



Abamectin Plate Kit

Cat. # 20-0202

Product Insert

Please read completely before use

INTENDED USE

The Beacon Abamectin Plate Kit is a competitive ELISA for the quantitative analysis of Abamectin and related compounds in milk samples.

USE PRINCIPLES

The Beacon Abamectin Plate Kit is a competitive enzyme-labeled immunoassay. Abamectin HRP conjugate solution is pipetted into the test wells followed by sample extract or calibrators. An Abamectin antibody solution is then added into the test wells to initiate the reaction. During a 30-minute incubation period, Abamectin from the sample and Abamectin HRP conjugate compete for binding to the Abamectin antibody. Following this incubation, the wells are washed to remove any unbound Abamectin and Abamectin HRP conjugate. After washing, a colorless substrate is then added to the wells and any bound enzyme conjugate will convert the substrate to a blue color. Following another 30-minute incubation, the reaction is stopped with the addition of stop solution and the amount of color in each well is measured. The color of the unknown sample is compared to the color of the calibrators and the Abamectin concentration of the sample is derived. The color intensity is inversely proportional to the amount of Abamectin present.

MATERIALS PROVIDED

The kit in its original packaging can be used until the end of the month indicated on the box label when stored at 2 to 8°C.

- 1 Plate containing 12 test strips of 8 wells each vacuum-packed in an aluminized pouch with a desiccant.
- 1 Vial negative control (0 ppb Abamectin) containing 2 mL
- 5 Vials Abamectin calibrators (0.185, 0.56, 1.7, 5.0 and 15 ppb) each containing 2 mL
- 1 Bottle Abamectin HRP enzyme conjugate containing 8 mL
- 1 Bottle Abamectin antibody solution containing 8 mL
- 1 Bottle substrate containing 14 mL
- 1 Bottle stop solution containing 14 mL (Caution! Contains 1N HCl. Handle with care.)

MATERIALS REQUIRED BUT NOT PROVIDED

Sample Preparation:

- Pipette with disposable tips capable of dispensing 1.0 and 1.5 mL
- Methanol (ACS grade)
- Microcentrifuge tube(s)
- Glass vial storage
- Test tube
- Vortex mixer
- Centrifuge
- Timer

Assay Procedure:

- Laboratory quality distilled or deionized water
- Pipette with disposable tips capable of dispensing 50 and 100 µL
- Multi-channel pipette; 8 channels capable of dispensing 50 and 100 µL (required if running more than two strips at once)
- Paper towels or equivalent absorbent material
- Micro well plate or strip reader with 450 nm filter
- Orbital shaker (optional)
- Timer
- Wash bottle

SPECIFICITY

Abamectin belongs to the Avermectin drug family. A number of Avermectin drugs can be detected by this assay. The % cross reactivity of several Avermectin drugs relative to Abamectin is shown in the table below.

Compound	% CR
Abamectin	100%
Dormectin	28%
Eprinomectin	123%
Ivermectin	64%
Abamectin B1a	136%
Abamectin B1b	60%

PRECAUTIONS

- Store all kit components at 4°C to 8°C (39°F to 46°F) when not in use.
- Running calibrators, samples and controls in duplicate will improve assay precision and accuracy.
- Precise transfer of samples and reagents by using an appropriate and calibrated pipette is critical to obtain proper assay results.
- If running more than two strips at once, the use of a multichannel pipette is required when adding the antibody, substrate and stop solution.
- Each reagent is optimized for use in the Beacon Abamectin Plate Kit. Do not substitute reagents from any other manufacturer into the test kit. Do not combine reagents from other Beacon Abamectin Plate Kits with different lot numbers.
- Dilution or adulteration of reagents or samples not called for in the procedure may result in inaccurate results.
- Do not use reagents after expiration date.
- Reagents should be brought to room temperature, 20 to 28°C (62 to 82°F) prior to use. Avoid prolonged (> 24 hours) storage at room temperature.
- Abamectin is a toxic antiparasitic drug and should be treated with care.
- The Stop Solution is 1N hydrochloric acid, which is corrosive and an irritant. Avoid contact with skin and mucous membranes. Immediately clean up any spills and wash area with copious amounts of water. If contact should occur, immediately flush with copious amounts of water.

SAMPLE PREPARATION (Milk) (Dilution factor: 2.5)

1. Add 1.0 mL of milk sample to 1.5 mL of methanol in a small test tube. Mix using a vortex mixer.
2. Transfer 1.0 mL of the treated sample into a microcentrifuge tube. Centrifuge tubes for 5 minutes at 2,000 x g or equivalent to pellet the precipitate.
3. Test the supernatant by following the assay procedure or transfer to a clean glass vial for storage at 4°C to 8°C (39°F to 46°F) when not in use.

