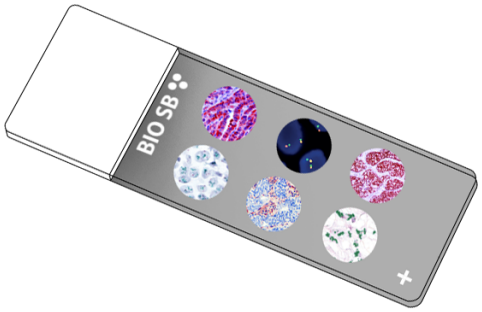
MMP-9
Control Slides

CE IVD



Intended Use
For In Vitro Diagnostic Use.

Summary and Explanation
The matrix metalloproteinases are responsible for degradation of the extracellular matrix. The matrix metalloproteinases and their specific tissue inhibitor metalloproteinases have been associated with tumor cell invasion and metastasis in a number of adult tumors. matrix metalloproteinases-9, also designated as 92-kDa Type IV Collagenase or gelatinase B, is a member of matrix metalloproteinases, which is produced as a 92- kDa pro-enzyme by neutrophils, macrophages, mast cells and stromal cells, as a normal constituent and released into the extracellular environment after activation in inflammatory tissues.

MMP-9 may be involved in the development of several human malignancies, as degradation of collagen IV in the basement membrane and extracellular matrix facilitates tumor progression, including invasion, metastasis, growth and angiogenesis. The expression levels of MMP-9 in tumors are elevated compared with the corresponding normal tissues in a variety of cancer types, including breast, colon, gastric and nasopharyngeal cancers. MMP-9 may play an important role in angiogenesis and neovascularization. For example, MMP9 appears to be involved in the remodeling associated with malignant glioma neovascularization. Increased expression has been seen in a metastatic mammary cancer cell line.

Presentation
Five slides of MMP-9 positive tissues, each mounted on Hydrophilic Plus Slides, provided in a plastic mailer.

Catalog No.	*Quantity*
BSB-9282-CS	5 slides
BSB 2544	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 the 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. Vandooren, J; Van den Steen, PE; Opdenakker, G. "Biochemistry and molecular biology of gelatinase B or matrix metalloproteinase-9 (MMP-9) The next decade". Crit Rev Biochem Mol Biol. 2013; 48 (3): 222–72.
2. Forsyth PA, et al. "Gelatinase-A (MMP-2), gelatinase-B (MMP-9) and membrane type matrix metalloproteinase-1 (MT1-MMP) are involved in different aspects of the pathophysiology of malignant gliomas". British Journal of Cancer. 1999; 79 (11-12).
3. Heissig B, et al. "Recruitment of Stem and Progenitor Cells from the Bone Marrow Niche Requires MMP-9 Mediated Release of Kit-Ligand". Cell. 2002;109 (5): 625–37.
4. Morini M, et al. "The α3β1 integrin is associated with mammary carcinoma cell metastasis, invasion, and gelatinase B (mmp-9) activity". International Journal of Cancer, 2000; 87 (3): 336–42.
5. Farina AR, Mackay AR. "Gelatinase B/MMP-9 in Tumour Pathogenesis and Progression". Cancers (Basel), 2014; 6 (1): 240–96.
6. Zucker S, et al. "Plasma assay of gelatinase B: tissue inhibitor of metalloproteinase complexes in cancer". Cancer , 1995; 76 (4): 700–708.
7. Groblewska M, Set al. "The role of matrix metalloproteinases (MMPs) and their inhibitors (TIMPs) in the development of esophageal cancer". Folia Histochem. Cytobiol. 2012; 50 (1): 12–9.
8. 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

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 jusque Verwendbar bis	LOT Lot Number Code du lot Chargenbezeichnung

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