



# Fitzgerald

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## Food Testing

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# Aflatoxin

Aflatoxins are naturally occurring mycotoxins that are produced by *Aspergillus flavus* and *Aspergillus parasiticus*, species of fungi. Some commercial peanut butter, cooking oils (e.g. olive, peanut and sesame oil), and cosmetics have been identified as contaminated with aflatoxin. At least 14 different types of aflatoxin are produced in nature. Aflatoxin B1 is considered the most toxic and is produced by both *Aspergillus flavus* and *Aspergillus parasiticus*. Aflatoxin G1 and G2 are produced exclusively by *A. parasiticus*. While the presence of *Aspergillus* in food products does not always indicate harmful levels of aflatoxin are present, it implies a significant risk in consumption. Aflatoxins M1 and M2 were originally discovered in the milk of cows that fed on moldy grain.

Catalog #	Product	Host	Clone #	Applications
10-1430	Aflatoxin antibody	Mouse	M1709Af1	ELISA, Lateral Flow
10-A04A	Aflatoxin B antibody	Mouse	M8022628	ELISA
10-A04B	Aflatoxin B antibody	Mouse	M8022629	ELISA
55R-2236	Aflatoxin B1 ELISA kit	-	-	ELISA
55R-2241	Aflatoxin M1 ELISA kit	-	-	ELISA

# Clenbuterol

Clenbuterol is a sympathomimetic amine used by sufferers of breathing disorders as a decongestant and bronchodilator, but is also commonly used for its off-label application as a weight-loss drug similar to usage of other sympathomimetic amines. In the food industry Clenbuterol has been used to result in leaner meat with a higher muscle-to-fat ratio, but has been banned in meat since 1991 in the USA and since 1996 in the European Union due to health concerns about symptoms noted in consumers. These include increased heart rate, muscular tremors, headaches, nausea, fever, and chills. In the majority of cases, these adverse symptoms are temporary.

Catalog #	Product	Host	Clone #	Applications
10-1543	Clenbuterol antibody	Mouse	M64462	ELISA, Conjugation
10R-1792	Clenbuterol antibody	Mouse	1F8B10B7	ELISA
55R-2229	Clenbuterol ELISA kit	-	-	ELISA
20-1394	Clenbuterol antibody	Sheep	-	ELISA, WB, Dot Blot, IHC
80-1122	Clenbuterol-HRP	-	-	ELISA, Immunoassays

# Deoxynivalenol

Deoxynivalenol (DON) or Vomitoxin is a mycotoxin produced by certain *Fusarium* species that frequently infect corn, wheat, oats, barley, rice and other grains in the field or during storage. The exposure risk to humans occurs directly through foods of plant origin (cereal grains) or indirectly through foods of animal origin (kidney, liver, milk, eggs). It has been detected in buckwheat, popcorn, sorghum, triticale, and other food products including flour, bread, breakfast cereals, noodles, infant foods, pancakes, malt and beer. DON affects animal and human health causing acute temporary nausea, vomiting, diarrhea, abdominal pain, headache, dizziness, and fever.

Catalog #	Product	Host	Clone #	Applications
55R-2235	Deoxynivalenol ELISA Kit	-	-	ELISA

# Enrofloxacin & Fluoroquinolones

Fluoroquinolones are broad-spectrum antibiotics (effective for both gram-negative and gram-positive bacteria) that play an important role in treatment of serious bacterial infections. Enrofloxacin is a synthetic antibacterial agent from the class of the fluoroquinolone carboxylic acid derivatives. Enrofloxacin is currently approved by the FDA for the treatment of individual pets and domestic animals in the United States. In September 2005, the FDA withdrew approval of Baytril for use in water to treat flocks of poultry due to the evolution of fluoroquinolone-resistant strains of the bacterium *Campylobacter*, a human pathogen, which was found in chicken meat.

Catalog #	Product	Host	Clone #	Applications
55R-2231	Enrofloxacin ELISA kit	-	-	ELISA
20-1162	Fluoroquinolones antibody	Sheep	-	ELISA
55R-2232	Fluoroquinolones ELISA kit	-	-	ELISA



## Gentamicin

Gentamicin is an aminoglycoside antibiotic composed of a mixture of related gentamicin components and fractions and is used to treat many types of bacterial infections, particularly those caused by gram-negative organisms. It is commonly used in animals such as cats, dogs, cattle, horses, turkeys, pigs and chickens. Studies have shown spread of gentamicin-resistant enterococci from animals to humans through the food supply where a gentamicin-resistant gene was present in resistant enterococci from animals, that gene was also present in enterococci isolated from food products of the same animal species (doi: 10.1128/JCM.41.3.1109-1113.2003).

Catalog #	Product	Host	Clone #	Applications
10-1541	Gentamicin antibody	Mouse	M64460	ELISA, Conjugation
10-G02A	Gentamicin antibody	Mouse	M24071	ELISA
20-GG15	Gentamicin antibody	Goat	-	User optimized
20-GR15	Gentamicin antibody	Rabbit	-	User optimized
55R-2233	Gentamicin ELISA kit	-	-	ELISA
80-IG10	Gentamicin-BSA	-	-	User optimized
65-IG10	Gentamicin-HRP	-	-	User optimized

## Kanamycin

Kanamycin (also known as kanamycin A) is an aminoglycoside bacteriocidal antibiotic, available in oral, intravenous, and intramuscular forms, and used to treat a wide variety of infections. Kanamycin is isolated from the bacterium *Streptomyces kanamyceticus* and its most commonly used form is kanamycin sulfate. Studies in chickens have shown that antibiotic administration to poultry can increase the frequency of transmission of drug-resistant *Salmonella* through the food chain (PMID:3043410).

