AB Scientific

Science. Service. Solutions – Simple

Agents for: CLOVER Technology Group, BIOCON working with Nature, DELTAGEN A Member of the Marigot Group Australia

CONTENTS

CLOVER Technology Group

The range of AB Scientific services includes:

- Test kits for food analysis (IAC, Elisa & Strip tests)
- Enzyme activity analysis (Amylase, Protease, Xylanase, etc)
- Molecular Biology analysis (Gene cloning, sequencing, markers, protein expression and more)
- EVOO enzymes (pectinase enzymes for cold-press olive oil processing)

Please contact us for details regarding our services and pricing in regards to enzymes and molecular biology analysis.

AB Scientific

Science. Service. Solutions – Simple

ABN: 42155205226

AB Scientific Pty Ltd

5 Rodda Pde, Eltham, VIC. 3095

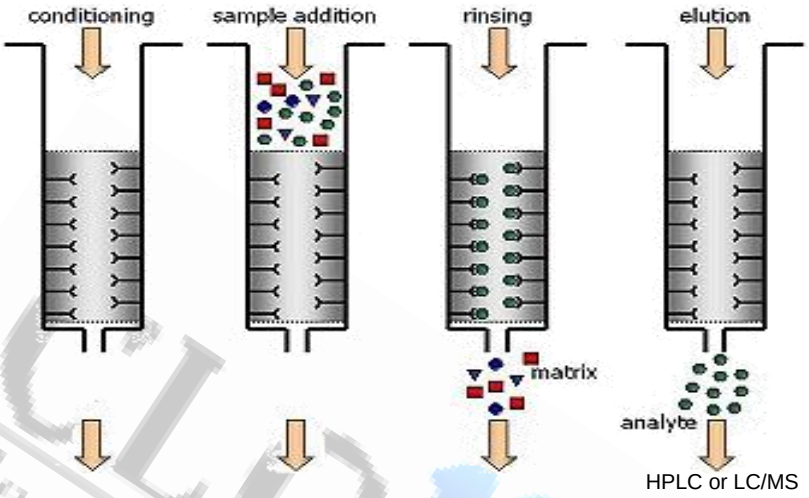
Mob: 0421237569

Tel: 0394611238

a.dinsdale@latrobe.edu.au

- **ELISA test kits**
- **Immunoaffinity columns**
- **Molecular Biology analysis**
- **Enzyme analysis**
- **EVOO processing enzymes**

Immuno-affinity Columns



The Principle of sample purification by immuno-affinity columns



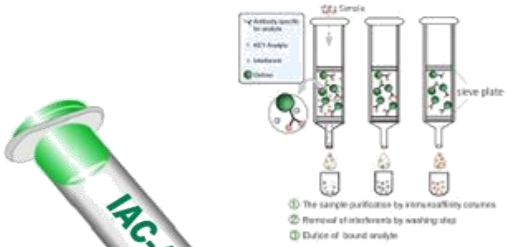



Immuno-affinity Columns - cont

IAC-AGON (β-Agonists 3 in 1) Catalogue number: IAC 301

BACKGROUND: β-Agonists are synthetic derivatives of the naturally occurring catecholamines. β-agonists are used as performance improvers in livestock production; particularly for improving meat/fat ratios and accelerating growth. However, such compounds have not been approved in the EU and other jurisdictions for use as fattening agents. In addition to lipolytic and anabolic effects, β-agonists have relaxing effects on non-striated musculature. Thus they are also used as anti-asthmatic and tocolytic agents. β-agonists are prohibited for use in food production across many countries.

INTENDED USE: A simple and efficient extraction and purification procedure for β-Agonists by means of immunoaffinity column (IAC-CLE/SAL/RAC) technology. β-Agonist content in feeds, urine and animal derived foods are purified by IAC and determined by HPLC or LC-MS. This is a fast, simple, safe and highly accurate method for quantitatively measuring three β-Agonists (CLE, SAL and RAC).

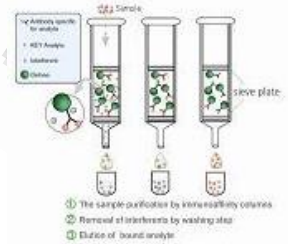


PRINCIPLE: Samples are prepared by mixing with an extraction solution, blending and filtering. The extract is then applied to the immunoaffinity column bound with specific antibodies to β-Agonists. The β-Agonists binds to the antibodis on the column which is then washed with dH_2O to remove impurities. The bound β-Agonists is eluted from the antibody by a simple methanol wash before being quantified via HPLC or LC-MS/MS.

IAC-SULF (Sulfonamides) Catalogue number: IAC 305 & 305A-305D

BACKGROUND: Sulfonamides are widely used as feed additives, mainly for fattening calves and pigs where they are often combined with inhibitors of dihydrofolate reductase such as trimethoprim, tetroxoprim, or pyrimethamine. Sulfonamides are also used in veterinary medicine for the treatment of intestinal infections, mastitis, pulmonitis and other systemic diseases. Sulfonamide residues can occur in foods such as meat, honey, and milk. EU, USA and Japanese regulations stipulate a maximum residue for all sulfonamides of 100 ppb in muscle, fat, liver, kidney, milk and honey.

INTENDED USE: A simple and efficient extraction and purification procedure for Sulfonamides by means of immunoaffinity column (IAC-SULF) technology. Sulfonamide content in feeds, honey, aquatic products and animal derived foods are purified up by IAC and determined by HPLC or LC-MS. This is a fast, simple, safe and highly accurate method for quantitatively measuring Sulfonamides (detects16 analogues).



Australian Max levels:

Cattle Milk - 0.1 mg/kg
Offal (mammal) – 0.1 mg/kg
Eggs – 0.02 mg/kg
Meat (mammal) – 0.1 mg/kg
Offal (poultry) – 0.1 mg/kg
Meat (poultry) – 0.1 mg/kg

PRINCIPLE: Samples are prepared by mixing with an extraction solution, blending and filtering. The extract is then applied to the immunoaffinity column bound with specific antibodies to Sulfonamides. The Sulfonamides bind to the antibodies on the column. The column is washed with dH_2O to remove impurities. The bound Sulfonamides are eluted from the antibody by a simple methanol wash which is then quantified via HPLC or LC-MS/MS.

Immuno-affinity Columns - cont

IAC-CLE/SAL (Clenbuterol/Salbutamol)

Catalogue number: IAC 306

BACKGROUND: β-Agonists are synthetic derivatives of the naturally occurring catecholamines. β-agonists are used as performance improvers in livestock production; particularly for improving meat/fat ratios and accelerating growth. However, such compounds have not been approved in the EU and other jurisdictions for use as fattening agents. In addition to lipolytic and anabolic effects, β-agonists have relaxing effects on non-striated musculature. Thus they are also used as anti-asthmatic and tocolytic agents. β-agonists are prohibited for use in food production across many countries.

