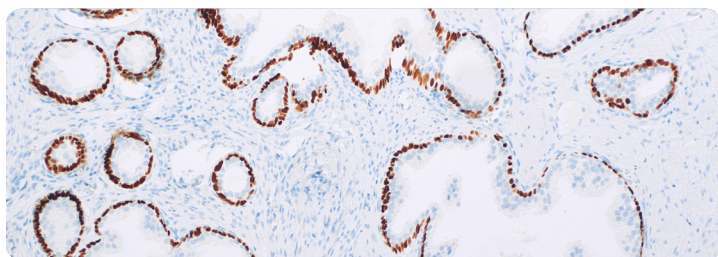


**Above:**  
P504s (13H4)

**View more at:**  
[cellmarque.com/specialties](http://cellmarque.com/specialties)

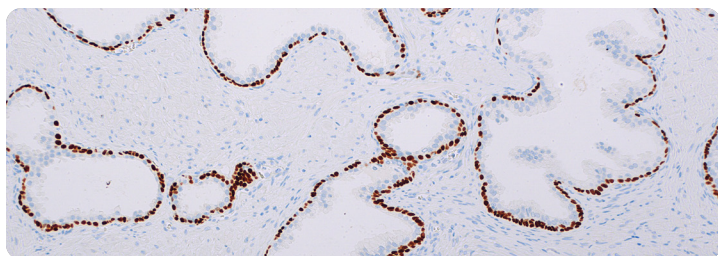


## Cell Marque™ Tissue Diagnostics Prostate Markers



### p40 (ZR8)

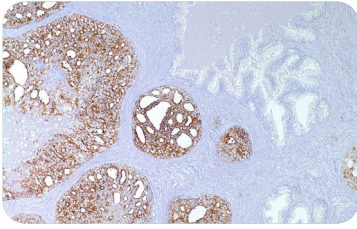
p40 is an isoform of p63, a transcription factor that regulates many cell activities, including cell proliferation, maintenance, and differentiation. It performs as a sensitive and specific tool for aiding in the identification of squamous cell carcinoma of the lung. In addition to its utility as a squamous differentiation marker, p40 has also been proven to be a valuable marker for highlighting myoepithelial and basal cell populations in prostate, breast, skin, and salivary gland. Strong p40 expression is frequently observed in esophageal cancerous squamous lesions. Immunohistochemical detection of p40 can also be helpful in identifying urothelial carcinoma. In cases of prostate carcinoma, p40 is almost always found to be negative for basal cell staining.



### p63 (EP174)

p63 is a transcription factor that regulates many cell activities, including cell proliferation, maintenance, differentiation, adhesion, and apoptosis. It has been found to be a sensitive and specific marker of myoepithelial and basal cell populations in prostate, breast, skin, and salivary gland. Additionally, p63 has also demonstrated immunohistochemical utility in identifying benign and malignant breast lesions. In prostatic carcinomas, it can also be used to recognize benign glands adjacent to malignant glands. p63 can also be used to differentiate adenocarcinoma of the lungs, where it is usually negative, from squamous cell carcinoma, which can be useful for advanced stages of the carcinoma where surgery is no longer an option.

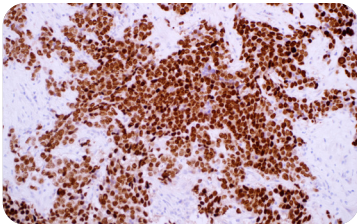
## Prostate Markers



### **P504s (13H4)**

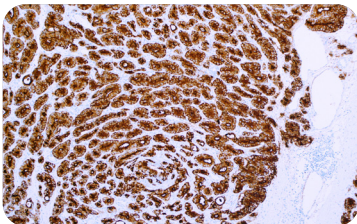
P504s, a cytoplasmic 382-amino acid protein, identified as human alpha-methylacyl-CoA racemase (AMACR), was identified by cDNA library subtraction in conjunction with high throughput microarray screening from prostate carcinoma. Methylacyl-CoA racemase plays a role in the beta-oxidation of branched-chain fatty acids and fatty acid derivatives. P504s mRNA is elevated in prostate cancers but virtually undetectable in benign prostates. The role of P504s in the pathogenesis of prostate carcinoma is unknown.

AMACR protein has been detected in liver, kidney, lung, and gallbladder. High expression of AMACR mRNA is found in prostate, liver, and kidney cancers but rarely in stomach and bladder cancers. A high percent of adenocarcinomas arising from these organs express AMACR, including hepatocellular carcinomas and renal cell carcinomas. In addition, carcinomas arising from tissues normally not expressing AMACR are also frequently positive for the antigen, including prostate carcinomas, urothelial carcinomas, and gastric adenocarcinomas, as well as a majority of melanomas and many lymphomas.



