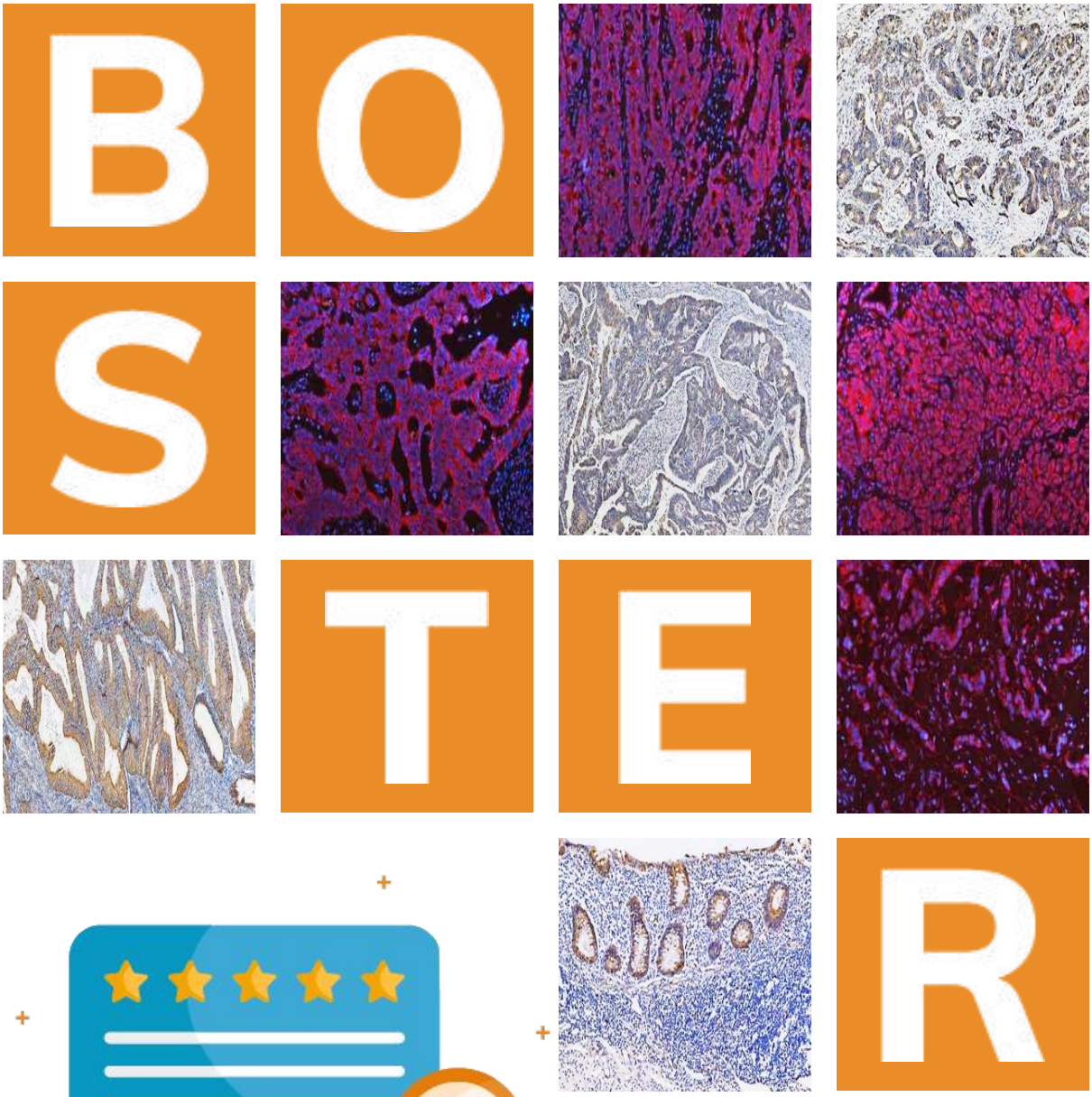
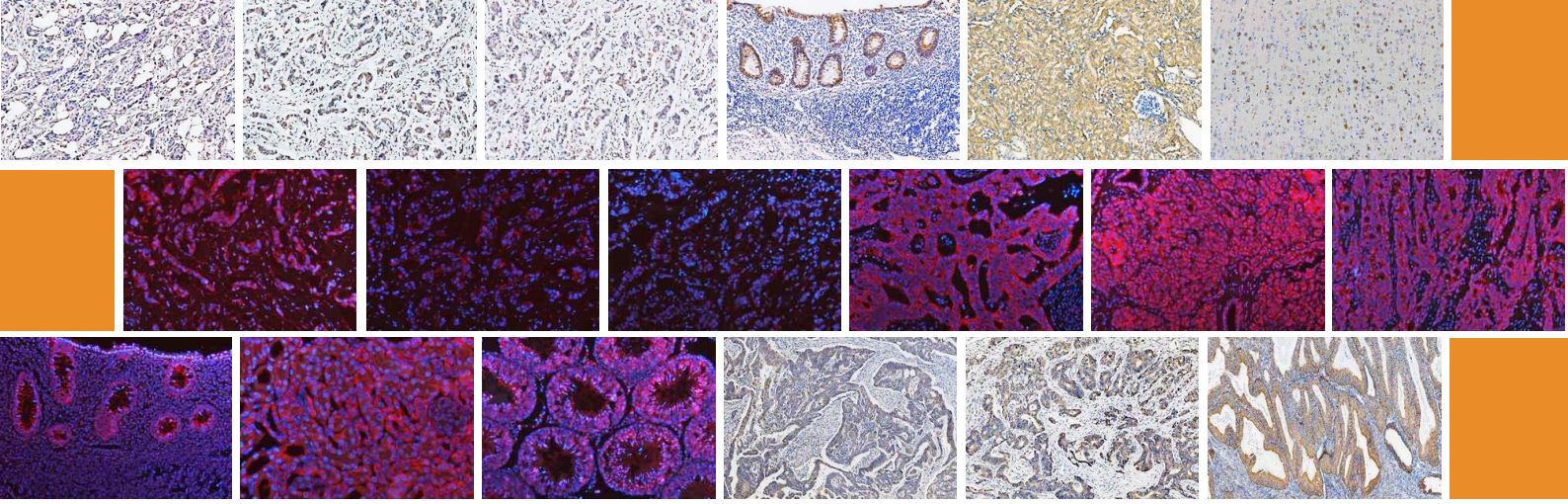
BOSTER
antibody and ELISA experts