INTENDED USE: A simple and efficient extraction and purification procedure for β-Agonists by means of immunoaffinity column (IAC-CLE/SAL) technology. β-Agonist content in feeds, urine and animal derived foods are purified by IAC and determined by HPLC or LC-MS. This is a fast, simple, safe and highly accurate method for quantitatively measuring three β-Agonists (CLE, SAL)

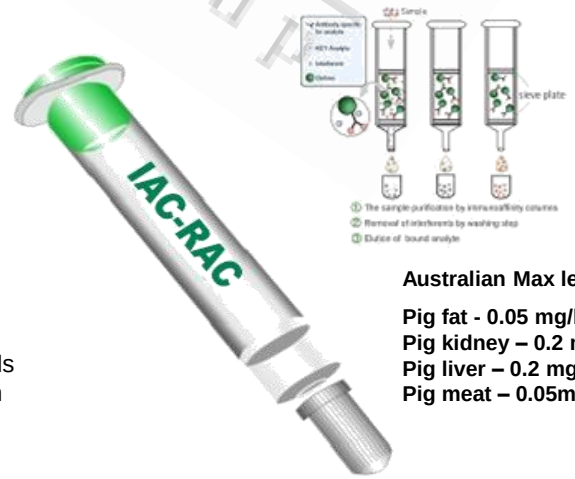
PRINCIPLE: Samples are prepared by mixing with an extraction solution, blending and filtering. The extract is then applied to the immunoaffinity column bound with specific antibodies to β-Agonists. The β-Agonists binds to the antibody on the column which is then washed with dH_2O to remove impurities. The bound β-Agonists is eluted from the antibody by a simple methanol wash before being quantified via HPLC or LC-MS/MS.

IAC-RAC (Ractopamine)

Catalogue number: IAC 308

BACKGROUND: Ractopamine belongs to the group of β-agonists which are used as performance improvers for livestock production. In particular, ractopamine reduces fat, increases average daily weight gain, improves feed utilisation and conversation ratio (FCR) in fattened animals. In addition to lipolytic and anabolic effects, β-agonists have relaxing effects on non-striated musculature. Thus they are also used as anti-asthmatic and tocolytic agents. β-agonists are prohibited for use in food production across many countries.

INTENDED USE: A simple and efficient extraction and purification procedure for Ractopamine by means of immunoaffinity column (IAC-RAC) technology. Ractopamine content in feeds, urine and animal derived foods are purified by IAC and determined by HPLC or LC-MS. This is a fast, simple, safe and highly accurate method for quantitatively measuring Ractopamine.



PRINCIPLE: Samples are prepared by mixing with an extraction solution, blending and filtering. The extract is then applied to the immunoaffinity column bound with specific antibodies to Ractopamine. The β-Agonists binds to the antibody on the column which is then washed with dH_2O to remove impurities. The bound Ractopamine is eluted from the antibody by a simple methanol wash before being quantified via HPLC or LC-MS/MS.

Australian Max levels:

Pig fat - 0.05 mg/kg
Pig kidney – 0.2 mg/kg
Pig liver – 0.2 mg/kg
Pig meat – 0.05mg/kg

Immuno-affinity Columns - cont

IAC-CAP (Chloramphenicol) Catalogue number: IAC 309

BACKGROUND: Chloramphenicol (CAP) is a broad-spectrum bacteriostatic antibiotic, originally derived from the bacterium *Streptomyces venezuelae*. Due to potential side effects in humans, Chloramphenicol is not recommended for the treatment of minor diseases and is reserved for serious infections. In veterinary medicine, CAP has been shown to be a highly effective, well-tolerated antibiotic; the potential side effects observed in humans have not been reported in animals. However, because of its toxicity in humans, the use of CAP in animal-derived foods such as honey and milk has been strictly regulated. Most countries have defined a maximum residue limit (MRL) for CAP in foods of animal origin at levels of between 0.3 µg/kg to 0.5 µg/kg.

INTENDED USE: A simple and efficient extraction and purification procedure for Chloramphenicol by means of immunoaffinity column (IAC-CAP) technology. Chloramphenicol content in feeds, honey, urine, aquatic products and animal derived foods are purified up by IAC and determined by HPLC or LC-MS. This is a fast, simple, safe and highly accurate method for quantitatively measuring Chloramphenicol.

PRINCIPLE: Samples are prepared by mixing with an extraction solution, blending and filtering. The extract is then applied to the immunoaffinity column bound with specific antibodies to Chloramphenicol. Any Chloramphenicol present binds to the antibodies on the column. The column is washed with dH_2O to remove impurities. Bound Chloramphenicol is eluted from the antibody by a simple methanol wash which is then quantified via HPLC or LC-MS/MS.

IAC-ZER (Zeranol, Zeralenone, α-Zearalanol, β-Zearalanol) Catalogue number: IAC 311

BACKGROUND: A non-steroidal oestrogenic growth promoter, Zeranol is an anabolic phytohormone commonly used in livestock to both improve feed conversion ratios and increase weight gain. Due to its oestrogenic properties it can also result in fertility disorders.
Zeranol is a modified product derived from the mycotoxin zeralenone (produced by *Fusarium.sp* fungi), and hence is classified as a semi-synthetic. Its use has been banned throughout the EU but is still commonly used in other jurisdictions including the US.
Zeralenone can induce clinical hyperoestregenism in livestock, most commonly pigs, when fed with contaminated feed. Zeralenone contamination has been reported in corn, oats, barley, wheat and sorghum.

INTENDED USE: A simple and efficient extraction and purification procedure for Zeranols by means of immunoaffinity column (IAC-ZER) technology. β-Agonist content in feeds, aquatic products and animal derived foods are purified by IAC and determined by HPLC or LC-MS. This is a fast, simple, safe and highly accurate method for quantitatively measuring Zeranols (detects 6 analogues).