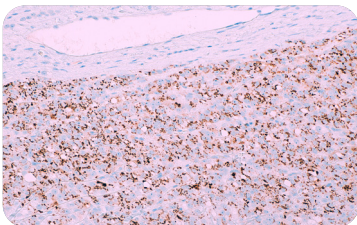
### **NKX3.1 (EP356)**

NKX3.1 is a prostate specific androgen-regulated homeobox gene located on chromosome 8p. It is difficult to distinguish between high grade prostate adenocarcinoma and high-grade infiltrating urothelial carcinoma using hematoxylin and eosin stained specimens. Current prostate adenocarcinoma markers such as prostate specific antigen (PSA) and prostate specific acid phosphatase (PSAP) are very useful in determining prostate origin of prostate cancer in other sites but have lower sensitivity when identifying poorly differentiated compared to well differentiated cases. NKX3.1 is a sensitive and specific tissue marker of prostate adenocarcinoma and can be used to help distinguish it from urothelial carcinomas. Currently, thrombomodulin and uroplakin are used to identify tumors of urothelial origin; however, their sensitivities are suboptimal.



### **PSMA (EP192)**

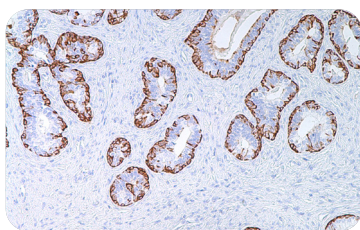
Prostate-specific membrane antigen (PSMA) is a type II transmembrane glycoprotein with enzymatic activity. PSMA is expressed in normal prostate epithelial cells as well as prostate neoplastic cells. It has been demonstrated that PSMA expression is increased in prostate cancer and is correlated with disease progression. Although highly sensitive and specific for prostate, PSMA also labels a subset of non-prostate tissues, including the small intestine and kidney. PSMA is useful for identifying metastatic prostate carcinoma and distinguishing prostate carcinoma from urothelial carcinoma.



### **Prostein (EP381)**

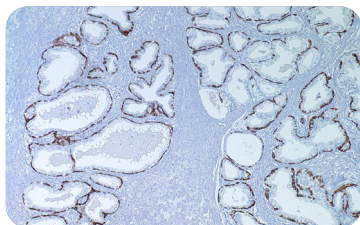
Prostein is a type IIIA transmembrane protein comprising a cleavable signal peptide and 11 transmembrane domains. *In vitro* studies demonstrate that prostein transcription and expression is androgen responsive. Prostein expression was found to be restricted to tissues of prostatic origin such as non-neoplastic prostate, prostate lesions, and malignant prostate tissues. Due to its high specificity, immunohistochemical detection of prostein may have utility in distinguishing prostatic carcinoma from the carcinomas of bladder, kidney, lung and colorectum.





### Cytokeratin (34betaE12)

Anti-Cytokeratin, 34betaE12 is an antibody to high molecular weight cytokeratin that reacts with all squamous and ductal epithelium and stains carcinomas. This antibody recognizes cytokeratins 1,5,10, and 14 that are found in complex epithelia. Anti-Cytokeratin, 34betaE12 shows no reactivity with hepatocytes, pancreatic acinar cells, proximal renal tubules, or endometrial glands; there has been no reactivity with cells derived from simple epithelia. Mesenchymal tumors, lymphomas, melanomas, and neural tumors are unreactive with this antibody with some exceptions. Anti-Cytokeratin, 34betaE12 does label myoepithelial cells and has been shown to be useful in distinguishing prostatic adenocarcinoma from hyperplasia of the prostate. This antibody has also been useful in separating benign from malignant intraductal breast proliferations.



### Cytokeratin 5 (EP1601Y) + Cytokeratin 14 (LL002)

Cytokeratin 5 is an intermediate filament protein of 58 kD amongst the cytokeratin family. It is a type II (basic) cytokeratin. Antibodies to this protein identify basal cells of squamous and glandular epithelia, myoepithelia, and mesothelium. Cytokeratin 14 is a 50 kD polypeptide found in basal cells of squamous epithelia, some glandular epithelia, myoepithelium, and mesothelial cells. Anti-cytokeratin 5 has been useful in the differential diagnosis of metastatic carcinoma in the pleura versus epithelial mesothelioma. Anti-cytokeratin 14 has been demonstrated to be useful in differentiating squamous cell carcinomas from other epithelial tumors. Anti-Cytokeratin 5, along with anti-cytokeratin 14, has been found to have an application in identifying the basal-like phenotype of breast carcinoma.

**For ordering information, please contact your local sales representative or distributor.**

For full references and product details please see the product insert.

**Intended Use:** These products herein are intended for laboratory use in the detection of their respective proteins in formalin-fixed, paraffin-embedded tissue stained in qualitative immunohistochemistry (IHC) testing. These products are not a stand-alone diagnostic, and cannot be used for diagnosis, treatment, prevention, or mitigation of disease.

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