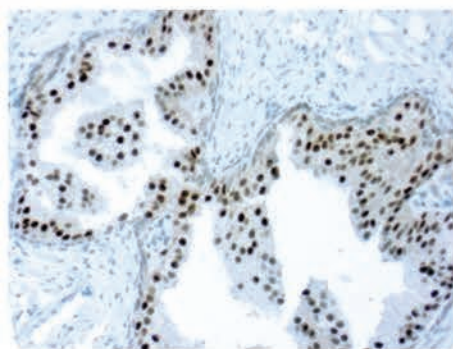
Novel Antibodies Including Anti-NKX3.1, Anti-ERG, Anti-p40 and Anti-PIN5 Cocktail Launched for Prostate Cancer

As the most common noncutaneous malignancy in American men, prostate cancer currently accounts for 29% of all diagnosed cancers and ranks second as the cause of cancer fatality in American men. It is estimated by the American Cancer Society that in 2019 there will be about 174,650 men with newly diagnosed prostate cancer which is a 6% increase from 2018. There will also be an estimated 31,620 deaths from prostate cancer in 2019, a 7% increase from 2018.

Differentiating the prostate carcinoma from benign prostate lesions is critical to detect at early stage and provide patients with the effective treatment. The diagnostic grid below can be used as a quick reference.

Biomarker	p504S	CK HMW	p40	CK7	ERG
Benign Lesions	-	+	+	+	-
Prostate Cancer	+	-	-	-	+

DBS' comprehensive prostate panel includes novel rabbit monoclonal and mouse monoclonal antibodies. These antibodies ensure sensitivity and specificity of IHC tests. As a result, pathologists and oncologists can have rapid, precise results and an accurate diagnosis to determine an effective treatment for their patients.

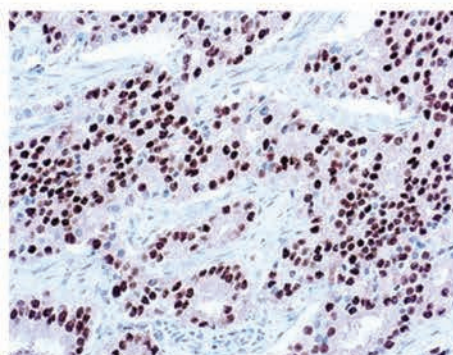


Prostate carcinoma stained with anti-NKX3.1 using DAB

NKX3.1 Clone: 361 (M) Cat. No.: Mob569, PDM569

NKX3.1 is a prostate specific gene encoding a transcription factor that plays an important role in prostate development and carcinogenesis.

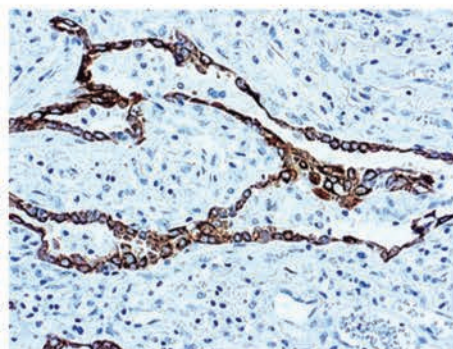
- NKX3.1 used as a diagnostic biomarker for prostate cancer and other metastatic lesions originating in the prostate
- NKX3.1 (98.6%) shows better sensitivity than Prostate Specific Antigen (PSA) (94.2%) for identifying metastatic prostatic adenocarcinoma



Prostate carcinoma stained with anti-AR using DAB

Androgen Receptor Clone: AR441 (M) Cat. No.: Mob245, PDM167

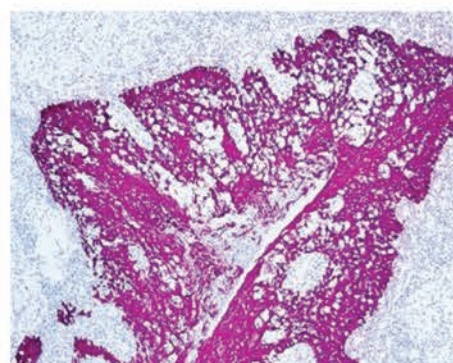
AR is a protein of 110 kDa. This antibody reacts with full length AR and also with the newly described A form of the receptor. This antibody does not cross react with estrogen, progesterone, or glucocorticoid receptors. The androgen receptor functions in the nucleus where it is believed to act as a transcriptional regulator mediating the action of androgens. Androgen receptor has a wide distribution and can be demonstrated by IHC in several tissues. It is also demonstrated in prostate carcinoma.