*All pictures displayed are experimental results of the product itself.

GSK3 Beta/GSK3B Antibody, Optimized for IHC and Immunofluorescence



GSK3 beta/GSK3B Antibody, Optimized for IHC and Immunofluorescence

Summary

Boster Bio's GSK3B antibody (A00791-3) is a highly specific and sensitive tool optimized for immunohistochemistry (IHC) and immunofluorescence (IF). This antibody is validated across multiple normal and cancerous tissues and demonstrates consistent staining patterns verified by orthogonal RNA-seq data and comparison with other established antibodies.

This antibody is part of Boster Bio's PicoLumine™ Series, featuring hundreds of protein biomarkers optimized for immunohistochemistry, immunocytochemistry, and immunofluorescence. All antibodies in this product line have gone through the same level of validation as shown in this report. This product line is guaranteed under Boster Bio's **PicoLumine Guarantee**, that the antibody will work under the recommended condition on the indicated tissues and cell lines, or your money back.

Highlights

- Specificity and Sensitivity: High reproducibility and signal-to-noise ratio.
- Optimized Protocols: Reliable protocols for both IHC and IF.
- PicoLumine Guarantee: Guaranteed performance or your money back.

Antibody Evaluation

GSK-3β protein is a serine/threonine kinase with a variety of biological functions, which is involved in various physiological and pathological processes such as development, metabolism, neurological function, immunity and cancer. Its aberrant activity is closely related to Alzheimer's disease, diabetes, cancer and psychiatric diseases, and is an important target for current drug development. The GSK3B(A00791-3) was excellent in immunohistochemistry and immunofluorescence assays, and the antibody evaluation 5 out of 5 stars.

