

Caveolin-1 Control Slides



Intended Use

For In Vitro Diagnostic Use.

Summary and Explanation

Caveolin-1 (CAV-1) is a protein that in humans is encoded by the CAV1 gene. CAV1 and CAV2 are located next to each other on chromosome 7 and express co localizing proteins that form a stable hetero-oligomeric complex. By using alternative initiation codons in the same reading frame, two isoforms (alpha and beta) are encoded by a single transcript from this gene. The scaffolding protein encoded by this gene is the main component of the caveolae plasma membranes found in most cell types. The gene is a tumor suppressor gene candidate and a negative regulator of the Ras-p42/44 MAP kinase cascade.

CAV-1 is expressed at different levels in different tissues, with the highest in adipocytes, endothelial cells, fibroblasts, and mesothelial cells. CAV-1 is useful in assisting in the identification of epithelioid mesothelioma. CAV-1 IHC expression has been found in 100% epithelioid mesotheliomas, whereas only 7.5% of the lung adenocarcinomas were positive for CAV-1. Staining in most mesotheliomas has been reported as being strong and diffuse when compared with the weak, focal staining (no more than 1% of the tumor cells) seen in the lung adenocarcinomas and therefore CAV-1 is considered a very useful marker to help to differentiate these two malignancies. CAV-1 has been found to be comparable to other mesothelioma markers such as calretinin and podoplanin that are commonly used to assist in the differentiation between epithelioid mesotheliomas and lung adenocarcinomas. CAV-1 has also been found to be useful in the identification of Ewing sarcoma/PNET with expression in 96% cases of Ewing sarcoma/PNET. CAV-1 is very useful in the differentiation of epithelioid mesothelioma from lung adenocarcinoma and identification of Ewing sarcoma/PNET.

Presentation

Five slides of Caveolin-1 positive tissues, each mounted on Hydrophilic Plus Slides, provided in a plastic mailer.

| <i>Catalog No.</i> | <i>Quantity</i> |
|--------------------|-----------------|
| BSB-9057-CS | 5 slides |
| BSB 3320 | 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 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

- Entrez Gene: CAV1 caveolin 1, caveolae protein, Homo sapiens. <https://www.ncbi.nlm.nih.gov/gene?Db=gene&Cmd=ShowDetailView&TermToSearch=857>
- Fra AM, et al. Human caveolin-1 and caveolin-2 are closely linked genes colocalized with WI-5336 in a region of 7q31 frequently deleted in tumors. *Genomics*. 1999; 56 (3): 355-6.
- Cohen AW, et al. Role of caveolae and caveolins in health and disease. *Physiol Rev*. 2004 Oct;84(4):1341-79.
- Amatya VJ, et al. Caveolin-1 is a novel immunohistochemical marker to differentiate epithelioid mesothelioma from lung adenocarcinoma. *Histopathology*. 2009 Jul; 55(1):10-9.
- Llombart-Bosch A, et al. Histological heterogeneity of Ewing's sarcoma/PNET: an immunohistochemical analysis of 415 genetically confirmed cases with clinical support. *Virchows Arch*. 2009 Nov; 455(5):397-411.
- U.S. Department of Health and Human Services: Centers for Disease Control and Prevention. Guidelines for Safe Work Practices 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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|----------------------|--|---|---|------------|---|
| EC REP | QAdvis EAR AB Ideon Science Park Scheelevägen 17 SE-223 70 Lund, Sweden |  Storage Temperature Limites de température Zulässiger Temperaturbereich |  Manufacturer Fabricant Hersteller | REF | Catalog Number Référence du catalogue Bestellnummer |
| IVD | In Vitro Diagnostic Medical Device Dispositif médical de diagnostic in vitro In-Vitro-Diagnostikum |  Read Instructions for Use Consulter les instructions d'utilisation Gebrauchsanweisung beachten |  Expiration Date Utiliser jusqu'à Verwendbar bis | LOT | Lot Number Code du lot Chargenbezeichnung |