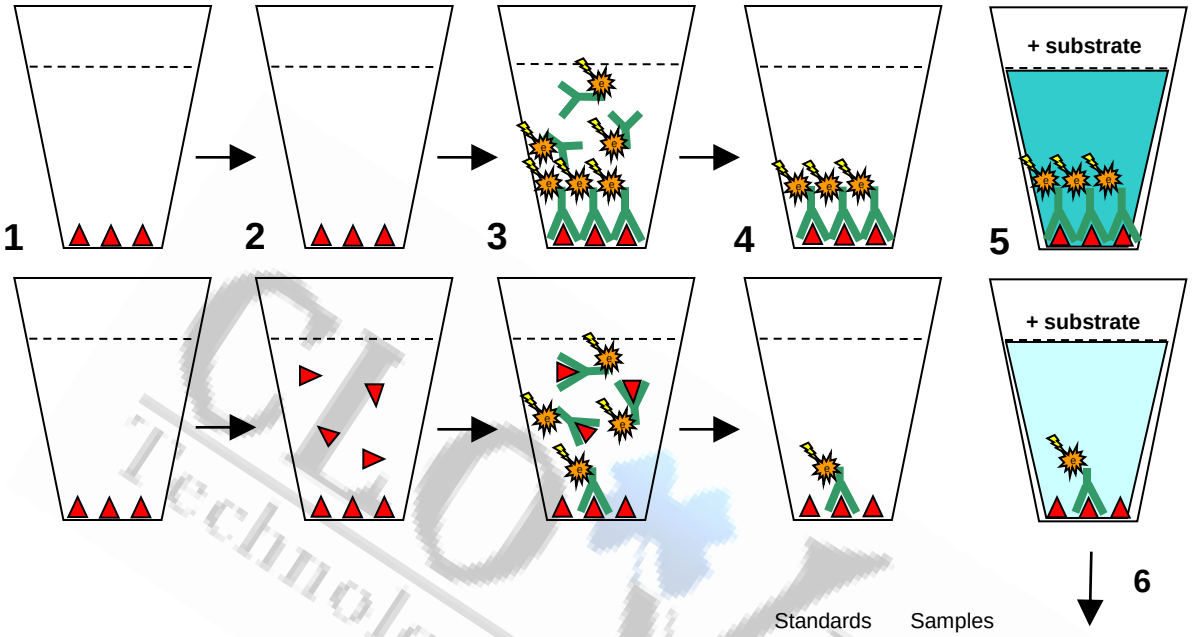
PRINCIPLE: Samples are prepared by mixing with an extraction solution, blending and filtering. The extract is then applied to the immunoaffinity column bound with specific antibodies to Zeranols. Any Zeranols present bind to antibody on the column which is then washed with dH_2O to remove impurities. The bound Zeranol is eluted from the antibody by a simple methanol wash before being quantified via HPLC or LC-MS/MS.

Australian Max levels:

Offal (cattle) - 0.02 mg/kg
Meat (cattle) – 0.005 mg/kg

Elisa kits (96 well)

iElisa



1. Well with bound antigen
2. Add sample or standard
3. Add enzyme conjugate and antibody. Incubate
4. Wash: removal of excess reactants and antibody-enzyme conjugate bound to unbound antigen
5. Add substrate, incubate. Colour formation
6. Add stop solution, measure colour

Principle of competitive direct Elisa assay





Elisa kits - cont

iElisa-CAP (Chloramphenicol) Catalogue number: CE-101

BACKGROUND: Chloramphenicol (CAP) is a broad-spectrum bacteriostatic antibiotic, originally derived from the bacterium *Streptomyces venezuelae*. Due to potential side effects in humans, Chloramphenicol is not recommended for the treatment of minor diseases and is reserved for serious infections. In veterinary medicine, CAP has been shown to be a highly effective, well-tolerated antibiotic; the potential side effects observed in humans have not been reported in animals. However, because of its toxicity in humans, the use of CAP in animal-derived foods such as honey and milk has been strictly regulated. Most countries have defined a maximum residue limit (MRL) for CAP in foods of animal origin at levels of between 0.3 µg/kg to 0.5 µg/kg.

iElisa-ENR (Enrofloxacin) Catalogue number: CE-103

BACKGROUND: Often sold under the trade name Baytril (Bayer Corp), Enrofloxacin is a fluoroquinolone antibiotic used in the treatment of pets, domestic animals and livestock. In many countries Enrofloxacin is most commonly used to treat respiratory diseases in cattle and pigs but its use in poultry has been banned in the US due to its association with increased prevalence of resistant strains of *Campylobacter* and *Salmonella*. **The use of Enrofloxacin in all food production animals in Australia is banned.**

iElisa-SQX (Sulfaquinoxaline) Catalogue number: CE-106

BACKGROUND: Sulfonamides are widely used as feed additives, mainly for fattening of calves and pigs. Sulfonamide residues can occur in foods of animal origin and are a know carcinogen. In the EU and the USA the maximum residue limit (MRL) for residues of Sulfonamides in tissue and milk is 100 µg/kg.

INTENDED USE: This kit establishes a procedure for determining sulfaquinoxaline in grain and processed grain products. The test is a competitive direct ELISA that provides accurate concentrations in parts per billion (ppb). Free toxin in the sample and control competes with enzyme-labelled toxin (conjugate) for the antibody binding sites. After a wash step, the substrate reacts with the bound enzyme conjugate to produce a blue colour, the intensity of which is directly proportional to the concentration of sulfaquinoxaline.

Australian Max levels:

Cattle Milk - 0.1 mg/kg	**Offal (mammal) – 0.1 mg/kg**
Eggs – 0.02 mg/kg	**Meat (mammal) – 0.1 mg/kg**
Offal (poultry) – 0.1 mg/kg	**Meat (poultry) – 0.1 mg/kg**

Elisa kits - cont

iElisa-SM2 (Sulfamethazine) Catalogue number: CE-108

BACKGROUND: Sulfonamides are widely used as feed additives, mainly for fattening calves and pigs. Sulfonamides are also used in veterinary medicine for the treatment of intestinal infections, mastitis, pulmonitis and other diseases. Sulfonamide residues may occur in food of animal origin such as meat and milk. In the EU the maximum residue limit for all compounds belonging to the sulfonamide group in products such as muscle, fat, liver, kidney and milk is 100 ppb.

INTENDED USE: This kit establishes a procedure for determining sulfamethazine in grain and processed grain products. The test is a competitive direct ELISA that provides accurate concentrations in parts per billion (ppb). Free toxin in the sample and control competes with enzyme-labelled toxin (conjugate) for the antibody binding sites. After a wash step, the substrate reacts with the bound enzyme conjugate to produce a blue colour, the intensity of which is directly proportional to the concentration of sulfamethazine.

Australian Max levels:

Cattle Milk - 0.1 mg/kg	**Offal (mammal) – 0.1 mg/kg**
Eggs – 0.02 mg/kg	**Meat (mammal) – 0.1 mg/kg**
Offal (poultry) – 0.1 mg/kg	**Meat (poultry) – 0.1 mg/kg**

iElisa-MPA (Medroxyprogesterone acetate) Catalogue number: CE-110

BACKGROUND: Also know as Medroxyprogesterone 17-acetate or MPA, Medroxyprogesterone acetate is a synthetic version of the mammalian hormone progesterone. It has numerous applications in the treatment of human medical conditions and as a growth promoter in meat production. Due to its lypophylic characteristics, MPA is concentrated in fatty tissues. In livestock it can be used to manipulate ovulation, lactation, preganacy and sexual behaviour by blocking the secretion of pituitary hormones. MPA is associated with a wide range of potential adverse reactions in humans including uterine bleeding, nausea, heart attack, stroke, depression and insomnia. The MPA ELISA is a competitive enzyme immunoassay (ELISA) for the detection of MPA not only in fat samples, but also in muscle, sausages, milk and other animal-derived products as well as grains and processed grain products.

