

Product Information

Anti-Aflatoxin B₁-Peroxidase antibody produced in rabbit IgG fraction of antiserum

Product Number **SAB4200829**

Product Description

Anti-Aflatoxin B₁ antibody is developed in rabbits using aflatoxin B₁-KLH conjugate from *Aspergillus flavus* as immunogen. Whole antiserum is purified using protein A immobilized on agarose to provide the IgG fraction of antiserum and is conjugated to horseradish peroxidase.

Anti-Aflatoxin B₁-peroxidase antibody recognizes aflatoxin B₁, aflatoxins G₁, B₂, and the KLH carrier protein. No cross reaction is observed with aflatoxins B_{2a}, G₂, G_{2a}, and M₁. The antibody may be used in various immunochemical techniques including ELISA.

Aflatoxins are a group of natural fungal metabolites synthesized by *Aspergillus flavus* and *Aspergillus parasiticus*, which are toxin contaminants (mycotoxins) found in human and animal food products.¹⁻³

Aflatoxin B₁ is the most abundant and significant member of the group, which also includes B₂, B_{2a}, G₁, G_{2a}, M₁, M₂, P₁, Q₁, aflatoxicol I (natural isomer), aflatoxicol II (unnatural isomer), tetrahydrodeoxy-aflatoxin B₁ and the unstable reactive B₁ (8,9)-epoxide.⁴⁻⁵ Aflatoxin B₁ is activated by cytochrome P450 proteins, a family of liver abundant enzymes that converts the aflatoxin into mutagenic and carcinogenic intermediates.³⁻⁵ The ability of aflatoxin B₁ and its metabolites to act as potent carcinogens, mutagens, and teratogens, in addition to their toxicity is well known. Thus, aflatoxins have been implicated in human hepatocellular carcinoma, outbreaks of aflatoxicosis, Rey's syndrome, chronic hepatitis, and increased mortality from infection in animal husbandry.¹

Humans and animals may be exposed to aflatoxins by consuming food products that have been directly contaminated by fungal strains during growth, harvest, or storage. Many grains and food ingredients including corn, peanuts, tree nuts, cottonseed, cereal crops, beans, cassava, milo, sorghum, copra, rice, dried fish, and beer have been found to be contaminated with aflatoxins due to natural invasion by molds before and during harvest, or because of improper storage.¹⁻⁸

Thus consumers may be exposed to aflatoxins either directly by eating contaminated grains or nuts, or indirectly via animal tissues (meat) or animal products (milk) containing aflatoxins. The aflatoxins are increasingly recognized as a serious health risk to humans and animals alike. Consequently, a suitable analytical method for the detection of these toxins is required for effective food and feed safety-monitoring programs worldwide.⁶⁻⁸

Reagent

Supplied as a lyophilized powder.

Preparation Instructions

Reconstitute the contents of the vial with 0.1 ml of distilled water to a final antibody concentration of ~4 mg/ml. After reconstitution, the solution contains 2.5% trehalose and 0.01% thimerosal in 0.01 M sodium phosphate buffered saline.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

Store the lyophilized product at 2–8 °C. For extended storage after reconstitution, keep at –20 °C in working aliquots. Avoid repeated freeze-thaw cycles. For continuous use after reconstitution, keep at 2–8 °C for up to 1 month. Solutions at working dilution should be discarded if not used within 12 hours.

Product Profile

Direct ELISA: a working dilution of 1:2,000-1:4,000 is recommended using 1 µg/ml Aflatoxin B₁-BSA conjugate for coating.

Note: In order to obtain the best results in different techniques and preparations, it is recommended to determine the optimal working concentration by titration.

References

1. Kew, M.C., *J. Gastrointestin. Liver Dis.*, **22**, 305-10 (2013).
2. Medina, A. et al., *Front. Microbiol.*, **5**, 348 (2014).
3. Limaye, A. et al., *Toxins (Basel)*, **10**, pii: E25 (2018).
4. Kowalska, A. et al., *Postepy. Hig. Med. Dosw. (Online)*, **71**, 315-327 (2017).
5. Diaz, G.J. et al., *Poult. Sci.*, **89**, 2461-9 (2010).
6. de Andrade, C.Y.T. et al., *Carbohydr. Polym.*, **185**, 63-72 (2018).
7. Moon, J. et al., *Sensors (Basel)*, **18**, pii: E598 (2018).
8. Prado, G. et al., *Braz. J. Microbiol.*, **43**, 1428-36 (2012).

TT,DR,OKF,MAM 01/19-1