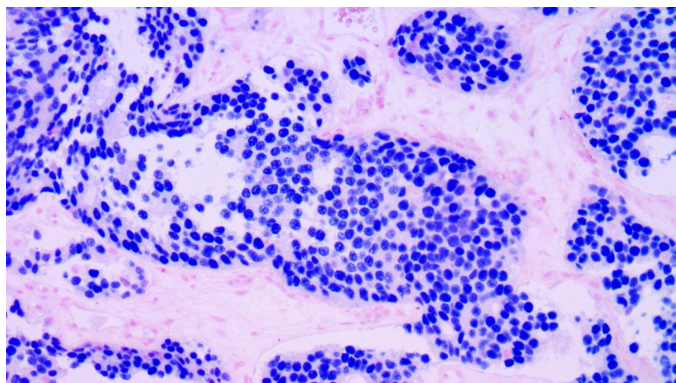


NKX3.1

Clone: RM430
Rabbit Monoclonal



Inset: IHC of NKX3.1 on a FFPE Prostatic Carcinoma Tissue

Intended Use

For In Vitro Diagnostic Use.

This antibody is intended for use in Immunohistochemical applications on formalin-fixed paraffin-embedded tissues (FFPE), frozen tissue sections, and cell preparations. Interpretation of results should be performed by a qualified medical professional.

Immunogen

A synthetic peptide corresponding to residues of human NKX3.1 protein.

Summary and Explanation

Homeobox protein NKX3.1, also known as BAPX2 and NKX3A is a protein that in humans is encoded by the *NKX3.1* gene located on chromosome 8p. NKX3.1 is a prostatic tumor suppressor gene, which is an androgen-regulated, prostate-specific homeobox gene whose expression is predominantly localized in the prostate epithelium. It is a negative regulator of epithelial cell growth in prostate tissue. Loss of NKX3A protein expression is a common finding in human prostate carcinomas and prostatic intraepithelial neoplasia. NKX3-1 expression is seen in prostate epithelium, testis, ureter, and pulmonary bronchial mucous glands.

NKX3-1 has been established as a marker for identifying metastatic tumors. In a study the sensitivity for identifying metastatic prostatic adenocarcinomas was 98.6% for NKX3.1, 94.2% for prostate specific antigen and 98.6% for prostatic acid phosphatase and a specificity of 99.7% for NKX3.1. NKX3.1-positive prostate carcinoma cells exhibit nuclear staining. Additionally, most cases of urothelial carcinoma have been found to be negative for NKX3.1 and may be helpful to distinguish between high grade prostate adenocarcinoma and high grade infiltrating urothelial carcinoma. NKX3.1 has also been found to be expressed in invasive ductal carcinomas (IDC) and invasive lobular carcinomas (ILC) of the breast. NKX3.1 expression is limited to ER, PR, and AR positive carcinomas and is more frequently expressed in ILC than IDC. NKX3.1 has a high specificity and sensitivity for prostate adenocarcinomas and can be used to help distinguish between prostate carcinoma and urothelial carcinomas.

Antibody Type	Rabbit Monoclonal	Clone	RM430
Isotype	IgG	Reactivity	Paraffin, Frozen
Localization	Nuclear	Species Reactivity	Human
Control	Prostate, Prostate Carcinoma		
Application	Prostate Cancer, Breast Cancer, Carcinoma of Unknown Primary Site		

Presentation

Anti-NKX3.1 is a Rabbit Monoclonal antibody derived from cell culture supernatant that is concentrated, dialyzed, filter sterilized and diluted in buffer pH 7.5, containing BSA and sodium azide as a preservative.

<i>Catalog No.</i>	<i>Presentation</i>	<i>Dilution</i>	<i>Volume</i>
BSB-3785-3	Predilute	Ready-to-Use	3.0 mL
BSB-3785-7	Predilute	Ready-to-Use	7.0 mL
BSB-3785-15	Predilute	Ready-to-Use	15.0 mL
BSB-3785-01	Concentrate	1:100-1:500	0.1 mL
BSB-3785-05	Concentrate	1:100-1:500	0.5 mL
BSB-3785-1	Concentrate	1:100-1:500	1.0 mL

Control Slides Available

<i>Catalog No.</i>	<i>Quantity</i>
BSB-9309-CS	5 slides

Storage Store at 2-8°C (Control Slides: Store at 20-25°C)

Precautions

1. For professional users only. Results should be interpreted by a qualified medical professional.
2. This product contains <0.1% sodium azide (NaN₃) as a preservative. Ensure proper handling procedures are used with this reagent.
3. Always wear personal protective equipment such as a laboratory coat, goggles, and gloves when handling reagents.
4. Dispose of unused solution with copious amounts of water.
5. Do not ingest reagent. If reagent is ingested, seek medical advice immediately.
6. Avoid contact with eyes. If contact occurs, flush with large quantities of water.
7. Follow safety precautions of the heating device used for epitope retrieval (TintoRetriever Pressure Cooker or similar).
8. For additional safety information refer to Safety Data Sheet for this product.
9. For complete recommendations for handling biological specimens, please refer to the CDC document, "Guidelines for Safe Work Practices in Human and Animal Medical Diagnostic Laboratories" (see References in this document).

Stability

This product is stable up to the expiration date on the product label.

Do not use after expiration date listed on the package label. Temperature fluctuations should be avoided. Store appropriately when not in use, and avoid prolonged exposure to room temperature conditions.