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ASSAY PROCEDURE

(Note: Running calibrators and samples in duplicate will improve assay precision and accuracy.)

1. Allow reagents and sample extracts to reach room temperature prior to running the test.
2. Place the appropriate number of test wells into a micro well holder. Be sure to re-seal unused wells in the zip-lock bag with desiccant.
3. Dispense **50 µL of the HRP Enzyme Conjugate** into each well.
4. Using a pipette with disposable tips, add **50 µL of the Calibrators or sample extract** into the appropriate wells. Be sure to use a clean pipette tip for each.
5. Dispense **50 µL of the Antibody Solution** into each well. If running more than two strips at once, the use of a multichannel pipette is required.
6. Shake the plate gently for 30 seconds using a back-and-forth motion. Then, incubate the wells for **30 minutes** at room temperature.
7. Decant the contents of the wells into an appropriate waste container. Fill the wells to overflowing with laboratory grade water and then decant. Repeat 4X for a total of five washes. Following the last wash, tap the inverted wells onto absorbent paper to remove the last of the water.
8. Dispense **100 µL of the Substrate** into each well. If running more than two strips at once, the use of a multichannel pipette is required. Shake the plate gently for 30 seconds using a back-and-forth motion.
9. Incubate the wells for **30 minutes** at room temperature.
10. Dispense **100 µL of the Stop Solution** into each well. If running more than two strips at once, the use of a multichannel pipette is required.
11. Measure and record the absorbance (Optical Density; OD) of the wells at 450 nm using a strip or plate reader.
12. To obtain the concentration of Abamectin in the sample multiply the results by the dilution factor. If the absorbance is lower than the highest calibrator (15 ppb), the concentration of Abamectin is too high and the extract must be diluted in 60% methanol/water and rerun.

CALCULATE RESULTS

1. Semi-quantitative results can be derived by simple comparison of the sample absorbances to the absorbance of the calibrator wells: Sample(s) containing less color than a calibrator will have a concentration of Abamectin greater than the concentration of the calibrator. Samples containing more color than a calibrator will have a concentration less than the concentration of the calibrator.
2. It is preferred that quantitative results be determined using commercially available software using a 4-Parameter curve fit. Alternatively, a semi-log curve fit can be used if 4-Parameter software is not available. Alternatively, Beacon can supply a spreadsheet template which can be used for data reduction. Please contact Beacon for further details.

To obtain the concentration of Abamectin in the sample, multiply the results by the dilution factor. If the absorbance is lower than the highest calibrator (15 ppb), the concentration of Abamectin is too high and the extract must be diluted in 60% methanol/water and rerun. Milk samples with absorbances greater than the lowest calibrator or less than the highest calibrator must be reported as < 0.463 ppb or > 37.5 ppb, respectively.

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SAMPLE CALCULATIONS

Well Contents	OD	Average OD ± SD*	%RSD	%Bo**
Negative Control	1.7141 1.6128	1.682 ± 0.060	3.56	100
0.185 ppb Calibrator	1.4662 1.5124	1.471 ± 0.040	2.96	87
0.56 ppb Calibrator	1.3745 1.2974	1.328 ± 0.041	3.11	79
1.7 ppb Calibrator	0.9972 0.978	0.991 ± 0.011	1.09	59
5 ppb Calibrator	0.7033 0.6872	0.691 ± 0.011	1.55	41
15 ppb Calibrator	0.398 0.369	0.379 ± 0.017	4.36	23

Actual values may vary; this data is for example purposes only.

* Standard deviation

** %Bo equals average sample absorbance divided by average negative control absorbance multiplied by 100%.

TECHNICAL ASSISTANCE

For questions regarding this kit or for additional information about Beacon products, call (207) 571-4302.

SAFETY

To receive complete safety information on this product, contact Beacon Analytical Systems, Inc. and request Safety Data Sheets. Stop Solution is 1N hydrochloric acid. Handle with care.

GENERAL LIMITED WARRANTY

Beacon Analytical Systems, Inc. (“Beacon”) warrants the products manufactured by it against defects in materials and workmanship when used in accordance with the applicable instructions for a period not to extend beyond a product’s printed expiration date. BEACON MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED. THERE IS NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. The warranty provided herein and the data, specifications and descriptions of Beacon products appearing in published catalogues and product literature may not be altered except by express written agreement signed by an officer of Beacon. Representations, oral or written, which are inconsistent with this warranty or such publications are not authorized and, if given, should not be relied upon.

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