



QUANTUM TOTAL GREEN

LATERAL FLOW TEST KIT

for the quantitative detection of Aflatoxin B1, B2, G1, G2 in grains, nuts and cereals

This Lateral Flow test kit is manufactured by Prognosis Biotech S.A.

ProGnosis Biotech S.A. is ISO 9001:2015 certified by TÜV Hellas (TÜV NORD).

Use only the current version of Product Data Sheet enclosed with the kit.

Quantum TOTAL Green, G3418/G3440, is a Lateral Flow Test kit for the quantitative determination of Total Aflatoxin in grains, nuts and cereals.

This kit contains all reagents required for 18 or 40 reactions

Matrices:

Type I: Corn

Type II: Wheat

- **Results in 2 minutes**
- Total test time: 4 minutes
- Range: 0 - 30ppb
- Shelf life: 12 months
- Storage: 2-8°C



Specifications

- The LOD of the method is: 1.4ppb (Type I & Type II), 14ppb (Type III)
- The LOQ of the method is: 2ppb (Type I & Type II), 20ppb (Type III)
- Cross-reactivity: The cross-reaction of the anti-Aflatoxin antibody with Aflatoxin B1, B2, G1 and G2 is 100, 81, 73 and 55% respectively.

1. Description

Quantum TOTAL Green is an innovative Lateral Flow device, utilizing state-of-the-art features for the quantitative detection of Aflatoxin B1, B2, G1, G2 in grains, nuts and cereals. This Lateral Flow test utilizes an ecological solution for the extraction step, instead of the usual organic solvents.

2. General Information

Aflatoxins are toxic metabolites of major concern to the food industry, generally produced by Aspergillus flavus, A. parasiticus and A. nomius. They can have immunosuppressive, mutagenic, teratogenic and carcinogenic effects. Aflatoxins can be present in grains, spices, cereals and other commodities associated with human food or animal feed. Crops may be contaminated with aflatoxins. AFB1 is the most toxic and frequently detected form. The other types (B2, G1 and G2) present a significant danger if the concentration is at a high level. Animals are exposed to aflatoxins by consumption of feed that have fungal strains producing aflatoxins during growth, harvest or storage. Symptoms of toxicity in animals range from death to chronic diseases, reproductive interference, immune suppression, decreased milk and egg production. Most controlling government agencies worldwide have regulations regarding the amount of aflatoxins allowable in human and animal foodstuffs. Accurate and rapid determination of aflatoxin presence in commodities is of paramount importance.

3. Principle of the Method

The Quantum Total Green lateral flow test is based on the competitive format immunoassay principle. A capture line for Aflatoxin is placed below the control line. The detection system consists of specific antibodies against Aflatoxins conjugated to colloidal gold. During testing, the sample flows through the membrane carrying along the detection system and passes through the two lines. If the sample is free of Aflatoxins, a color development occurs at the test line, indicating the absence of Aflatoxins in the sample. On the contrary, the presence of Aflatoxins in the sample will cause a reduced colored signal at the test line. The test line color intensity is indirectly proportionate to the concentration of Aflatoxins present in the samples. A valid test should always have the upper control line red.

4. Reagents Provided

Quantum Total Green kit contains sufficient reagents and materials for 18/40 measurements.

- 18/40 tests (cassette format) in foils
- 18/40 Extraction Powder pouches
- High range solution (product specific)
- Instruction manual

5. Materials required but not provided

- A grinder sufficient to render sample to particle size of fine instant coffee
- Balance with 0 - 50g measuring capability and Graduated cylinder - 50ml
- Deionized water
- Tube roller or Vortex mixer
- Mini centrifuge (spin) and plastic tubes 1,5 or 2ml
- 100 or 200µl adjustable micropipettes with disposable tips
- **S-Flow** software along with matching scanner device

6. Storage Instructions

Store kit components between 2 - 8°C. Do not freeze any components provided. The expiry date of the kit and reagents is stated on their labels and no quality guarantee is accepted after the expiration date. The expiry of the kit components can only be guaranteed if the components are stored properly and the reagent is not contaminated due to prior handling. Do not interchange individual components between kits of different lot numbers.