Squamous Lung t carcinoma stained with anti-CK7 using DAB

CK7 Clone: OV-TL 12/30 (M) Cat. No.: Mob057, PDM097

CK7 is a cytoplasmic intermediate filament protein expressed on most ductal and glandular and transitional epithelium of breast, urinary tract and bile duct epithelial cells, but not in prostate, colon and squamous carcinomas. It is useful to identify the organ origin of adenocarcinomas when combined with Cytokeratin 20 and other cell specific markers; and differentiate benign prostate tumor stained positive versus prostate cancer stained negative.



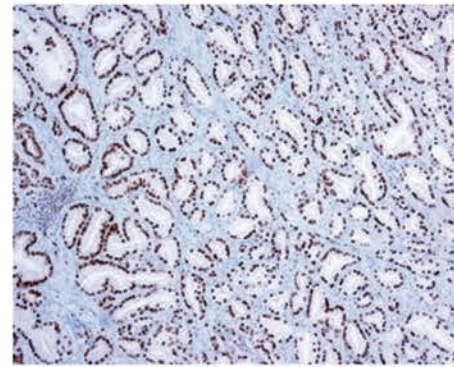
Prostate tissue stained with anti-CK HMW using PermaRed HRP

CK HMW Clone: 34BE12 (M) Cat. No.: Mob059, PDM074

This antibody is specific for "high molecular weight" cytokeratins 1, 5, 10 and 14, corresponding to molecular weights of 68, 58, 56.5 and 50 kDa respectively which are characteristically found in complex epithelium. The antibody reacts with all squamous and ductal epithelium and stains carcinomas. It reacts with benign small-acinar lesions of the prostate. This antibody stains positive in cytoplasm of epithelial cells.

ERG Clone: EP111 (R) Cat. No.: RMPD034

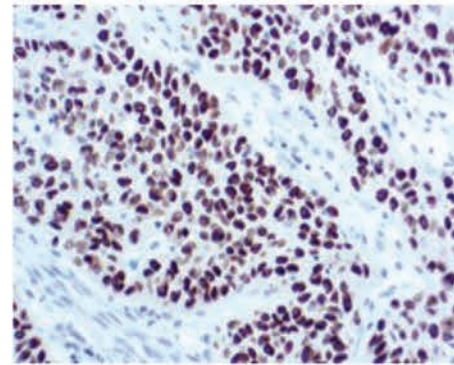
ERG or ETS-related gene is a member of the ETS transcription factor family. Recent studies have observed ERG as a frequently overexpressed proto-oncogene present in the majority of prostate cancer cases, often found fused with the TMPRSS2 gene. The presence of the TMPRSS2: ERG fusion product has been associated with aggressive forms of prostate cancer.



Prostate carcinoma stained with anti-ERG using DAB

p40 Clone: Poly (R) Cat. No.: RP163, PDR055

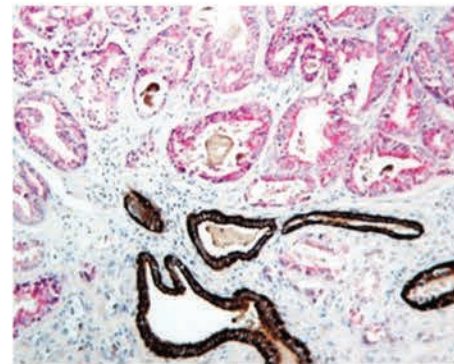
p63 is one of the standard markers for basal cells of the prostate gland. Recently, studies indicate that p40(Δ Np63) might be more specific as a basal cell marker. In the early stages of prostate cancer, the basal cells inside the ducts will be stained by the p40. This will help indicate the prostatic intraepithelial neoplasia (PIN) that is considered to be a pre-malignancy as it is a carcinoma in situ of the prostatic glands. As the cancer progresses the basal cells will be seen throughout the tissue as the cells become invasive. p40 can help determine the stage of carcinoma by indicating locations of the basal cells that are stained.



Sq Ca Lung stained with P40 25x

PIN5 Clone: p40 Poly(R); p504S* Poly(R); CK HMW 34 β E12 (M) Cat. No.: PDR057

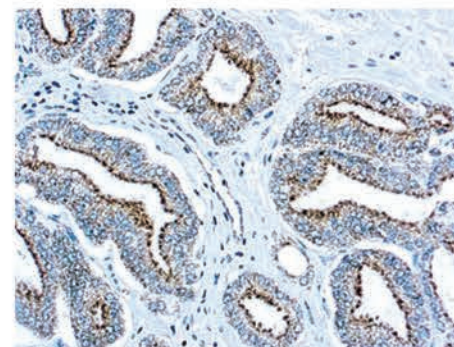
PIN5 cocktail (p40, p504S, Cytokeratin HMW) is useful to differentiate prostate carcinomas with confidence. The combined detection of p504S, p40 and high molecular weight cytokeratin markers is useful for distinguishing benign conditions mimicking cancer from prostate carcinomas. In particular, these markers are relevant in aiding in the diagnosis of premalignant condition, prostatic intraepithelial neoplasia (PIN). The positive prostate cancer marker, p504S (AMACR), in conjunction with the negative basal cell markers (p40 and HMW cytokeratin) offers utility in difficult cases where tissue may be limited.



