VERSION N1
CAT.NUMBER: G7018/G7040

QUANTUM FUMONISIN GREEN

LATERAL FLOW TEST KIT

for the quantitative determination of Fumonisin in grains, cereals and animal feed

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 Fumonisin Green, G7018/G7040, is a Lateral Flow Test kit for the quantitative determination of Fumonisin in grains, cereals and animal feed.

This kit contains all reagents required for 18 or 40 reactions

Matrices:

Corn, Corn Germ, Corn Flour, Wheat, Wheat flour, Barley, Malt, Oats, Soybeans, Soybean Meal, Sorghum, DDGS, Sunflower meal, White Rice, Brown Rice, Rice flour, Buckwheat, Millet, Pasta, Pop corn, Triticale, Sweet corn

- **Results in 45 seconds**
- Total test time: 2 minutes
- Range: 0 - 5ppm
- Shelf life: 12 months
- Storage: 2-8^{o}C

Specifications

- The LOD of the method is 0.17ppm Fumonisin.
- The LOQ of the method is 0.25ppm Fumonisin.
- Cross-reactivity: The cross-reaction of the anti-Fumonisin antibody with FB1, FB2 and FB3 is 100, 65 and 48% respectively.

1. Description

Quantum Fumonisin Green is an innovative Lateral Flow device, utilizing state-of-the-art features for the quantitative detection of Fumonisin in grains, cereals and animal feed. This Lateral Flow test utilizes an ecological solution for the extraction step, instead of the usual organic solvents.

2. General Information

Fumonisins are a member of the trichothecene mycotoxins poduced by fungi of *Fusarium moniliforme* (*F. verticillioides*), *F. proliferatum*, and several other Fusarium species. Grains including corn, wheat and other cereals are frequently infected by these fungi in the field or during storage. More than ten types of fumonisins have been isolated and characterized. Of these, Fumonisin B1 (FB1), B2 (FB2), and B3 (FB3) are the major fumonisins produced. Fumonisins are hepatotoxic and nephrotoxic in all animal species tested. The earliest histological change to appear in either the liver or kidney of fumonisin-treated animals is increased apoptosis followed by regenerative cell proliferation, while the acute toxicity of fumonisin is low, it is the known cause of two diseases which occur in domestic animals with rapid onset: equine leukoencephalomalacia and porcine pulmonary oedema syndrome. Both of these diseases involve disturbed sphingolipid metabolism and cardiovascular dysfunction. Most controlling government agencies worldwide have regulations regarding the amount of FB1, and FB2 allowable in human and animal foodstuffs. Accurate and rapid determination of Fumonisins presence in commodities is of paramount importance.

3. Principle of the Method

The Quantum Fumonisin Green lateral flow test is based on the competitive format immunoassay principle. A capture line for Fumonisin is placed below the control line. The detection system consists of specific antibodies against Fumonisin 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 Fumonisin, a color development occurs at the test line, indicating the absence of Fumonisin in the sample. On the contrary, the presence of Fumonisin 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 Fumonisin present in the samples. A valid test should always have the upper control line red.

4. Reagents Provided

Quantum Fumonisin Green kit contains sufficient reagents and materials for 18/40 reactions.

- 18/40 tests (cassette format) in foils
- 18/40 Extraction Powder pouches
- 18/40 sample diluent tubes
- High range solution
- 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

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 supernatant to a clear tube. (The extracted sample should have pH value of 6.2 - 7.0. If the pH is less than 6.2, the pH should be neutralized using NaOH.)
7. Add **100µl** of extract (supernatant) into the Sample diluent tube provided and mix well.
8. Add slowly 100µl of the diluted sample in the circular window of the cassette.
9. In case the result is greater than 5000 ppb, the sample should be further diluted with **High Range Solution** and re-tested. To achieve a dilution factor of 5 or 10, add 100µl of the diluted sample into 400µl or 900µl of **High Range Solution** respectively. Use the diluted extract within **30 minutes**.

DILUTION FACTOR 5	DILUTION FACTOR 10
100µl of the diluted sample + 400µl of **High Range Solution**	100µl of the diluted sample + 900µl 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 then set the suitable **Dilution Factor type**
3. Open as many foils with the cassettes as the number of samples to be tested.
4. Place the cassette inside the plastic holder. The cassette must be facing up.
5. Dispense **100µl of diluted extract** into the circular window of the cassette.
6. Insert the plastic holder into the scanner and press SCAN using S-flow software **immediately.** The 2 min scan count down starts immediately.

10. Interpretation of results

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

1st Quantum read: 45 seconds after the start of the analysis the device scans the cassette automatically,

⇒ If the sample contains less than 250ppb of Fumonisin, the analysis stops and the result is below LOQ

⇒ If the sample contains more than 250ppb of Fumonisin (under LOQ), the analysis continues until it completes 2 minute.

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: 2 minutes

Extract the samples

⇩

Add 100µl of extract (supernatant) into the Sample diluent tube provided

⇩

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

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www.prognosis-biotech.com
e: info@prognosis-biotech.com
t: +30 2410 623922
Farsalon 153 | 41335 Larissa, Greece

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