# BetaStar® S for Sulfonamides

## BetaStar S assay for sulfonamide antibiotics

**INTRODUCTION**

BetaStar® S for Sulfonamides is a rapid detection assay for the detection of sulfonamide class antibiotics at the European Maximum Residue Level of 100 ppb (parts per billion).

**REACTION MECHANISM**

BetaStar S for Sulfonamides is a single step lateral flow immunochromatographic assay based on a competitive immunoassay format. The milk is wicked through a reagent zone, which contains antibodies conjugated to colloidal gold particles. If sulfonamides are present, they will be captured by the particle-antibody complex. The drug-antibody-particle complex then is wicked onto a membrane, which contains a sulfonamide drug conjugated to a protein carrier. This line captures any uncomplexed drug antibody, allowing the particles to concentrate and form a visible line. As the level of sulfonamides in the sample increases, free drug molecules will complex with the antibody-gold particles. This allows less antibody-gold to be captured in the test line. Therefore, as the concentration of a drug in the sample increases, the test line density decreases. The membrane also contains a control line where an immune complex present in the reagent zone is captured by an antibody, forming a visible line. The control line will always form regardless of the presence of the drug, ensuring the strip is functioning properly.

**MATERIALS REQUIRED**

BetaStar S for Sulfonamides kit contains:

1. 25 plastic vials
2. 1 container with 25 test strips
3. 25 disposable pipettes (0.4 mL or 400 µL)

**MATERIALS REQUIRED BUT NOT PROVIDED**

1. Heater block/incubator capable of maintaining a temperature of 47.5 ± 1°C

**TEST PREPARATION**

1. A daily temperature check of the heater block is recommended. Ensure the heater block has been turned on and preheated and the temperature is maintained at 47.5 ± 1°C.
2. BetaStar S for Sulfonamides is designed for use under normal ambient environmental conditions (15–30°C). Remove the kit from the refrigerator and leave the test strip container at room temperature (15–30°C) for **10–15 minutes** prior to opening to prevent condensation.
3. Test strips that have been removed from the test strip container must be kept clean and dry.

**TEST PROCEDURE**

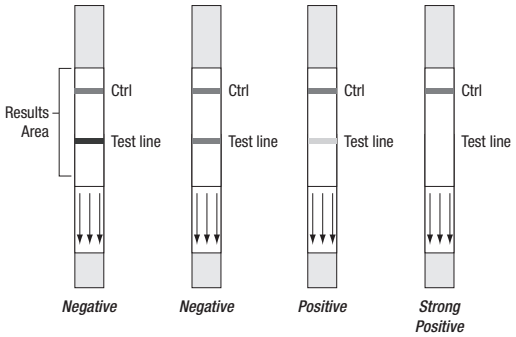
1. Mix milk sample.
2. Pipette 0.4 mL milk sample into the bottom of the vial. This is achieved by pressing the pipette tip to the bottom of the vial to release the sample.
3. Place the vial into the heater block.
4. Place the test strip into the vial that is in the heater block. The arrows on the test strip must be oriented downward in the vial. Incubate the test strip in the vial for **5 minutes** at 47.5 ± 1°C.
5. After the 5 minute incubation, remove the test strip from the vial.
6. Interpret the device visually by comparing the intensity of the test line compared to the control line or read the test strip using the AccuScan reader.

**VISUAL TEST INTERPRETATION**

At the completion of the 5 minute incubation, remove the test strip from the vial. Immediately compare the intensities of the antibiotic test line to the control line. If the intensity of the test line is greater than or equal to the control line, the milk is negative for the presence of sulfonamides. If the intensity of the test line is less than the intensity of the control line, the milk sample is positive for sulfonamides.

**TEST INTERPRETATION USING THE ACCUSCAN READER (OPTIONAL)**

At the completion of the five minute incubation, remove the test strip from the vial. Place the test strip into the AccuScan test strip holder. Insert the holder into the AccuScan reader. Read the data in the analysis windows. If the ratio of the test line intensity to the control line intensity is ≥ 1.0, the test is negative. If the ratio is <1.0, the test is positive.