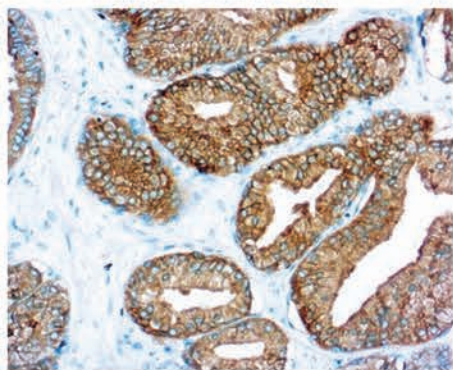
Prostate tissue stained with anti-PIN5 using DAB and PermaRed

p504S* Cat. No.: RP134, PDR046t

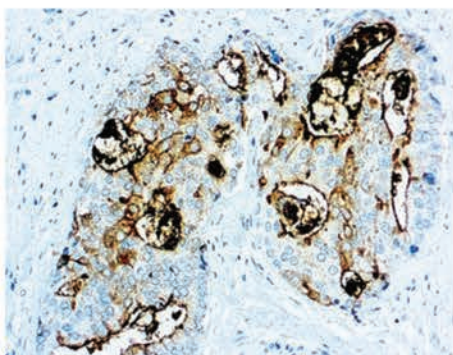
AMACR (p504S) is an acronym for alpha-methylacyl CoA racemase that helps to metabolize certain fatty acids within the body. High expression of AMACR protein is usually found in prostatic adenocarcinoma but not in benign prostatic tissue by premalignant lesions of prostate: high grade prostatic intraepithelial neoplasia and atypical adenomatous hyperplasia. Using AMACR as a positive marker along with basal cell staining as a negative marker could help confirm the diagnosis of small focus of prostate carcinoma on needle biopsies.



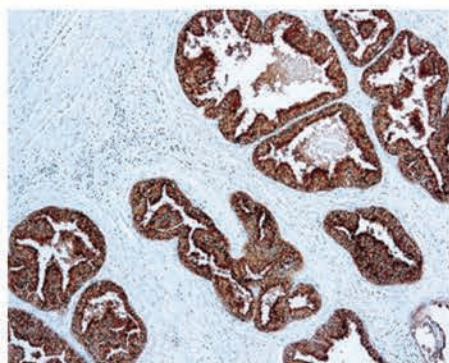
Prostate carcinoma stained with anti-p504S using DAB



Prostate carcinoma stained with anti-PSA using DAB



Prostate carcinoma stained with anti-PSMA using DAB



Prostate carcinoma stained with anti-PSAP using High Contrast DAB

PSA Clone: Poly (R) Cat. No.: RP033, PDR007

Prostate-specific antigen (PSA) is a glycoprotein produced primarily by the epithelial cells that line the acini and ducts of the prostate gland. PSA is concentrated in prostatic tissue, and serum PSA levels are normally very low. Disruption of the normal prostatic architecture, such as by prostatic disease, allows greater amounts of PSA to enter the general circulation. Elevated serum PSA levels have become an important marker of prostate pathologies which include benign prostatic hyperplasia, prostatitis, and especially prostate cancer, the focus of this document. Prostatic intraepithelial neoplasia (PIN) does not appear to raise serum PSA levels.

PSMA Clone: 3E6 (M) Cat. No.: Mob440, PDM581

Prostate specific membrane antigen (PSMA) is a 750 amino acid type II membrane glycoprotein. PSMA is expressed in normal and malignant prostatic epithelium and in a subset of non-prostatic tissues. PSMA expression has been shown to correlate with the progression of prostate cancer with highest levels expressed in hormone- refractory and metastatic disease. PSMA expresses in neo vasculature of a variety of non-prostatic solid tumors.

PSAP Clone: PASE/4LJ (M) Cat. No.: Mob085, PDM037

PSAP reacts with prostatic acid phosphatase in the glandular epithelium of normal and hyperplastic prostate, carcinoma of the prostate, and metastatic cells of prostatic carcinoma. This marker may be helpful in pinpointing the site of origin in cases of metastatic carcinoma of the prostate and is considered a more sensitive marker than PSA. However, it also offers less specificity. Nevertheless, PSAP complements PSA in the right clinical context.

R-Rabbit M-Mouse



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