Antibody Information

Antibody Name: [KO Validated] Anti-GSK3B Antibody Picoband®

Host Species: Rabbit

Isotype: IgG (Polyclonal)

Catalog Number: A00791-3

Supplier: Boster Bio

Picoband®Validation Findings Summary:

The GSK3B antibody demonstrated high specificity, sensitivity, and reproducibility in immunofluorescence assays. The optimized conditions provide reliable detection of GSK3B in pathologically relevant cell lines and tissues. Researchers can confidently use this antibody for GSK3B immunofluorescence studies, contributing to accurate and meaningful experimental outcomes.

GSK3B Introduction

Introduction and Origin

The GSK-3β protein, glycogen synthase kinase-3β, is an evolutionarily very conserved serine/threonine kinase and a negative regulator of glucose homeostasis. GSK-3β belongs to the glycogen synthase kinase subfamily and is one of the two isoforms of glycogen synthase kinase (GSK-3) (the other being GSK-3α). GSK3β is composed of about 420 amino acids with an N-terminal β-sheet domain (ATP-binding region) and a C-terminal α-helix catalytic domain.GSK-3β is widely expressed in a variety of tissues. GSK3 is a multifunctional serine/threonine kinase, originally found in mammals, and homologues have been found in all eukaryotes.

Function and Effect

GSK-3β acts as a negative regulator of glucose homeostasis, regulating glycogen synthesis and breakdown by phosphorylating substrates such as glycogen synthase. GSK-3β is also involved in the Wnt signaling pathway, modulating the activity of this pathway by phosphorylation and degradation of β-catenin. In addition, it is involved in the regulation of transcription factors. GSK-3β regulates cell differentiation, proliferation, survival, and apoptosis. For example, in skeletal muscle, it contributes to the regulation of glycogen synthesis by insulin; It plays a crucial role in microtubule dynamics, influencing MAPT/TAU stability and contributing to ERBB2-dependent microtubule stabilization.

Clinical Significance

GSK-3β protein is a serine/threonine kinase with multiple biological functions that plays an important role in regulating glucose homeostasis, participating in signaling, and influencing cellular processes. GSK-3β is strongly associated with neurodegenerative diseases such as Parkinson's disease and Alzheimer's disease. In these diseases, GSK-3β activity may be abnormally elevated, leading to neuronal damage and death. GSK-3β also plays an important role in the initiation and progression of cancer. Some studies suggest that inhibition of GSK-3β activity may have anticancer effects.

Expected Staining Patterns

Cellular Localization:

GSK3B is the protein predicted to localized to the vesicles and cytosol (approved)

Location →

Tissues with high expression of GSK3B (RNA):

GSK3B is known to cytoplasmic expression in most tissues, most abundant in CNS and testis.

Tissues expression →

Cell lines with high expression of GSK3B :

According to data from ProteinAtlas.com, GSK3B is known to be detected in many cell lines.

Cell lines expression →

Antibody Validation Experiment Design

Selection of Validation Tissues and Cell Lines

The tissue-positive controls in the following experiments are primarily based on suggestions from ProteinAtlas.com.

Positive tissues for IHC:

1. Human breast cancer(used for optimization with 3 concentrations of primary antibody)

Positive tissues for IHC (experimental verification):

1. Rat brain, mouse kidney,human appendix
2. Human stomach cancer, human endometrial cancer human colon cancer

Positive tissues for IF:

1. *Human breast cancer(used for optimization with 3 concentrations of primary antibody)*

Positive tissues for IF (experimental verification):

1. *Human appendix, rat testis, mouse kidney ,human bladder cancer, human pancreas cancer, human stomach cancer*

**optimization Method: we have tested 3 concentrations of the primary antibody on the selected tissue(s) to assess the best experiment conditions for immunohistochemistry and immunofluorescence. The conditions that produced the best signal with a low background were selected as the recommended experiment conditions.*