INTENDED USE: This kit establishes a procedure for determining MPA in both grain and animal products. The test is a competitive direct ELISA that provides accurate concentrations in parts per billion (ppb). Free toxin in the sample and control competes with enzyme-labelled toxin (conjugate) for the antibody binding sites. After a wash step, the substrate reacts with the bound enzyme conjugate to produce a blue colour, the intensity of which is directly proportional to the concentration of MPA.

Elisa kits - cont

iElisa-RAC (Ractopamine) Catalogue number: CE-111

BACKGROUND: Ractopamine belongs to the group of β-agonists which are used as performance improvers for livestock production. In particular, ractopamine reduces fat, increases average daily weight gain, improves feed utilisation and conversation ratio (FCR) in fattened animals. In addition to lipolytic and anabolic effects, β-agonists have relaxing effects on non-striated musculature. Thus they are also used as anti-asthmatic and tocolytic agents. β-agonists are prohibited for use in food production across many countries.

Australian Max levels:

Pig fat - 0.05 mg/kg
Pig kidney – 0.2 mg/kg
Pig liver – 0.2 mg/kg
Pig meat – 0.05mg/kg

iElisa-CLE (Clenbuterol) Catalogue number: CE-112

BACKGROUND: Clenbuterol belongs to the family of β-Agonists that are synthetic derivatives of the naturally occurring catecholamines. β-agonists are used as performance improvers in livestock production; particularly for improving meat/fat ratios and accelerating growth. However, such compounds have not been approved in the EU and other jurisdictions for use as fattening agents. In addition to lipolytic and anabolic effects, β-agonists have relaxing effects on non-striated musculature. Thus they are also used as anti-asthmatic and tocolytic agents. β-agonists are prohibited for use in food production across many countries.

INTENDED USE: This kit is based on indirect-competitive ELISA technology.
Microtiter wells are coated with coupling antigen. Clenbuterol residue in the sample competes with the antigen coated on the microtiter plate for antibody binding sites. After the addition of enzyme labelled anti-antibody, TMB* substrate is used to produce a coloured reaction, changing from blue to yellow after the addition of a stop solution. The colour is measured photometrically at 450nm, with the absorption being inversely proportional to the Clenbuterol concentration in the sample

Elisa kits - cont

iElisa-SAL (Salbutamol)

Catalogue number: CE-113

BACKGROUND: Salbutamol, like Clenbuterol, also belongs to the family of β-Agonists that are synthetic derivatives of the naturally occurring catecholamines. β-agonists are used as performance improvers in livestock production; particularly for improving meat/fat ratios and accelerating growth. However, such compounds have not been approved in the EU and other jurisdictions for use as fattening agents. In addition to lipolytic and anabolic effects, β-agonists have relaxing effects on non-striated musculature. Thus they are also used as anti-asthmatic and tocolytic agents. β-agonists are prohibited for use in food production across many countries.

INTENDED USE: This kit is based on indirect-competitive ELISA technology.
Microtiter wells are coated with coupling antigen. Salbutamol residue in the sample competes with the antigen coated on the microtiter plate for antibody binding sites. After the addition of enzyme labelled anti-antibody, TMB* substrate is used to produce a coloured reaction, changing from blue to yellow after the addition of a stop solution. The colour is measured photometrically at 450nm, with the absorption being inversely proportional to the Salbutamol concentration in the sample

iElisa-MPA (Kanamycin)

Catalogue number: CE-114

BACKGROUND: Kanamycin is a commonly used, broad-spectrum antibiotic obtained from the soil bacterium *Streptomyces kanamyceticus.* It is also widely used in agricultural in cattle, pigs, poultry and sheep to both treat infections and promote growth.
Kanamycin is potentialy toxic and can produce adverse side effects to the auditory and vestibular branches of the eighth cranial nerve and to the renal tubules, which can result in hearing loss as well as causing severe kidney damage

INTENDED USE: This kit establishes a procedure for determining Kanamycin in both grain and animal products. The test is a competitive direct ELISA that provides accurate concentrations in parts per billion (ppb). Free toxin in the sample and control competes with enzyme-labelled toxin (conjugate) for the antibody binding sites. After a wash step, the substrate reacts with the bound enzyme conjugate to produce a blue colour, the intensity of which is directly proportional to the concentration of Kanamycin.

*TMB: **3,3',5,5'-Tetramethylbenzidine**

Elisa kits - cont

iElisa β-Agonists (β-Agonists 3 in 1) Catalogue number: CE-115

BACKGROUND: β-Agonists are synthetic derivatives of the naturally occurring catecholamines. β-agonists are used as performance improvers in livestock production; particularly for improving meat/fat ratios and accelerating growth. However, such compounds have not been approved in the EU and other jurisdictions for use as fattening agents. In addition to lipolytic and anabolic effects, β-agonists have relaxing effects on non-striated musculature. Thus they are also used as anti-asthmatic and tocolytic agents. β-agonists are prohibited for use in food production across many countries. This is a fast, simple, safe and highly accurate method for quantitatively measuring three common β-Agonists (CLE, SAL and RAC).

INTENDED USE: This kit is based on indirect-competitive ELISA technology.
Microtiter wells are coated with coupling antigen. β-Agonist residue in the sample competes with the antigen coated on the microtiter plate for antibody binding sites. After the addition of enzyme labelled anti-antibody, TMB* substrate is used to produce a coloured reaction, changing from blue to yellow after the addition of a stop solution. The colour is measured photometrically at 450nm, with the absorption being inversely proportional to the β-Agonist concentration in the sample

iElisa-ZER (Zeranol, Zeralenone α-Zearalanol, β-Zearalanol) Catalogue number: CE-116

BACKGROUND: A non-steroidal oestrogenic growth promoter, Zeranol is an anabolic phytohormone commonly used in livestock to both improve feed conversion ratios and increase weight gain. Due to its oestrogenic properties it can also result in fertility disorders.
Zeranol is a modified product derived from the mycotoxin zeralenone (produced by *Fusarium.sp* fungi), and hence is classified as a semi-synthetic. Its use has been banned throughout the EU but is still commonly used in other jurisdictions including the US.
Zeralenone can induce clinical hyperoestregenism in livestock, most commonly pigs, when fed with contaminated feed. Zeralenone contamination has been reported in corn, oats, barley, wheat and sorghum.

