

STAG1

Prediluted Rabbit Polyclonal Antibody
901-3250-060223

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Available Product Formats				
Format	Catalog Number	Description	Dilution	Diluent
Predilute	API 3250 AA	6.0 mL	Ready-to-use	N/A
ONCORE Pro	OPAI 3250 T60	60 tests	Ready-to-use	N/A
UltraLine – For BenchMark	AVI 3250 G	6.0 mL	Ready-to-use	N/A
Q Series– For Leica BOND-III	ALI 3250 G7	7.0 mL	Ready-to-use	N/A

Intended Use:

For In Vitro Diagnostic Use

STAG1 is a rabbit polyclonal antibody that is intended for laboratory use in the qualitative identification of STAG1 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:

STAG1 is a component of cohesin, a ring-shaped protein complex involved in sister chromatid cohesion (SCC) that also plays important roles in the maintenance of chromatin structure, gene expression, and DNA repair. Cohesin consists of a core trimer and one of two mutually exclusive variant STAG subunits, STAG1 and STAG2. STAG1 is thought to primarily regulate telomeric cohesion, whereas STAG2 is primarily involved in centromeric cohesion (1,2).

STAG2 mutations were detected in bladder cancer, Ewing sarcoma and acute myeloid leukemia. Targeting STAG1 represents a therapeutic opportunity in the treatment of STAG2-mutant cancers. Studies demonstrate that partial suppression of STAG1 triggers strong and selective anti-proliferative effects in STAG2-mutant cancer models (3).

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 one-step or two-step detection procedure can be applied. A one-step procedure will feature an enzyme labeled polymer that binds the primary antibody. A two-step procedure will feature a linker antibody added to bind to the primary antibody. An enzyme-labeled polymer is then added to bind the linker antibody. These detections of the bound antibodies are evidenced by a colorimetric reaction.

Source: Rabbit polyclonal

Species Reactivity: Human, others not tested

Clone: N/A

Isotype: IgG

Protein Concentration: Call for lot specific Ig concentration.

Epitope/Antigen: STAG1

Cellular Localization: Nuclear

Positive Tissue Control: Colon, Prostate

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. The product is stable to the expiration date printed on the label, when stored under these conditions. Do not use after expiration date. Diluted reagents should be used promptly; any remaining reagent should be stored at 2°C to 8°C.

Protocol Recommendations (intelliPATH FLX® and manual use):

Peroxide Block: Block for 5 minutes with Peroxidized 1.

Pretreatment: Perform heat retrieval using Borg Decloaker. Refer to the Borg Decloaker data sheet for specific instructions.

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

Primary Antibody: Incubate for 30 minutes at RT.

Probe: N/A

Polymer: Incubate for 30 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 Warp Red.

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

Protocol Recommendations (intelliPATH FLX and manual use) Cont'd:

Technical Note:

This antibody, for intelliPATH FLX and manual use, has been standardized with MACH 4 detection system. Use TBS for washing steps.

Protocol Recommendations (ONCORE™ Pro Automated Slide Staining System):

OPAI3250 is intended for use with the ONCORE Pro. Refer to the User Manual for specific instructions for use. Protocol parameters in the Protocol Editor should be programmed as follows:

Protocol Name: STAG1 Rb

Protocol Template (Description): Rb HRP Template 1

Dewaxing (DS Buffer Option): DS2-50

Antigen Retrieval (AR Option): AR1, high pH; 101°C

Block Option: Buffer

Reagent Name, Time, Temp.: STAG1 Rb, 59 min., 25°C

Protocol Recommendations (Ventana BenchMark ULTRA):

AVI3250 is intended for use with the BenchMark ULTRA. Refer to the User Manual for specific instructions for use. Recommended protocol parameters are as follows:

Template/Detection: OptiView DAB IHC

Pretreatment Protocol: CC1 64 minutes

Peroxidase: Pre Primary Peroxidase Inhibitor

Primary Antibody: 32 minutes, 36°C

Protocol Recommendations (Q Series – For Leica BOND-III):

ALI3250 is intended for use with the Leica BOND-III. Refer to the User Manual for specific instructions for use. Recommended protocol parameters are as follows:

Protocol Name: IHC Protocol F

Detection: Bond Polymer Refine

HIER: 20 min with ER2

Peroxide Block: 5 min

Marker (Primary Antibody): 15 min

Post Primary: 8 min

Polymer: 8 min

Mixed DAB Refine: 10 min

Hematoxylin: 5 min

Performance Characteristics:

Sensitivity, specificity and cross-reactivity are summarized in Tables 1 and 2, respectively.

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.

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 (NaN₃) 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

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Precautions Cont'd:

- large volumes of water to prevent azide build-up in plumbing. (Center for Disease Control, 1976, National Institute of Occupational Safety and Health, 1976) (4)
- 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. (5)
 - Microbial contamination of reagents may result in an increase in nonspecific staining.
 - Incubation times or temperatures other than those specified may give erroneous results. The user must validate any such change.
 - Do not use reagent after the expiration date printed on the vial.
 - 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:

- Hill VK, Kim JS, Waldman T. Cohesin mutations in human cancer. *Biochim Biophys Acta*. 2016;1866(1):1-11.
- Arruda NL, Carico ZM, Justice M, Liu YF, Zhou J, Stefan HC, Downen JM. Distinct and overlapping roles of STAG1 and STAG2 in cohesin localization and gene expression in embryonic stem cells. *Epigenetics Chromatin*. 2020 Aug 10;13(1):32.
- van der Lelij P, Newman JA, Lieb S, et al. STAG1 vulnerabilities for exploiting cohesin synthetic lethality in STAG2-deficient cancers. *Life Sci Alliance*. 2020;3(7): e202000725.
- 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."
- 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.

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Table 1: Sensitivity and specificity were determined by testing formalin-fixed, paraffin-embedded diseased tissues.

Tissue	Positive Cases	Total Cases
Breast Cancer (IDC)	23	24
Colon Adenocarcinoma	36	40
Lung Adenocarcinoma	13	24
Lung Squamous Cell Carcinoma	21	23
Prostate Adenocarcinoma	32	40

Table 2: Tissue cross-reactivity was determined by testing formalin-fixed, paraffin-embedded normal tissues.

Tissue	Positive Cases	Total Cases
Cerebrum	6	6
Cerebellum	1	3
Adrenal	1	3
Ovary	3	3
Pancreas	1	2
Testis	3	3
Thyroid	3	3
Breast	2	2
Spleen	1	3
Tonsil	2	3
Thymus	0	3
Bone Marrow	0	2
Lung	0	3
Esophagus	0	3
Stomach	1	3
Small Intestine	3	3
Colon	7	11
Liver	0	3
Salivary Gland	3	3
Kidney	3	3
Prostate	9	10
Uterus	2	3
Cervix	3	3
Skeletal Muscle	3	3
Skin	0	2
Peripheral Nerve	1	3
Lining Cells	0	3