

# Desmoglein 3 + CK5

(Squamous Cell Cocktail)  
Concentrated and Prediluted Monoclonal Antibody  
901-3018-101917

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

<b>Catalog Number:</b>	<b>ACI 3018 A, C</b>	<b>API 3018 AA</b>
<b>Description:</b>	0.1, 1.0 ml, concentrated	6.0 ml, prediluted
<b>Dilution:</b>	1:100	Ready-to-use
<b>Diluent:</b>	Renoir Red	N/A

## Intended Use:

For In Vitro Diagnostic Use

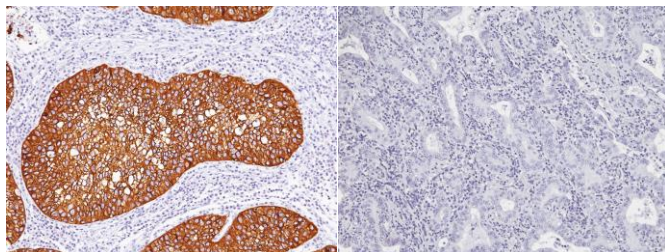
Desmoglein 3 + CK5 [BC11 + XM26] is a mouse monoclonal antibody cocktail that is intended for laboratory use in the qualitative identification of desmoglein 3 and CK5 proteins by immunohistochemistry (IHC) in formalin-fixed paraffin-embedded (FFPE) human tissues. The clinical interpretation of any staining 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:

Desmoglein 3 (DSG3) is a calcium-binding transmembrane glycoprotein component of desmosomes in vertebrate epithelial cells. Currently, three desmoglein subfamily members have been identified and all are members of the cadherin cell adhesion molecule superfamily (1,2). Desmogleins exhibit membranous expression and connect with cytokeratins through desmoplakins and plakoglobin. DSG3 is particularly important in the cellular adhesion of squamous epithelium, and as a result, it is often highly expressed in various squamous cell carcinomas (SqCC) (3). In lung squamous cell carcinoma specifically, DSG3 has demonstrated a sensitivity of 85-99%, and an ability to discriminate lung adenocarcinoma with a specificity of 98-100% (3-6).

CK5 is a type II intermediate filament protein that is expressed in active basal layers of most stratified squamous epithelia. Numerous studies have shown CK5/6 to be a sensitive marker for lung squamous cell carcinoma (SqCC) (7-10). However, in one study, CK6 mRNA was identified in 28% of lung adenocarcinoma (ADC) cases, suggesting that CK5 alone may be a more specific marker (3). In an in-house study, rabbit monoclonal CK5 was found to be equal to mouse monoclonal CK5/6 in sensitivity for lung SqCC. Rabbit monoclonal CK5 has demonstrated 87% sensitivity for lung SqCC and 100% specificity versus lung ADC, in published studies (4,5).

Two studies using a cocktail of DSG3 and CK5 have reported sensitivities of 93% and 100% for lung SqCC, with a specificity of 100% versus lung adenocarcinoma determined in both studies (4,11). Particularly when used together, DSG3 and CK5 may be the preferred markers for lung SqCC, with superior sensitivity and specificity, compared to alternative markers.



Desmoglein 3 + CK5 positive in lung SqCC

Desmoglein 3 + CK5 negative in lung adenocarcinoma

## 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

**Clone:** BC11 + XM26

**Isotype:** IgG1 + IgG1/kappa

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

**Epitope/Antigen:** Desmoglein 3 and CK5

**Cellular Localization:** Desmoglein 3: membrane; CK5: cytoplasmic

**Positive Tissue Control:** Lung squamous cell carcinoma

**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 Diva Decloaker. Refer to the Diva Decloaker product data sheet for specific instructions.

**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) (12)

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## Precautions Cont'd:

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. (13)
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.
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. Buxton RS, Magee AI. Structure and interactions of desmosomal and other cadherins. *Semin Cell Biol.* 1992 Jun;3(3):157-67.
2. North AJ, *et al.* Molecular map of the desmosomal plaque. *J Cell Sci.* 1999 Dec;112(Pt 23):4325-36.
3. Savci-Heijink CD, *et al.* The role of desmoglein-3 in the diagnosis of squamous cell carcinoma of the lung. *Am J Pathol.* 2009 May; 174(5):1629-37.
4. Tacha D, *et al.* A 6-antibody panel for the classification of lung adenocarcinoma versus squamous cell carcinoma. *Appl Immunohistochem Mol Morphol.* 2012 May; 20(3):201-7.
5. Tacha D, Yu C, Haas T. TTF-1, Napsin A, p63, TRIM29, Desmoglein-3 and CK5: An Evaluation of Sensitivity and Specificity and Correlation of Tumor Grade for Lung Squamous Cell Carcinoma vs. Lung Adenocarcinoma. *Mod Pathol.* 2011 Feb; 24(Supplement 1s):425A.
6. Agackiran Y, *et al.* Desmoglein-3 and Napsin A double stain, a useful immunohistochemical marker for differentiation of lung squamous cell carcinoma and adenocarcinoma from other subtypes. *Appl Immunohistochem Mol Morphol.* 2012 Jul;20(4):350-5.
7. Mukhopadhyay S, Katzenstein AL. Subclassification of non-small cell lung carcinomas lacking morphologic differentiation on biopsy specimens: Utility of an immunohistochemical panel containing TTF-1, Napsin A, p63, and CK5/6. *Am J Surg Pathol.* 2011 Jan; 35(1):15-25.
8. Kargi A, Gurel D, Tuna B. The diagnostic value of TTF-1, CK 5/6, and p63 immunostaining in classification of lung carcinomas. *Appl Immunohistochem Mol Morphol.* 2007 Dec; 15(4):415-20.
9. Khayyata S, *et al.* Value of P63 and CK5/6 in distinguishing squamous cell carcinoma from adenocarcinoma in lung fine-needle aspiration specimens. *Diagn Cytopathol.* 2009 Mar;37(3):178-83.
10. Terry J, *et al.* Optimal immunohistochemical markers for distinguishing lung adenocarcinomas from squamous cell carcinomas in small tumor samples. *Am J Surg Pathol.* 2010 Dec; 34(12):1805-11.
11. Brown AF, *et al.* Tissue-preserving antibody cocktails to differentiate primary squamous cell carcinoma, adenocarcinoma, and small cell carcinoma of lung. *Arch Pathol Lab Med.* 2013 Sep;137(9):1274-81.
12. 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."
13. 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.