INTENDED USE: This kit is based on indirect-competitive ELISA technology.
Microtiter wells are coated with coupling antigen. Zeranol residue in the sample competes with the antigen coated on the microtiter plate for antibody binding sites. After the addition of enzyme labelled anti-antibody, TMB* substrate is used to produce a coloured reaction, changing from blue to yellow after the addition of a stop solution. The colour is measured photometrically at 450nm, with the absorption being inversely proportional to the Zeranol concentration in the sample

Australian Max levels:
*TMB: **3,3',5,5'-Tetramethylbenzidine**
Offal (cattle) - 0.02 mg/kg
Meat (cattle) – 0.005 mg/kg

Elisa kits - cont

iElisa-MEL (Melamine) Catalogue number: CE-118

BACKGROUND: Melamine is an industrial chemical ($C_3H_6N_6$) which has been used previously to artificially inflate protein levels in milk and formula products. Although mostly confined to China, some exported formula products have also been potentially contaminated.
Chronic exposure to melamine can result in bladder or kidney stones, bladder cancer and, in extreme cases, acute kidney failure and death.

INTENDED USE: This kit is based on indirect-competitive ELISA technology.
Microtiter wells are coated with coupling antigen. Zeranol residue in the sample competes with the antigen coated on the microtiter plate for antibody binding sites. After the addition of enzyme labelled anti-antibody, TMB* substrate is used to produce a coloured reaction, changing from blue to yellow after the addition of a stop solution. The colour is measured photometrically at 450nm, with the absorption being inversely proportional to the Zeranol concentration in the sample

*TMB: **3,3',5,5'-Tetramethylbenzidine**

Elisa kits Mycotoxins

iElisa-AFLB1 (Aflatoxin B1) Catalogue number: CE-201

BACKGROUND: Metabolites of the fungus *Aspergillus flavus* and *Aspergillus parasiticus*, all Aflatoxins are both toxic and carcinogenic. Aflatoxins have a range of innate fluorescent properties which are used to group them into four basic categories – B1, B2, G1 and G2.
Aflatoxin B_1 is the most common form of aflatoxin and the most toxic being a potent liver carcinogen. Thriving in warm and humid conditions, aflatoxin forming fungi are especially hazardous in stored foods such as peanuts, rice, soybeans, corn and wheat.

INTENDED USE: This kit is based on indirect-competitive ELISA technology.
Microtiter wells are coated with coupling antigen. Aflatoxin B1 residue in the sample competes with the antigen coated on the microtiter plate for antibody binding sites. After the addition of enzyme labelled anti-antibody, TMB* substrate is used to produce a coloured reaction, changing from blue to yellow after the addition of a stop solution. The colour is measured photometrically at 450nm, with the absorption being inversely proportional to the Aflatoxin B1 concentration in the sample

Australian Max level: 0.015mg/kg

iElisa-AFLM1 (Aflatoxin M1) Catalogue number: CE-202

BACKGROUND: Metabolites of the fungus *Aspergillus flavus* and *Aspergillus parasiticus*, all Aflatoxins are both toxic and carcinogenic. Aflatoxins have a range of innate fluorescent properties which are used to group them into four basic categories – B1, B2, G1 and G2.
Aflatoxin M1 is a metabolite of Alfatoxin B1 and can be secreted in milk when lactating cows consume feed contaminated with Aflatoxin B1. Being resistant to pasteurisation, Aflatoxin M1 can persist into milk and other dairy products for human consumption.

INTENDED USE: This kit is based on indirect-competitive ELISA technology and is suitable for milk, milk powder, cream and cheese products.
Microtiter wells are coated with coupling antigen. Aflatoxin M1 residue in the sample competes with the antigen coated on the microtiter plate for antibody binding sites. After the addition of enzyme labelled anti-antibody, TMB* substrate is used to produce a coloured reaction, changing from blue to yellow after the addition of a stop solution. The colour is measured photometrically at 450nm, with the absorption being inversely proportional to the Aflatoxin M1 concentration in the sample

Australian Max level: 0.015mg/kg

Elisa kits Mycotoxins - cont

iElisa-AFLA (Total Aflatoxin) Catalogue number: CE-203

BACKGROUND: Metabolites of the fungus *Aspergillus flavus* and *Aspergillus parasiticus*, all Aflatoxins are both toxic and carcinogenic. Aflatoxins have a range of innate fluorescent properties which are used to group them into four basic categories – B1, B2, G1 and G2.
Aspergillus flavus is particularly widespread in nature, thriving under hot and moist conditions. It is prevalent in soil and decaying organic matter such as hay and grains, rapidly invading surrounding plants and plant matter when growing condition are favourable, particularly during wet summer periods.

INTENDED USE: This kit establishes a procedure for determining total Aflatoxin in both grain and animal products. The test is a competitive direct ELISA that provides accurate concentrations in parts per billion (ppb). Free toxin in the sample and control competes with enzyme-labelled toxin (conjugate) for the antibody binding sites. After a wash step, the substrate reacts with the bound enzyme conjugate to produce a blue colour, the intensity of which is directly proportional to the concentration of total Aflatoxin.

Australian Max level: 0.015mg/kg

iElisa-OTA (Ochratoxin) Catalogue number: CE-204

BACKGROUND: Ochratoxin A, a toxin produced by *Aspergillus ochraceus, Aspergillus carbonarius* and *Penicillium verrucosum* is a common food contaminant world-wide. Human exposure occurs mainly through consumption of improperly stored food products, particularly grain, pork, coffee and grapes. Ochratoxin has been identified in the tissues and organs of various animals, including humans, as well as in blood and milk. The toxic effects associated with Ochratoxin consumption are varied depending on species and sex, but it can concentrate in the brain and cause immunosuppression, cancer and other disorders.

INTENDED USE: This kit establishes a procedure for determining total Ochratoxin in both grain and animal products. The test is a competitive direct ELISA that provides accurate concentrations in parts per billion (ppb). Free toxin in the sample and control competes with enzyme-labelled toxin (conjugate) for the antibody binding sites. After a wash step, the substrate reacts with the bound enzyme conjugate to produce a blue colour, the intensity of which is directly proportional to the concentration of total Ochratoxin.

Elisa kits Mycotoxins - cont

iElisa-ZEN (Zearalenone) Catalogue number: CE-205

BACKGROUND: An anabolic phytohormone, Zearalenone is a mycotoxin produced by fungi of the *Fusarium.sp* genus. Zeralenone can induce clinical hyperoestregenism in livestock when fed with contaminated feed and lead to fertility disorders. Although this condition is most commonly reported in pigs, it can also occur in cows, sheep and horses. Zeralenone contamination has been reported in corn, oats, barley, wheat and sorghum.

