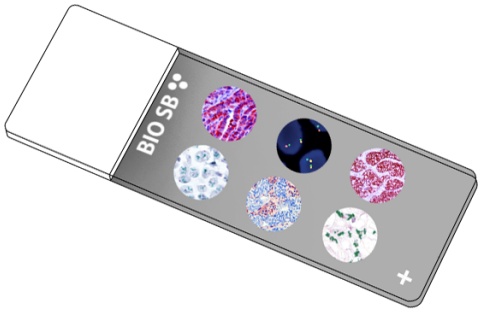
# BRG-1/SMARCA4 Control Slides

CE IVD




**Intended Use**
For In Vitro Diagnostic Use.

**Summary and Explanation**
Brahma-related gene-1 (BRG-1) protein is encoded by the gene SMARCA-4, which is localized on chromosome 19. BRG-1 is the core catalytic ATPase subunit of the SWItch/sucrose non-fermentable (SWI/SNF) complex. SWI/SNFs are a member of the family of ATP-dependent chromatin-remodeling complexes and the function of SWI/SNFs is to facilitate the transcriptional activation or repression of target genes. BRG-1 is essential for DNA repair, differentiation, and organ development.There are several studies that suggest the involvement of BRG-1 in different cancer types. It was found that the loss of BRG-1 expression occurs in a portion of tested cancers types, including Breast, Colon, Head/Neck, Ovarian, Liver and Renal Cell Cancer. On the contrary, overexpression of BRG-1 was found in Breast, Colorectal, and Prostate Cancer, as well as Melanoma and Neuroblastoma. There is no established cutoff for determining high versus low expression; staining of the surrounding normal tissue has been used as a median value relative to which BRG-1/SMARCA4 expression may be considered increased or decreased. An IHC analysis of BRG-1 in Non-Small Cell Lung Cancer patients revealed that the survival rate of BRG-1 negative patients was 0%, when compared to BRG-1 positive patients, indicating the prognostic value of BRG-1 as a biomarker. Other IHC studies found that the loss of BRG-1 protein expression highly correlates with Small Cell Carcinoma of the Ovary, Hypercalcemic type, suggesting BRG-1 as a diagnostic marker for Small Cell Carcinoma of the Ovary, Hypercalcemic type.

**Presentation**
Five slides of BRG-1/SMARCA4 positive tissues, each mounted on Hydrophilic Plus Slides, provided in a plastic mailer.

| *Catalog No.* | *Quantity* |
|---|---|
| BSB-9038-CS | 5 slides |
| BSB-3714-CS | 5 slides |

**Storage** Store at 20-25°C

**Precautions**
1. For professional users only. Results should be interpreted by a qualified medical professional.
2. 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. 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 package label.

**IHC Protocol**
1. 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).
2. 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.
3. After heat treatment, transfer slides in ImmunoDNA Retriever with Citrate or EDTA to room temperature and let stand for 15-20 minutes.
4. For manual staining, perform antibody incubation at ambient temperature. For automated staining methods, perform antibody incubation according to instrument manufacturer's instructions.
5. Wash slides with ImmunoDNA washer or DI water.
6. Continue IHC staining 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 |

**Abbreviated IF Protocol**

| Step | Incubation Time |
|---|---|
| Rinse slides in IF wash buffer | 5 minutes |
| Drain and wipe excess IF wash buffer off slide | |
| Conduct remaining steps in the dark | |
| Apply Antibody | 30-60 minutes |
| Rinse with 3 changes of IF wash buffer | 3x15 minutes each |
| Coverslip with IF mounting medium | |

**Mounting Protocols**

For detailed instructions using biodegradable permanent mounting media such as XyGreen PermaMounter (BSB 0169-0174) or organic solvent based resin such as PermaMounter (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. Trotter KW, Archer TK. The BRG1 transcriptional coregulator. Nucl Recept Signal. 2008;6:e004. Published 2008 Feb 1. doi:10.1621/nrs.060042. Wang P, Song X, Cao D, et al. Oncogene-dependent function of BRG1 in hepatocarcinogenesis. Cell Death Dis. 2020;11(2):91. Published 2020 Feb 4. doi:10.1038/s41419-020-2289-33. Transcription activator BRG1. https://www.uniprot.org/uniprot/P51532.4. Reisman DN, Sciarrotta J, Wang W, Funkhouser WK, Weissman BE. Loss of BRG1/BRM in human lung cancer cell lines and primary lung cancers: correlation with poor prognosis. Cancer Res. 2003;63(3):560-566.5. Marquez-Vilendrer SB, Thompson K, Lu L, Reisman D. Mechanism of BRG1 silencing in primary cancers. Oncotarget. 2016;7(35):56153-56169. doi:10.18632/oncotarget.105936. Muthuswami R, Bailey L, Rakesh R, Imbalzano AN, Nickerson JA, Hockensmith JW. BRG1 is a prognostic indicator and a potential therapeutic target for prostate cancer [published online ahead of print, 2019 Jan 22]. J Cell Physiol. 2019;234(9):15194-15205. doi:10.1002/jcp.281617. Karnezis AN, Wang Y, Ramos P, et al. Dual loss of the SWI/SNF complex ATPases SMARCA4/BRG1 and SMARCA2/BRM is highly sensitive and specific for small cell carcinoma of the ovary, hypercalcaemic type. J Pathol. 2016;238(3):389-400. doi:10.1002/path.46338. Witkowski L, Goudie C, Foulkes WD, McCluggage WG. Small-Cell Carcinoma of the Ovary of Hypercalcemic Type (Malignant Rhabdoid Tumor of the Ovary): A Review with Recent Developments on Pathogenesis. Surg Pathol Clin. 2016;9(2):215-226. doi:10.1016/j.path.2016.01.0059. 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**

| | | | |
|---|---|---|---|
| EC REP<br>QAdvis EAR AB<br>Ideon Science Park<br>Scheelevägen 17<br>SE-223 70 Lund, Sweden | Storage Temperature<br>Limites de température<br>Zulässiger Temperaturbereich | Manufacturer<br>Fabricant<br>Hersteller | REF<br>Catalog Number<br>Référence du catalogue<br>Bestellnummer |
| IVD<br>In Vitro Diagnostic Medical Device<br>Dispositif médical de diagnostic in vitro<br>In-Vitro-Diagnostikum | Read Instructions for Use<br>Consulter les instructions d'utilisation<br>Gebrauchsanweisung beachten | Expiration Date<br>Utiliser jusque<br>Verwendbar bis | LOT<br>Lot Number<br>Code du lot<br>Chargenbezeichnung |

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