Catalog #	Product	Host	Clone #	Applications
10-1545	Kanamycin antibody	Mouse	M64464	ELISA, Conjugation
55R-2240	Kanamycin ELISA Kit	-	-	ELISA
20-1183	Kanamycin antibody	Sheep	-	ELISA
80-1187	Kanamycin-HRP	-	-	ELISA, Immunoassays

## Melamine

Melamine has many industrial uses and it is formed in the body of mammals that have ingested cyromazine. It has been reported that cyromazine can also be converted to melamine in plants. Melamine is described as "Harmful if swallowed, inhaled or absorbed through the skin. Chronic exposure may cause cancer or reproductive damage. Eye, skin and respiratory irritant". The FDA have shown that it can cause kidneys to malfunction due to crystal formation. The United Nations' food standards body, Codex Alimentarius Commission, has set the maximum amount of melamine allowed in powdered infant formula to 1 mg/kg and the amount of the chemical allowed in other foods and animal feed to 2.5 mg/kg.

Catalog #	Product	Host	Clone #	Applications
55R-2043	Melamine ELISA kit	-	-	ELISA
55R-2228	Melamine ELISA Kit	-	-	ELISA

## Ochratoxin A

Ochratoxin A is a toxin produced by *Aspergillus ochraceus*, *Aspergillus carbonarius* and *Penicillium verrucosum*. It is one of the most abundant food-contaminating mycotoxins and exposure can occur through consumption of contaminated food products, particularly grain and pork products, as well as coffee, wine grapes, and dried grapes. The toxin has been found in the tissues and organs of animals, including human blood and breast milk. Ochratoxin A is potentially carcinogenic to humans (Group 2B), and has been shown to be weakly mutagenic, possibly by induction of oxidative DNA damage and can also cause immunosuppression and immunotoxicity in animals.

Catalog #	Product	Host	Clone #	Applications
10-1314	Ochratoxin A antibody	Mouse	M12276	ELISA, WB
55R-2238	Ochratoxin A ELISA Kit	-	-	ELISA

# Ractopamine

Ractopamine is a drug used as a feed additive to promote leanness in animals raised for their meat. Pharmacologically, it is a beta-adrenergic agonist. Ractopamine is used in 80% of US pig and cattle operations and has enjoyed stealth use in the US food supply for a decade despite being widely banned overseas. It is marketed as Paylean for pigs, Optaflexx for cattle and Topmax for turkeys developed by Elanco Animal Health, a division of Eli Lilly & Co., for use in food animals for growth promotion. Ractopamine has been banned in the European Union, mainland China and Russia.

Catalog #	Product	Host	Clone #	Applications
10-1544	Ractopamine antibody	Mouse	M64463	ELISA, Conjugation
10R-1875	Ractopamine antibody	Mouse	Rac1	ELISA
20-1669	Ractopamine antibody	Sheep	-	ELISA, WB, Dot Blot, IHC
55R-2230	Ractopamine ELISA kit	-	-	ELISA
20-1668	Ractopamine antibody	Sheep	-	ELISA, WB, Dot Blot, IHC
80-1258	Ractopamine-HRP	-	-	ELISA, Immunoassays

# Salbutamol

Salbutamol (INN) or albuterol (USAN) is a short-acting  $\beta_2$ -adrenergic receptor agonist used for the relief of bronchospasm in conditions such as asthma and chronic obstructive pulmonary disease. It is marketed as Ventolin among other brand names. It has been used illegally by body builders to produce increased muscle weight.

Catalog #	Product	Host	Clone #	Applications
10-1580	Salbutamol antibody	Mouse	M67953	ELISA
55R-2242	Salbutamol ELISA kit	-	-	ELISA
20-1670	Salbutamol antibody	Sheep	-	ELISA, WB, Dot Blot, IHC
80-1262	Salbutamol-HRP	-	-	ELISA, Immunoassays

# Sulfadimidine & Sulfonamides

Sulfadimidine or sulfamethazine, is a sulfonamide antibacterial. The sulfonamides represent a large class of antibiotics that have multiple clinical uses. The sulfonamides were the first effective antibiotics to be introduced into clinical medicine and have been in use continuously since the 1930's. Prevention and treatment of bacterial bee diseases with sulfonamides can lead to residues of these compounds in honey which is a major concern due to possible allergic reactions, but mainly because of their contribution in development of antibiotic-resistant pathogenic bacteria. Considering this risk, the EU has banned the use of antibiotics in agriculture. The limit of quantitation (LOQ) differs between 20 and 50 ng/g depending on the country.

Catalog #	Product	Host	Clone #	Applications
55R-2239	Sulfadimidine ELISA kit	-	-	ELISA
55R-2234	Sulfonamides Residue ELISA kit	-	-	ELISA

# T-2 Toxin

T-2 is a trichothecene mycotoxin. It is a naturally occurring mold byproduct of *Fusarium* spp fungus which is toxic to humans and animals. The clinical condition it causes is alimentary toxic aleukia and a host of symptoms related to organs as diverse as the skin, airway, and stomach ingestion may come from consumption of moldy whole grains. Consideration by Russian scientists of the possible usefulness of T-2 mycotoxin as a biological weapon followed an observation that, after a spring harvest delayed by World War II, flour contaminated with *Fusarium* was produced and distributed in bread, causing significant morbidity and mortality.

Catalog #	Product	Host	Clone #	Applications
55R-2237	T-2 Toxin ELISA kit	-	-	ELISA