INTENDED USE: This kit is based on indirect-competitive ELISA technology.
Microtiter wells are coated with coupling antigen. Zeranol residue in the sample competes with the antigen coated on the microtiter plate for antibody binding sites. After the addition of enzyme labelled anti-antibody, TMB* substrate is used to produce a coloured reaction, changing from blue to yellow after the addition of a stop solution. The colour is measured photometrically at 450nm, with the absorption being inversely proportional to the Zeranol concentration in the sample

Australian Max levels:

Offal (cattle) - 0.02 mg/kg
Meat (cattle) – 0.005 mg/kg

iElisa-DON (Deoxynivalenol) Catalogue number: CE-206

BACKGROUND: Often referred to as a 'vomitoxin', Deoxynivalenol (DON) can severely impact upon livestock by limiting acceptance of feed and therefore growth and development. DON has been isolated from grains and feeds worldwide, particularly wheat, barley, oats, rye, corn, and to a lesser extent rice, sorghum and triticale. DON prevalence is associated with *Fusarium graminearum* and *Fusarium culmorum*, both of which cause head blight, a disease often resulting in very high DON levels. Although relatively benign in comparison to other mycotoxins, DON levels are still strictly regulated in both human and animal foods.

Australian Max levels:

Offal (cattle) - 0.02 mg/kg
Meat (cattle) – 0.005 mg/kg

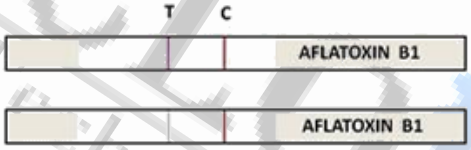
Strip Test Kits

Qualitative

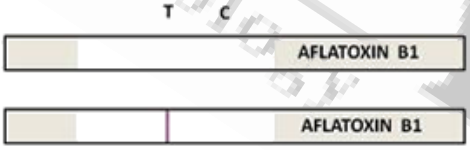
iCheck

A color line always appears in the upper section of the test strip to indicate that the test strip is working properly. This line is the Control Line (C). A line in the lower section of the test strip indicates the test results. This line is the Test Line (T).

Positive result: Control line is visible. This indicates that the sample contains Aflatoxin B1 great than or equal to 5ppb (wheat)/10ppb (rice and oil)/20ppb (corn. peanuts).



Negative result: Control line and Test line are visible. This indicates that the sample contains Aflatoxin B1 less than 5ppb (wheat)/10ppb (rice and oil)/20ppb (corn. peanuts).



Invalid results: If there is no line in control zone, the test is invalid and the sample should be re-tested by a valid test strip.

Example of the simple interpretation of results with Clovertek strip-test technology

CLOVER Technology Group

Strip Test Kits – Qualitative

iCheck

Mycotoxins

iCheck-PN-Afla B1 (Aflatoxin B1) Catalogue number: CS-201

BACKGROUND: Metabolites of the fungus *Aspergillus flavus* and *Aspergillus parasiticus*, all Aflatoxins are both toxic and carcinogenic. Aflatoxins have a range of innate fluorescent properties which are used to group them into four basic categories – B_1, B_2, G_1 and G_2.
Aflatoxin B_1 is the most common form of aflatoxin and the most toxic being a potent liver carcinogen. Thriving in warm and humid conditions, aflatoxin forming fungi are especially hazardous in stored foods such as peanuts, rice, soybeans, corn and wheat.

MATERIALS PROVIDED
1) One step test strip
2) A pack of desiccant
3) Dilution buffer
4) Strip Test Vial
5) Product Manual

Australian Max level: 0.015mg/kg

iCheck-PN-Afla M1 (Aflatoxin M1) Catalogue number: CS-202

BACKGROUND: Metabolites of the fungus *Aspergillus flavus* and *Aspergillus parasiticus*, all Aflatoxins are both toxic and carcinogenic. Aflatoxins have a range of innate fluorescent properties which are used to group them into four basic categories – B_1, B_2, G_1 and G_2.
Aflatoxin M1 is a metabolite of Alfatoxin B1 and can be secreted in milk when lactating cows consume feed contaminated with Aflatoxin B1. Being resistant to pasteurisation, Aflatoxin M1 can persist into milk and other dairy products for human consumption.

MATERIALS PROVIDED
1) One step test strip
2) A pack of desiccant
3) Dilution buffer
4) Strip Test Vial
5) Product Manual

Australian Max level: 0.015mg/kg

Strip tests (Mycotoxins qualitative) - cont

iCheck-PN-Afla Total (Total Aflatoxin) Catalogue number: CS-203

BACKGROUND: Metabolites of the fungus *Aspergillus flavus* and *Aspergillus parasiticus*, all Aflatoxins are both toxic and carcinogenic. Aflatoxins have a range of innate fluorescent properties which are used to group them into four basic categories – B_1, B_2, G_1 and G_2.
Aspergillus flavus is particularly widespread in nature, thriving under hot and moist conditions. It is prevalent in soil and decaying organic matter such as hay and grains, rapidly invading surrounding plants and plant matter when growing condition are favourable, particularly during wet summer periods.

MATERIALS PROVIDED
1) One step test strip
2) A pack of desiccant
3) Dilution buffer
4) Strip Test Vial
5) Product Manual

Australian Max level: 0.015mg/kg

iCheck-PN-ZEN (Zearalenone) Catalogue number: CS-204

BACKGROUND: An anabolic phytohormone, Zearalenone is a mycotoxin produced by fungi of the *Fusarium.sp* genus. Zeralenone can induce clinical hyperoestregenism in livestock when fed with contaminated feed and lead to fertility disorders. Although this condition is most commonly reported in pigs, it can also occur in cows, sheep and horses. Zeralenone contamination has been reported in corn, oats, barley, wheat and sorghum.

MATERIALS PROVIDED
1) One step test strip
2) A pack of desiccant
3) Dilution buffer
4) Strip Test Vial
5) Product Manual

Australian Max levels:

Offal (cattle) - 0.02 mg/kg
Meat (cattle) – 0.005 mg/kg

Strip tests (Mycotoxins qualitative) - cont

iCheck-OTA (Ochratoxin) Catalogue number: CS-206

BACKGROUND: Ochratoxin A, a toxin produced by *Aspergillus ochraceus, Aspergillus carbonarius* and *Penicillium verrucosum* is a common food contaminant world-wide. Human exposure occurs mainly through consumption of improperly stored food products, particularly grain, pork, coffee and grapes. Ochratoxin has been identified in the tissues and organs of various animals, including humans, as well as in blood and milk. The toxic effects associated with Ochratoxin consumption are varied depending on species and sex, but it can concentrate in the brain and cause immunosuppression, cancer and other disorders.

MATERIALS PROVIDED
1) One step test strip
2) A pack of desiccant
3) Dilution buffer
4) Strip Test Vial
5) Product Manual

Strip Test Kits – Qualitative

Drug residue

iCheck-SM2 (Sulfamethazine) Catalogue number: CS-406

BACKGROUND: Sulfonamides are widely used as feed additives, mainly for fattening calves and pigs where they are often combined with inhibitors of dihydrofolate reductase such as trimethoprim, tetroxoprim, or pyrimethamine. Sulfonamides are also used in veterinary medicine for the treatment of intestinal infections, mastitis, pulmonitis and other systemic diseases. Sulfonamide residues can occur in foods such as meat, honey, and milk. EU, USA and Japanese regulations stipulate a maximum residue for all sulfonamides of 100 ppb in muscle, fat, liver, kidney, milk and honey.