Reagents Used in The Experiment

1. Anti-GSK3B Antibody (A00791-3), Concentrations tested: 1μg/mL, 5μg/mL, 25μg/mL.
2. EDTA Buffer (pH 8.0, Epitope Retrieval Solution): Used for heat-mediumted antigen retrieval.
3. Inactivation: 3% H_2O_2 for 10 min.
4. Blocking Solution: normal goat serum.
5. Secondary Antibody (IF): DyLight 594 Conjugated AffiniPure Goat Anti-rabbit IgG (H+L) (BA1142), dilution: 1:100, Incubated for 30 minutes at 37°C.
6. Secondary Antibody (IHC-P): HRP-AffiniPure Goat Anti-Rabbit IgG, dilution: 1:500, Incubated for 30 minutes at 37°C.
7. Staining (IHC-P): Add a suitable amount of DAB reagent to the samples, Observe under the microscope, and control the color development time.
8. Counterstain: DAPI (IF, AR1176); hematoxylin (IHC-P).
9. Mounting Medium: anti-fade mounting medium.

Experiment Protocols

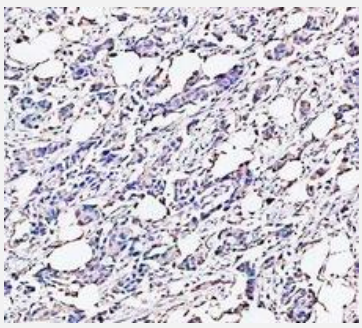
Immunohistochemistry:

Protocol reference

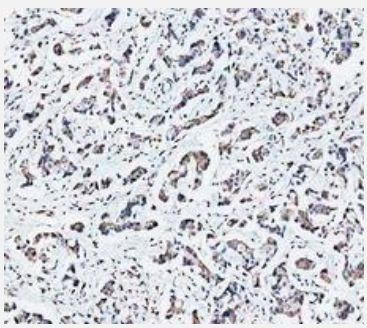
Click to view

IHC Optimization

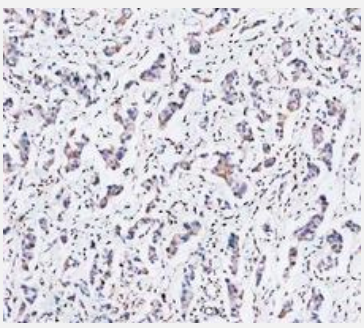
Human colon breast tissue embedded in FFPE is used to optimize the concentration and incubation time for the antibody. 3 concentrations of rabbit anti-GSK3B Antibody (A00791-3) were used to incubate. 1μg/mL, 5μg/mL, 25μg/mL overnight at 4°C. The results are as follows:



Antigen Retrieval: Heat
Primary ab: 25μg/mL



Antigen Retrieval: Heat
Primary ab: 5μg/mL



Antigen Retrieval: Heat
Primary ab: 1μg/mL

Incubation: 4°C overnight
Secondary: BA3894
Imaging: Brightfield

View Original Image →

Incubation: 4°C overnight
Secondary: BA3894
Imaging: Brightfield

View Original Image →

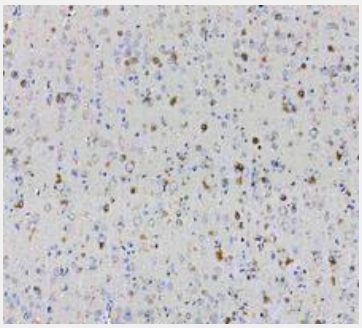
Incubation: 4°C overnight
Secondary: BA3894
Imaging: Brightfield

View Original Image →

An in-house certified pathologist reviewed the result images and recommended the medium condition (5µg/mL) be used for immunofluorescence. This condition is used to perform immunohistochemistry on other relevant normal and cancerous tissues to ensure the antibody produces expected staining patterns.

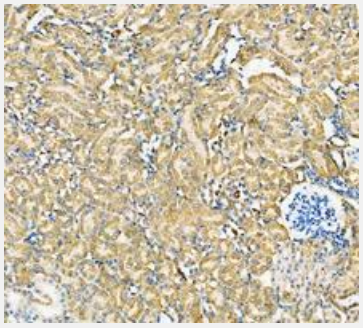
IHC Additional Validations:

Normal Tissues



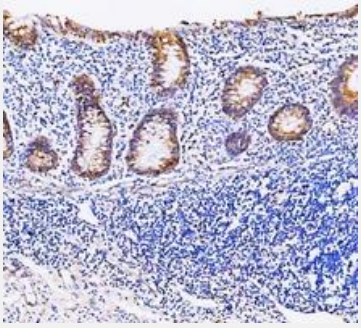
Rat brain
Expected: high level
Observed: high level