**RAPTOR™ INTEGRATED ANALYSIS PLATFORM**

BetaStar S for Sulfonamides can be used with the Raptor™ Integrated Analysis Platform (Neogen item 9680). A Raptor cartridge is required (Neogen item 9681).

**TEST PROCEDURE FOR RAPTOR**

1. Insert the test strip into the Raptor cartridge in any of the available slots.
2. Insert the cartridge containing the test strip into any of the 3 ports within the Raptor Integrated Analysis Platform.
    a. The bar code on the test device will be read. If the QR code for the lot of devices has not been entered into the Raptor, the bar code reader in the front of the Raptor will turn on automatically. Scan the QR code found on the container storing the test devices.
    b. The assay temperature for the BetaStar S for Sulfonamides test is 65°C. This temperature is programmed in the Raptor.
    c. When the cartridge is inserted into one of the 3 ports, the port will automatically begin to adjust to the proper temperature.
    d. The user will not be able to proceed until the incubator temperature reaches 65°C.
3. Enter the sample ID by either scanning or using the on-screen keyboard.
4. Mix the milk sample prior to adding the sample into the cartridge.
5. Pipette 0.4 mL milk sample into the sample port located in the back of the cartridge. Press "Next." The analysis will take place automatically.
6. Insert the used pipette into the sample port located in the back of the cartridge. This will prevent double loading the same sample or loading a second sample into the same cartridge.
7. After a 5 minute incubation, the results will appear on the Raptor screen.

**REMARKS**

1. All reagents must be kept refrigerated between 2–8°C. Before opening the test strip container, it should be equilibrated to room temperature for at least **10 minutes**.
2. If the test sample does not migrate on the strip, the test is invalid. This situation will occur when the test is performed on abnormal milk such as clotted milk, or if the procedure has not been performed properly.

**PRECAUTIONS**

When handling the BetaStar S test strip, ensure hands are clean and dry. This will protect against contamination of the test strip.

**CUSTOMER SERVICE**

Neogen Customer Assistance and Technical Services can be reached by using the contact information on the back of this booklet. Training on this product, and all Neogen test kits, is available.

**SDS INFORMATION AVAILABLE**

Safety data sheets (SDS) are available for this test kit, and all of Neogen's test kits, on Neogen's website at www.neogen.com, or by calling Neogen at 800/234-5333 or 517/372-9200.

**TERMS AND CONDITIONS**

Please visit www.neogen.com/Corporate/termsconditions.html for Neogen's full terms and conditions.

**WARRANTY**

Neogen Corporation makes no warranty of any kind, either expressed or implied, except that the materials from which its products are made are of standard quality. If any materials are defective, Neogen will provide a replacement of the product. Buyer assumes all risk and liability resulting from the use of this product. There is no warranty of merchantability of this product or of the fitness of the product for any purpose. Neogen shall not be liable for any damages, including special or consequential damage, or expense arising directly or indirectly from the use of this product.

## TEST KITS AVAILABLE FROM NEOGEN

**Natural toxins**
- Aflatoxin, DON, ochratoxin, zearalenone, T-2/HT-2 toxins, fumonisin, histamine

**Foodborne bacteria**
- *E. coli* O157:H7, *Salmonella*, *Listeria*, *Listeria monocytogenes, Campylobacter, Staphylococcus aureus, Salmonella enteritidis*

**Sanitation**
- ATP, yeast and mold, total plate count, generic *E. coli* and total coliforms, protein residues

**Food allergens**
- Almonds, crustaceans, eggs, gliadin, hazelnut, milk, mustard, peanuts, sesame, soy, walnuts, multi-treenut

**Genetic modification**
- CP4 (Roundup Ready®)

**Ruminant by-products**
- Meat and bone meal, feed

**Species identification**
- Raw and cooked meat samples, feed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