Specimen Preparation

Paraffin sections: The antibody can be used on formalin-fixed paraffin-embedded (FFPE) tissue sections. Ensure tissue undergoes appropriate fixation for best results. Pre-treatment of tissues with heat-induced epitope retrieval (HIER) is recommended using Bio SB ImmunoDNA Retriever with Citrate (BSB 0020-BSB 0023), ImmunoDNA Retriever with EDTA (BSB 0030-BSB 0033), or ImmunoDNA Digestor (BSB 0108-0112). See reverse side for complete protocol. Tissue should remain hydrated via use of Bio SB Immuno/DNA Washer solutions (BSB 0029 & BSB 0042).

Frozen sections and cell preparations: The antibody can be used on acetone-fixed frozen sections and acetone-fixed cell preparations.

IHC Protocol

1. Cut and mount 3-5 micron formalin-fixed paraffin-embedded tissues on positively charged slides such as Bio SB Hydrophilic Plus Slides (BSB 7028).
2. Air dry for 2 hours at 58° C.
3. Deparaffinize, dehydrate and rehydrate tissues.
4. Subject tissues to heat induced epitope retrieval (HIER) using a suitable retrieval solution such as ImmunoDNA Retriever with Citrate (BSB 0020-BSB 0023) or EDTA (BSB 0030-BSB 0033).
5. Any of three heating methods may be used:

a. TintoRetriever Pressure Cooker or Equivalent

Place tissues/slides in a staining dish or coplin jar containing the ImmunoDNA Retriever with Citrate or EDTA and place on trivet in the pressure cooker. Add 1-2 inches of distilled water to the pressure cooker and turn heat to high. Incubate for 15 minutes. Open and immediately transfer slides to room temperature.

b. TintoRetriever PT Module or Water Bath Method

Place tissues/slides in a pre-warmed staining dish or coplin jar containing the ImmunoDNA Retriever with Citrate or EDTA at 95°-99° C. Incubate for 30-60 minutes.

c. Conventional Steamer Method

- Place tissues/slides in a pre-warmed staining dish or coplin jar containing the ImmunoDNA Retriever with Citrate or EDTA in a steamer, cover and steam for 30-60 minutes.
6. After heat treatment, transfer slides in ImmunoDNA Retriever with Citrate or EDTA to room temperature and let stand for 15-20 minutes.
 7. For manual IHC, perform antibody incubation at ambient temperature. For automated IHC methods, perform antibody incubation according to instrument manufacturer's instructions.
 8. Wash slides with ImmunoDNA washer or DI water.
 9. Continue IHC protocol. Wash slides between each step with ImmunoDNA washer solution.

Abbreviated Immunohistochemical Protocol

Step	ImmunoDetector AP/HRP	PolyDetector AP/HRP	PolyDetector Plus HRP
Peroxidase/AP Blocker	5 min.	5 min.	5 min
Primary Antibody	30-60 min.	30-60 min.	30-60 min.
1st Step Detection	10 min.	30-45 min.	15 min.
2nd Step Detection	10 min.	Not Applicable	15 min.
Substrate- Chromogen	5-10 min.	5-10 min.	5-10 min.
Counterstain / Coverslip	Varies	Varies	Varies

Mounting Protocols

For detailed instructions using biodegradable permanent mounting media such as XyGreen PermaMunter (BSB 0169-0174) or organic solvent based resin such as PermaMunter (BSB 0094-0097), refer to PI0174 or PI0097.

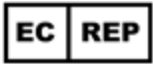







Product Limitations

Due to inherent variability present in immunohistochemical procedures (including fixation time of tissues, dilution factor of antibody, retrieval method utilized, and incubation time), optimal performance should be established through the use of positive and negative controls. Results should be interpreted by a qualified medical professional.

References

1. He WW, Scivolino PJ, Wing J, et al. A novel human prostate-specific, androgen-regulated homeobox gene (NKX3.1) that maps to 8p21, a region frequently deleted in prostate cancer. *Genomics*. 1997;43(1):69-77. doi:10.1006/geno.1997.4715
2. Gurel B, Ali TZ, Montgomery EA, et al. NKX3.1 as a marker of prostatic origin in metastatic tumors. *Am J Surg Pathol*. 2010;34(8):1097-1105. doi:10.1097/PAS.0b013e3181e6cbf3
3. Abate-Shen C, Shen MM, Gelmann E. Integrating differentiation and cancer: the Nkx3.1 homeobox gene in prostate organogenesis and carcinogenesis. *Differentiation*. 2008;76(6):717-727. doi:10.1111/j.1432-0436.2008.00292.x
4. Chuang AY, DeMarzo AM, Veltri RW, Sharma RB, Bieberich CJ, Epstein JI. Immunohistochemical differentiation of high-grade prostate carcinoma from urothelial carcinoma. *Am J Surg Pathol*. 2007;31(8):1246-1255. doi:10.1097/PAS.0b013e31802f5d33
5. U.S. Department of Health and Human Services: Centers for Disease Control and Prevention. Guidelines for Safe WorkPractices in Human and Animal Medical Diagnostic Laboratories. Supplement / Vol. 61, January 6, 2012. <https://www.cdc.gov/mmwr/pdf/other/su6101.pdf>

Symbol Key / Légende des symboles/Erläuterung der Symbole

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