View Original Image →



mouse kidney
Expected: medium level
Observed:high level

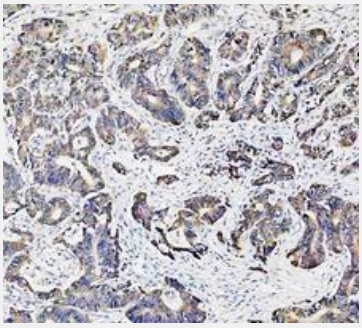
View Original Image →



Human appendix
Expected:medium level
Observed:high level

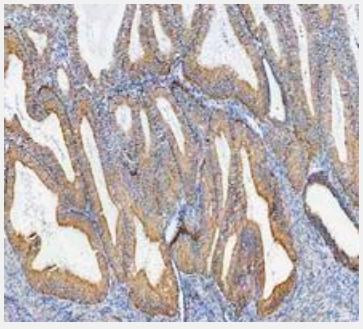
View Original Image →

Cancerous Tissues



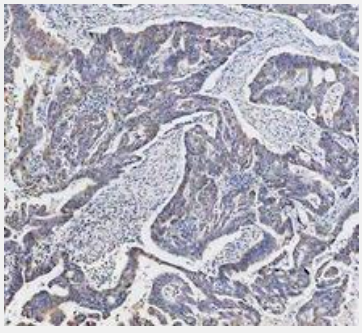
Human stomach cancer
Expected: high level
Observed: high level

View Original Image →



Human endometrial cancer
Expected: high level
Observed:high level

View Original Image →



Human colon cancer
Expected: high level
Observed: high level

View Original Image →

Tissue staining expectation reference

Click to view

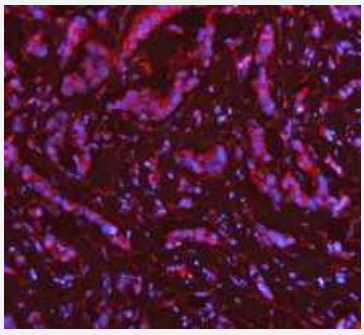
IHC Scoring

5/5, Supported–Orthogonal, based on the following criteria:

1. IHC stains in the selected tissues are consistent with RNA level data.
2. IHC staining patterns in selected tissues match the expected staining patterns of this biomarker as shown in similar well-established antibodies.
3. IHC staining subcellular localization is consistent with the literature.

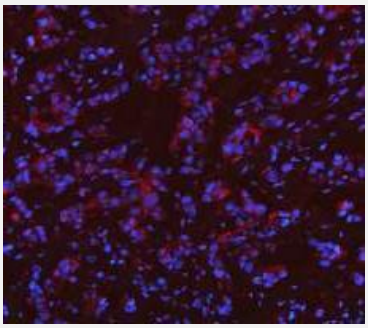
IF Optimization

The human breast cancer is used to optimize the concentration and incubation time for the antibody. 3 concentrations of rabbit anti-GSK3B (A00791-3) were used to incubate. 1μg/mL, 5μg/mL, 25μg/mL overnight at 4°C. The results are as follows:



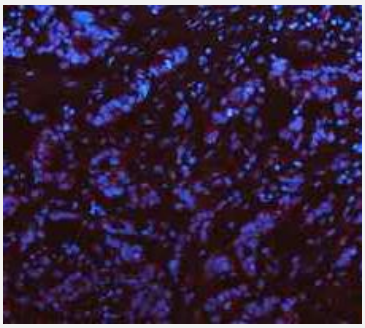
Human colon cancer
Primary ab: 25μg/mL
Incubation: 4°C overnight
Secondary: BA1142
Imaging: Fluorescent Microscopy

View Original Image →



Human colon cancer
Primary ab: 5μg/mL
Incubation: 4°C overnight
Secondary: BA1142
Imaging: Fluorescent Microscopy