MATERIALS PROVIDED
1) One step test strip
2) A pack of desiccant
3) Dilution buffer
4) Strip Test Vial
5) Product Manual

iCheck-ENR (Enrofloxacin) Catalogue number: CS-409

BACKGROUND: Often sold under the trade name Baytril (Bayer Corp), Enrofloxacin is a fluoroquinolone antibiotic used in the treatment of pets, domestic animals and livestock. In many countries Enrofloxacin is most commonly used to treat respiratory diseases in cattle and pigs but its use in poultry has been banned in the US due to its association with increased prevalence of resistant strains of *Campylobacter* and *Salmonella*. **The use of Enrofloxacin in all food production animals in Australia is banned.**

MATERIALS PROVIDED
1) One step test strip
2) A pack of desiccant
3) Dilution buffer
4) Strip Test Vial
5) Product Manual

Strip tests (Drug residue qualitative) - cont

iCheck-GEN (Gentamicin) Catalogue number: CS-410

BACKGROUND: Gentamicin is synthesised by the gram-positive bacteria *Micromonospora* and as an aminoglycoside antibiotic it is used to treat a wide array of bacterial infections. However, Gentamicin can also be toxic and residues are known to persist for extremely long periods of time.
In Australia it is illegal to use Gentamicin in food producing animals, in which it will bind and persist in kidneys for long periods of time.

MATERIALS PROVIDED
1) One step test strip
2) A pack of desiccant
3) Dilution buffer
4) Strip Test Vial
5) Product Manual

iCheck-MEL (Melamine) Catalogue number: CS-411

BACKGROUND: Melamine is an industrial chemical ($C_3H_6N_6$) which has been used previously to artificially inflate protein levels in milk and formula products. Although mostly confined to China, some exported formula products have also been potentially contaminated.
Chronic exposure to melamine can result in bladder or kidney stones, bladder cancer and, in extreme cases, acute kidney failure and death.

MATERIALS PROVIDED
1) One step test strip
2) A pack of desiccant
3) Dilution buffer
4) Strip Test Vial
5) Product Manual

Strip Test Kits – Quantitative

iCheck

Mycotoxins

iCheck-Afla B1 (Aflatoxin B1) Catalogue number: CS-101

BACKGROUND: Metabolites of the fungus *Aspergillus flavus* and *Aspergillus parasiticus*, all Aflatoxins are both toxic and carcinogenic. Aflatoxins have a range of innate fluorescent properties which are used to group them into four basic categories – B_1, B_2, G_1 and G_2.
Aflatoxin B_1 is the most common form of aflatoxin and the most toxic being a potent liver carcinogen. Thriving in warm and humid conditions, aflatoxin forming fungi are especially hazardous in stored foods such as peanuts, rice, soybeans, corn and wheat.

MATERIALS PROVIDED
1) One step test strip
2) A pack of desiccant
3) Dilution buffer A
4) Dilution buffer B
5) Dilution buffer C
6) Strip Test Vial
7) Product Manual

MATERIALS REQUIRED BUT NOT PROVIDED:
1) 100, 200 and 1000µl precision micropipette
2) Strip reader
3) Methanol
4) Centrifuge（4000r/min）and vortex mixer
5) Deionised Water
6) Timer

Australian Max level: 0.015mg/kg

iCheck-Afla M1 (Aflatoxin M1) Catalogue number: CS-102

BACKGROUND: Metabolites of the fungus *Aspergillus flavus* and *Aspergillus parasiticus*, all Aflatoxins are both toxic and carcinogenic. Aflatoxins have a range of innate fluorescent properties which are used to group them into four basic categories – B_1, B_2, G_1 and G_2.
Aflatoxin M1 is a metabolite of Alfatoxin B1 and can be secreted in milk when lactating cows consume feed contaminated with Aflatoxin B1. Being resistant to pasteurisation, Aflatoxin M1 can persist into milk and other dairy products for human consumption.

MATERIALS PROVIDED
1) One step test strip
2) A pack of desiccant
3) Dilution buffer A
4) Dilution buffer B
5) Dilution buffer C
6) Strip Test Vial
7) Product Manual

MATERIALS REQUIRED BUT NOT PROVIDED:
1) 100, 200 and 1000µl precision micropipette
2) Strip reader
3) Methanol
4) Centrifuge（4000r/min）and vortex mixer
5) Deionised Water
6) Timer

Australian Max level: 0.015mg/kg

Strip tests (mycotoxins qualitative) - cont

iCheck-Afla Total (Total Aflatoxin) Catalogue number: CS-103

BACKGROUND: Metabolites of the fungus *Aspergillus flavus* and *Aspergillus parasiticus*, all Aflatoxins are both toxic and carcinogenic. Aflatoxins have a range of innate fluorescent properties which are used to group them into four basic categories – B_1, B_2, G_1 and G_2.
Aspergillus flavus is particularly widespread in nature, thriving under hot and moist conditions. It is prevalent in soil and decaying organic matter such as hay and grains, rapidly invading surrounding plants and plant matter when growing condition are favourable, particularly during wet summer periods.

MATERIALS PROVIDED
1) One step test strip
2) A pack of desiccant
3) Dilution buffer A
4) Dilution buffer B
5) Dilution buffer C
6) Strip Test Vial
7) Product Manual

MATERIALS REQUIRED BUT NOT PROVIDED:
1) 100, 200 and 1000µl precision micropipette
2) Strip reader
3) Methanol
4) Centrifuge（4000r/min）and vortex mixer
5) Deionised Water
6) Timer

Australian Max level: 0.015mg/kg

iCheck-ZEN (Zearalenone) Catalogue number: CS-104

BACKGROUND: An anabolic phytohormone, Zearalenone is a mycotoxin produced by fungi of the *Fusarium.sp* genus. Zeralenone can induce clinical hyperoestregenism in livestock when fed with contaminated feed and lead to fertility disorders. Although this condition is most commonly reported in pigs, it can also occur in cows, sheep and horses. Zeralenone contamination has been reported in corn, oats, barley, wheat and sorghum.

MATERIALS PROVIDED
1) One step test strip
2) A pack of desiccant
3) Dilution buffer A
4) Dilution buffer B
5) Dilution buffer C
6) Strip Test Vial
7) Product Manual

MATERIALS REQUIRED BUT NOT PROVIDED:
1) 100, 200 and 1000µl precision micropipette
2) Strip reader
3) Methanol
4) Centrifuge（4000r/min）and vortex mixer
5) Deionised Water
6) Timer

Australian Max levels:

Offal (cattle) - 0.02 mg/kg
Meat (cattle) – 0.005 mg/kg

Strip tests (mycotoxins qualitative) - cont

iCheck-OTA (Ochratoxin) Catalogue number: CS-106

BACKGROUND: Ochratoxin A, a toxin produced by *Aspergillus ochraceus, Aspergillus carbonarius* and *Penicillium verrucosum* is a common food contaminant world-wide. Human exposure occurs mainly through consumption of improperly stored food products, particularly grain, pork, coffee and grapes. Ochratoxin has been identified in the tissues and organs of various animals, including humans, as well as in blood and milk. The toxic effects associated with Ochratoxin consumption are varied depending on species and sex, but it can concentrate in the brain and cause immunosuppression, cancer and other disorders.

