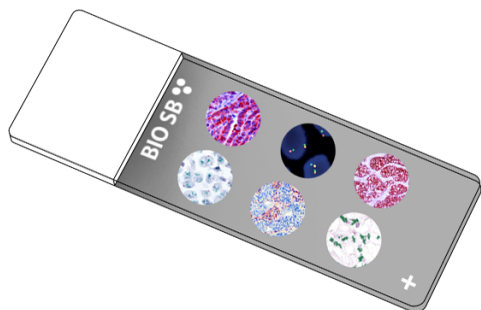


# YAP1

## Control Slides



### Intended Use

For In Vitro Diagnostic Use.

### Summary and Explanation

Yes-Associated Protein 1 (YAP1) is a regulatory protein that binds the Src family tyrosine kinase YES, promotes transcriptional activation of cyclin E and inhibition of caspase-induced apoptosis. YAP1 is found in the cytoplasm, though transported into the nucleus to perform its roles in proliferation and assist in tissue repair and growth. YAP1 is essential for cancer growth, contributing to stem-cell-like features of proliferation and metastasis and inducing these features in neighboring cells. YAP1 may be upregulated or have higher nuclear localization in more malignant and metastatic tumors, as seen in Lung, Breast, Colorectal, Liver, Gastric, Pancreatic, and Brain Cancers. YAP1 It is frequently overexpressed in Mammary carcinoma, Glioblastoma and Squamous Cell Carcinoma, Pancreatic, Oral, Cervical, Ovarian and Lung Cancers. YAP1 has been found to be expressed in fetal and adult brain regions known to harbor neural progenitor cells but there was little YAP1 immunoreactivity in the adult cerebral cortex. YAP1 protein was also readily detected in the nuclei of human brain tumors. In Medulloblastoma, expression varied between histologic subtypes and was most prominent in Nodular/Desmoplastic tumors. In Gliomas it was frequently expressed in infiltrating Astrocytomas and Oligodendrogliomas, but rarely in Pilocytic Astrocytomas. YAP1 immunoreactivity has been found in the nuclei of tumor cells in 64.8% of Clear Cell Renal Cell Carcinoma (ccRCC) patients, whereas only 24.1% of tumors revealed cytoplasmic YAP1 expression with ccRCC patients having cytoplasmic YAP1 immunoexpression had significantly shorter OS (median = 26.8 months) than patients without cytoplasmic YAP1 and concluded that increased cytoplasmic YAP1 (HR = 4.53) and decreased LATS1 immunoreactivity levels (HR = 0.90) were associated with worse prognosis, being independent prognostic factors. These results suggest that YAP1 and LATS1 can be considered as new prognostic factors in ccRCC.

### Presentation

Five slides of YAP1 positive tissues, each mounted on Hydrophilic Plus Slides, provided in a plastic mailer.

Catalog No.	Quantity
BSB-9430-CS	5 slides
BSB-3755-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 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. Zancanato F, Cordenonsi M, Piccolo S. YAP/TAZ at the Roots of Cancer. *Cancer Cell*. 2016;29(6):783-803. doi:10.1016/j.ccell.2016.05.0052.

Overholtzer M, Zhang J, Smolen GA, et al. Transforming properties of YAP, a candidate oncogene on the chromosome 11q22 amplicon. *Proc Natl Acad Sci U S A*. 2006;103(33):12405-12410. doi:10.1073/pnas.06055791033.

Johnson R, Halder G. The two faces of Hippo: targeting the Hippo pathway for regenerative medicine and cancer treatment. *Nat Rev Drug Discov*. 2014;13(1):63-79. doi:10.1038/nrd41614.

Huang J, Wu S, Barrera J, Matthews K, Pan D. The Hippo signaling pathway coordinately regulates cell proliferation and apoptosis by inactivating Yorkie, the Drosophila Homolog of YAP. *Cell*. 2005;122(3):421-434. doi:10.1016/j.cell.2005.06.0075.

Orr BA, Bai H, Odia Y, Jain D, Anders RA, Eberhart CG. Yes-associated protein 1 is widely expressed in human brain tumors and promotes glioblastoma growth. *J Neuropathol Exp Neurol*. 2011;70(7):568-577. doi:10.1097/NEN.0b013e31821ff8d86.

Godlewski J, Kiezun J, Krazinski BE, Kozielec Z, Wierzbicki PM, Kmiec Z. The Immunoexpression of YAP1 and LATS1 Proteins in Clear Cell Renal Cell Carcinoma: Impact on Patients' Survival. *Biomed Res Int*. 2018;2018:2653623. Published 2018 Apr 3. doi:10.1155/2018/26536237.

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

<b>EC</b> <b>REP</b>	QAdvis EAR AB Ideon Science Park Scheelevägen 17 SE-223 70 Lund, Sweden	 Storage Temperature Limites de température Zulässiger Temperaturbereich	 Manufacturer Fabricant Hersteller	<b>REF</b>	Catalog Number Référence du catalogue Bestellnummer
<b>IVD</b>	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	<b>LOT</b>	Lot Number Code du lot Chargenbezeichnung