

# Topoisomerase II alpha

Concentrated and Prediluted Monoclonal Antibody  
901-3045-092017

**BIOCARE**  
M E D I C A L

<b>Catalog Number:</b>	<b>ACI 3045 A, B</b>	<b>API 3045 AA</b>
<b>Description:</b>	0.1, 0.5 ml, concentrated	6.0 ml, prediluted
<b>Dilution:</b>	1:100	Ready-to-use
<b>Diluent:</b>	Da Vinci Green	N/A

## Intended Use:

For In Vitro Diagnostic Use

Topoisomerase II alpha [31] is a mouse monoclonal antibody that is intended for laboratory use in the qualitative identification of topoisomerase II alpha protein by immunohistochemistry (IHC) in formalin-fixed paraffin-embedded (FFPE) human tissues. The clinical interpretation of any staining or its absence should be complemented by morphological studies using proper controls and should be evaluated within the context of the patient's clinical history and other diagnostic tests by a qualified pathologist.

## Summary and Explanation:

Topoisomerase II alpha (Topo IIa) plays an important role in the synthesis and transcription of DNA, as well as chromosomal segregation during mitosis. It is reported to be a sensitive and specific marker of late S-, G2- & M-phases in transformed and developmentally regulated normal cells. Topo IIa is also implicated in drug resistance of tumor cells and has been shown to be over-expressed in many human cancers. Decreased expression of Topo IIa is the predominant mechanism of resistance to several chemotherapeutic agents. A significant variation in the range of expression of this protein has been reported in many different tumors.

## Principle of Procedure:

Antigen detection in tissues and cells is a multi-step immunohistochemical process. The initial step binds the primary antibody to its specific epitope. After labeling the antigen with a primary antibody, a secondary antibody is added to bind to the primary antibody. An enzyme label is then added to bind to the secondary antibody; this detection of the bound antibody is evidenced by a colorimetric reaction.

**Source:** Mouse monoclonal

**Species Reactivity:** Human; others not tested

**Clone:** 31

**Isotype:** Mouse IgG1

**Total Protein Concentration:** ~10 mg/ml. Call for lot specific Ig concentration.

**Epitope/Antigen:** Topoisomerase II alpha

**Immunogen:** Human Topo IIa aa. 1245-1361

**Cellular Localization:** Nuclear

**Positive Control:** Cervix or tonsil

## Known Applications:

Immunohistochemistry (formalin-fixed paraffin-embedded tissues)

**Supplied As:** Buffer with protein carrier and preservative

## Storage and Stability:

Store at 2°C to 8°C. Do not use after expiration date printed on vial. If reagents are stored under conditions other than those specified in the package insert, they must be verified by the user. Diluted reagents should be used promptly; any remaining reagent should be stored at 2°C to 8°C.

## Protocol Recommendations:

**Peroxide Block:** Block for 5 minutes with Biocare's Peroxidized 1.

**Pretreatment:** Perform heat retrieval using Biocare's Reveal Decloaker. Refer to the Reveal Decloaker product datasheet for specific instructions.

## Protocol Recommendations Cont'd:

**Protein Block (Optional):** Incubate for 5-10 minutes at RT with Biocare's Background Punisher.

**Primary Antibody:** Incubate for 30 minutes at RT.

**Probe:** Incubate for 10 minutes at RT with a secondary probe.

**Polymer:** Incubate for 10-20 minutes at RT with a tertiary polymer.

**Chromogen:** Incubate for 5 minutes at RT with Biocare's DAB –OR– Incubate for 5-7 minutes at RT with Biocare's Warp Red.

**Counterstain:** Counterstain with hematoxylin. Rinse with deionized water. Apply Tacha's Bluing Solution for 1 minute. Rinse with deionized water.

## Technical Note:

This antibody has been standardized with Biocare's MACH 4 detection system. Use TBS buffer for washing steps.

## Limitations:

The optimum antibody dilution and protocols for a specific application can vary. These include, but are not limited to fixation, heat-retrieval method, incubation times, tissue section thickness and detection kit used. Due to the superior sensitivity of these unique reagents, the recommended incubation times and titers listed are not applicable to other detection systems, as results may vary. The data sheet recommendations and protocols are based on exclusive use of Biocare products. Ultimately, it is the responsibility of the investigator to determine optimal conditions. The clinical interpretation of any positive or negative staining should be evaluated within the context of clinical presentation, morphology and other histopathological criteria by a qualified pathologist. The clinical interpretation of any positive or negative staining should be complemented by morphological studies using proper positive and negative internal and external controls as well as other diagnostic tests.

## Quality Control:

Refer to CLSI Quality Standards for Design and Implementation of Immunohistochemistry Assays; Approved Guideline-Second edition (I/LA28-A2) CLSI Wayne, PA USA (www.clsi.org). 2011

## Precautions:

1. This antibody contains less than 0.1% sodium azide. Concentrations less than 0.1% are not reportable hazardous materials according to U.S. 29 CFR 1910.1200, OSHA Hazard communication and EC Directive 91/155/EC. Sodium azide (NaN<sub>3</sub>) used as a preservative is toxic if ingested. Sodium azide may react with lead and copper plumbing to form highly explosive metal azides. Upon disposal, flush with large volumes of water to prevent azide build-up in plumbing. (Center for Disease Control, 1976, National Institute of Occupational Safety and Health, 1976) (6)
2. Specimens, before and after fixation, and all materials exposed to them should be handled as if capable of transmitting infection and disposed of with proper precautions. Never pipette reagents by mouth and avoid contacting the skin and mucous membranes with reagents and specimens. If reagents or specimens come into contact with sensitive areas, wash with copious amounts of water. (7)
3. Microbial contamination of reagents may result in an increase in nonspecific staining.
4. Incubation times or temperatures other than those specified may give erroneous results. The user must validate any such change.
5. Do not use reagent after the expiration date printed on the vial.

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### Precautions Cont'd:

6. The SDS is available upon request and is located at <http://biocare.net>.

### Troubleshooting:

Follow the antibody specific protocol recommendations according to data sheet provided. If atypical results occur, contact Biocare's Technical Support at 1-800-542-2002.

### References:

1. Gao XH, *et al.* DNA topoisomerase II alpha: a favorable prognostic factor in colorectal cancer. *Int J Colorectal Dis.* 2012 Apr;27(4):429-35.
2. Nikolényi A, *et al.* Tumor topoisomerase II alpha status and response to anthracycline-based neoadjuvant chemotherapy in breast cancer. *Oncology.* 2011; 80(3-4):269-77.
3. Karnes RJ, *et al.* The ability of biomarkers to predict systemic progression in men with high-risk prostate cancer treated surgically is dependent on ERG status. *Cancer Res.* 2010 Nov 15; 70(22):8994-9002.
4. Ferrandina G, *et al.* Prognostic role of topoisomerase-II alpha in advanced ovarian cancer patients. *Br J Cancer.* 2008 Jun 17; 98(12):1910-5.
5. Kim EJ, *et al.* Clinical implications and prognostic values of topoisomerase-II alpha expression in primary non-muscle-invasive bladder cancer. *Urology.* 2010 Jun; 75 (6):1516.e9-13.
6. Center for Disease Control Manual. Guide: Safety Management, NO. CDC-22, Atlanta, GA. April 30, 1976 "Decontamination of Laboratory Sink Drains to Remove Azide Salts."
7. Clinical and Laboratory Standards Institute (CLSI). Protection of Laboratory Workers from Occupationally Acquired Infections; Approved Guideline-Fourth Edition CLSI document M29-A4 Wayne, PA 2014.