MATERIALS PROVIDED
1) One step test strip
2) A pack of desiccant
3) Dilution buffer A
4) Dilution buffer B
5) Dilution buffer C
6) Strip Test Vial
7) Product Manual

MATERIALS REQUIRED BUT NOT PROVIDED:
1) 100, 200 and 1000µl precision micropipette
2) Strip reader
3) Methanol
4) Centrifuge（4000r/min）and vortex mixer
5) Deionised Water
6) Timer

Strip Test Kits – Quantitative

Drug residues

iCheck-RAC (Ractopamine)

Catalogue number: CS-302

BACKGROUND: Ractopamine belongs to the group of β-agonists which are used as performance improvers for livestock production. In particular, ractopamine reduces fat, increases average daily weight gain, improves feed utilisation and conversation ratio (FCR) in fattened animals. In addition to lipolytic and anabolic effects, β-agonists have relaxing effects on non-striated musculature. Thus they are also used as anti-asthmatic and tocolytic agents. β-agonists are prohibited for use in food production across many countries.

MATERIALS PROVIDED
1) One step test strip
2) A pack of desiccant
3) Dilution buffer
4) Centrifuge tube
5) Product Manual

MATERIALS REQUIRED BUT NOT PROVIDED:
1) 200 and 1000µl precision micropipette
2) Microtitre plate reader with 450nm filter
3) Centrifuge
4) Vortex mixer
5) Deionised Water
6) Timer

Australian Max levels:

Pig fat - 0.05 mg/kg
Pig kidney – 0.2 mg/kg
Pig liver – 0.2 mg/kg
Pig meat – 0.05mg/kg

iCheck-CLE (Clenbuterol)

Catalogue number: CS-305

BACKGROUND: Kanamycin is a commonly used, broad-spectrum antibiotic obtained from the soil bacterium *Streptomyces kanamyceticus.* It is also widely used in agricultural in cattle, pigs, poultry and sheep to both treat infections and promote growth.
Kanamycin is potentialy toxic and can produce adverse side effects to the auditory and vestibular branches of the eighth cranial nerve and to the renal tubules, which can result in hearing loss as well as causing severe kidney damage.

MATERIALS PROVIDED
1) One step test strip
2) A pack of desiccant
3) Dilution buffer
4) Centrifuge tube
5) Product Manual

MATERIALS REQUIRED BUT NOT PROVIDED:
1) 200 and 1000µl precision micropipette
2) Microtitre plate reader with 450nm filter
3) Centrifuge
4) Vortex mixer
5) Deionised Water
6) Timer

Strip tests (drug residue quantitative) - cont

iCheck-ZER (Zeranol) — Catalogue number: CS-308

BACKGROUND: A non-steroidal oestrogenic growth promoter, Zeranol is an anabolic phytohormone commonly used in livestock to both improve feed conversion ratios and increase weight gain. Due to its oestrogenic properties it can also result in fertility disorders.
Zeranol is a modified product derived from the mycotoxin zeralenone (produced by *Fusarium.sp* fungi), and hence is classified as a semi-synthetic. Its use has been banned throughout the EU but is still commonly used in other jurisdictions including the US.

MATERIALS PROVIDED
1) One step test strip
2) A pack of desiccant
3) Dilution buffer
4) Centrifuge tube
5) Product Manual

Australian Max levels:

Offal (cattle) - 0.02 mg/kg
Meat (cattle) – 0.005 mg/kg

MATERIALS REQUIRED BUT NOT PROVIDED:
1) 200 and 1000µl precision micropipette
2) Microtitre plate reader with 450nm filter
3) Centrifuge
4) Vortex mixer
5) Deionised Water
6) Timer

iCheck-ENR (Enrofloxacin) — Catalogue number: CS-309

BACKGROUND: Often sold under the trade name Baytril (Bayer Corp), Enrofloxacin is a fluoroquinolone antibiotic used in the treatment of pets, domestic animals and livestock. In many countries Enrofloxacin is most commonly used to treat respiratory diseases in cattle and pigs but its use in poultry has been banned in the US due to its association with increased prevalence of resistant strains of *Campylobacter* and *Salmonella*. **The use of Enrofloxacin in all food production animals in Australia is banned.**

MATERIALS PROVIDED
1) One step test strip
2) A pack of desiccant
3) Dilution buffer
4) Centrifuge tube
5) Product Manual

MATERIALS REQUIRED BUT NOT PROVIDED:
1) 200 and 1000µl precision micropipette
2) Microtitre plate reader with 450nm filter
3) Centrifuge
4) Vortex mixer
5) Deionised Water
6) Timer

Strip tests (drug residue quantitative) - cont

iCheck-GEN (Gentamicin) Catalogue number: CS-310

BACKGROUND: Gentamicin is synthesised by the gram-positive bacteria *Micromonospora* and as an aminoglycoside antibiotic it is used to treat a wide array of bacterial infections. However, Gentamicin can also be toxic and residues are known to persist for extremely long periods of time.
In Australia it is illegal to use Gentamicin in food producing animals, in which it will bind and persist in kidneys for long periods of time.

MATERIALS PROVIDED
1) One step test strip
2) A pack of desiccant
3) Dilution buffer
4) Centrifuge tube
5) Product Manual

MATERIALS REQUIRED BUT NOT PROVIDED:
1) 200 and 1000µl precision micropipette
2) Microtitre plate reader with 450nm filter
3) Centrifuge
4) Vortex mixer
5) Deionised Water
6) Timer

iCheck-MEN (Melamine) Catalogue number: CS-311

BACKGROUND: Melamine is an industrial chemical ($C_3H_6N_6$) which has been used previously to artificially inflate protein levels in milk and formula products. Although mostly confined to China, some exported formula products have also been potentially contaminated in the past.
Chronic exposure to melamine can result in bladder or kidney stones, bladder cancer and, in extreme cases, acute kidney failure and death.

MATERIALS PROVIDED
1) One step test strip
2) A pack of desiccant
3) Dilution buffer
4) Centrifuge tube
5) Product Manual

MATERIALS REQUIRED BUT NOT PROVIDED:
1) 200 and 1000µl precision micropipette
2) Microtitre plate reader with 450nm filter
3) Centrifuge
4) Vortex mixer
5) Deionised Water
6) Timer