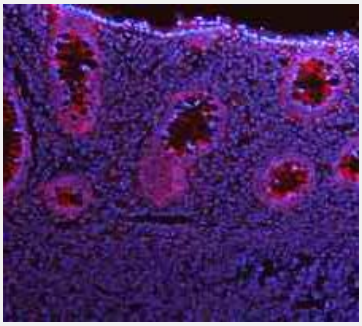
View Original Image →



Human colon cancer
Primary ab: 1μg/mL
Incubation: 4°C overnight
Secondary: BA1142
Imaging: Fluorescent Microscopy

View Original Image →

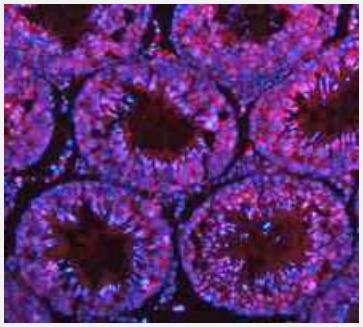
An in house certified pathologist reviewed the result images recommended the high condition(25μg/mL) be used for immunofluorescence. This condition is used to perform immunohistochemistry on other relevant tissues to ensure the antibody produces expected staining patterns.



Human appendix

Expected: medium level
Observed: high level

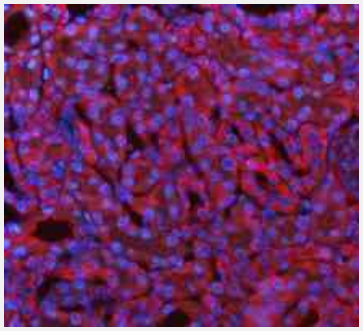
View Original Image →



Rat testis

Expected: medium level
Observed: high level

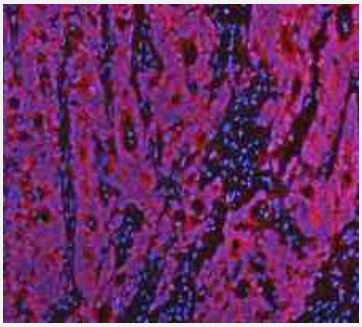
View Original Image →



Mouse kidney

Expected: medium level
Observed: high level

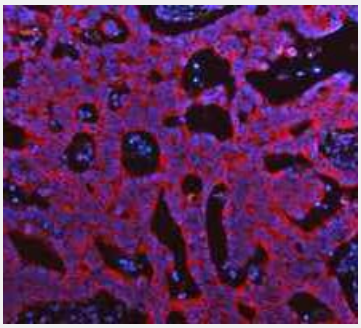
View Original Image →



Human stomach cancer

Expected: high level
Observed: high level

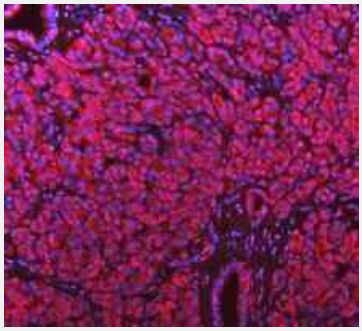
View Original Image →



Human colon cancer

Expected: high level
Observed:high level

View Original Image →



Human pancreas cancer

Expected: high level
Observed: high level

View Original Image →

ICC/IF Scoring

5/5, Supported–Orthogonal, based on the following criteria:

1. IF stains in the selected tissue line are consistent with RNA level data.
2. IF staining subcellular localization is consistent with literature and other established antibodies for this biomarker.

Company Profile

30+years of technique improvement

20000+ antibodies and 2000+ ELISA kits

60000+ cited publications

Driven by user's need

Boster Bio has been dedicated to providing affordable high-sensitivity, high-specificity ELISA kits, and WB/IHC compatible antibodies since its establishment in 1993. We offer antibodies rigorously validated for IHC, WB, ELISA, and Flow CytoMetry, striving to deliver the highest-quality service and earn the trust of researchers globally. Low-cost antibody packages for rare organisms and free validation for antibodies are provided now. Free E-books, blogs, and educational pathway maps are also offered on our website. We are ready to serve any customer at any time.

BOSTER
antibody and ELISA experts

(888) 466-3604

www.bosterbio.com

3942 Valley Ave, Pleasanton, CA 94566, USA

support@bosterbio.com