7. Safety and Precautions for use

All reagents should be brought to room temperature (21 - 25°C) before use (at least half an hour) and covered when not in use. Use a clean disposable plastic pipette tip for each reagent, to avoid cross contamination.

8. Sample preparation

a. Preparation of samples containing up to 30ppb.

1. The sample must be collected according to established sampling techniques. Grind a representative sample to the particle size of fine instant coffee (50% passes through a 20 mesh screen).
2. Weigh out a 5g ground portion of the sample
3. Add the content of 1 pouch of extraction powder into the grounded sample.
4. Add 25ml of distilled or deionized water into the sample. **The ratio of sample to water is 1:5 (w/v)**. Mix using a mechanical roller or vortex for 2min.
5. Transfer 1ml of the extract to a clear tube and centrifuge for 30sec using a mini centrifuge (spin).
6. Place the extract (supernatant) to a clear tube.
7. Add slowly 100µl of the extract (supernatant) in the circular window of the cassette.

b. Preparation of samples exceeded the 30ppb limit.

Note: For all samples that tested above 30ppb, the extract should be diluted with High Range Solution for re-analysis.

1. Add 2ml of High Range Solution into a clear plastic tube.
2. Add 100µl from the extract to the plastic tube containing the HRS. This diluted extract will be used for re-analysis.

Note: Choose Type III and follow the same procedure as described in 8.a.7. using the diluted extract as a sample.

Type III (Quantify from 20 up to 600ppb)
100µl of the extract + 2ml of High Range Solution

9. Method Procedure

1. Before opening the reagents, take the kit out of the fridge and wait until the temperature of the reagents reaches the ambient temperature.
2. Download and/or set the kit's **lot number**, as provided in the Quality Assurance Certificate and Choose the suitable **Type**.
3. Place the cassette inside the plastic holder. The cassette must be facing up.
4. Dispense slowly **100µl of the extract** into the circular window of the cassette.
5. Insert the plastic holder into the scanner and press SCAN using S-flow software **immediately**. The 4 minute scan count down starts immediately.

NOTE: For all the samples that tested above 30ppb, follow the same procedure using the diluted extract as a sample. Choose the suitable Type before scanning.

10. Interpretation of results

The Quantum Total Green lateral flow test is manufactured to work along with a scanner device S-FLOW or 3PR.

1st Quantum read: 2 minutes after the start of the analysis the device scans the cassette automatically,

- ⇒ If the sample is free of Aflatoxins, the analysis stops and the result is below LOQ
- ⇒ If the sample is suspected positive for Aflatoxins (above LOQ), the analysis continues until it completes 4 minutes.

Final Quantum read: After the end of analysis the S-Flow software will use a Lot specific curve to calculate the results.

NOTE: A simple visual interpretation of the stick is NOT possible.

11. Performance Evaluation

11.1 Reference Materials

Several reference materials are being used for the evaluation of each product of ProGnosis Biotech S.A. in the context of Quality Control performed by Quality Control Department. Please request a validation report, including the results, at info@prognosis-biotech.com.

11.2 Proficiency Tests

All products participate frequently in Proficiency Tests. For more information, visit the individual product page in our website: www.prognosis-biotech.com

12. Method Summary

Total method time: 4 minutes

Extract the samples**Place the cassette inside the plastic holder****Add 100µl in the circular window of the cassette, insert the plastic holder into the scanner and press SCAN immediately****Interpretate the results through S-flow software****LATERAL FLOW TEST KIT**

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All immune assays supplied by ProGnosis Biotech S.A., are warranted to meet or exceed our published specification when used under normal conditions in your laboratory. If the product fails during the stated period, a replacement product will be issued.

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