

BEADYPLEX™

Diagnostics for Food Safety

Discover the new Flow Cytometric Immunoassay
for the simultaneous screening of 10 antibiotic families

PORCINE



BOVINE



POULTRY



EGG/MILK



SEAFOOD



“ A powerful analytical tool to prevent the presence
of **antibiotic** residues in the food chain ”



1
SINGLE
TEST

10
ANTIBIOTIC
FAMILIES

MORE THAN
80
RESIDUES

WHY BEADYPLEX™

The misuse of antibiotics in animal farming regularly leads to the presence of residues in edible products. Early detection of these residues is essential to guarantee consumer protection and industrial food processing.

BEADYPLEX™ is an efficient screening method for the analysis of most relevant veterinary antibiotics in different food commodities, providing family identification in one single analysis per sample.

ASSAY PRINCIPLE

BEADYPLEX™ combines simultaneous competitive immunoassays in the same single reaction. The test uses unique reagents comprising mixtures of antibiotic-conjugated beads (assay competitors), broad-range antibiotic binders (receptors and antibodies), and fluorescent secondary binders. Each bead, individually encoded by its specific size and internal fluorescence, in combination with a primary binder, enables the detection of well-defined groups of antibiotics.

In a first assay step the beads and primary binders are incubated with the sample extract. In the second assay step the labelled secondary binders detect the remaining primary binders on the beads surface, thus generating the final assay signal. The resulting “beads-binders” complexes are then characterized by the Flow Cytometer, which entails the classification of the beads by discrimination of their sizes and internal fluorescence levels, and the measurement of external fluorescence intensities. The presence of antibiotics from a particular family is identified by a signal decrease for the corresponding encoded bead, with respect to a zero dose control sample.

“ This early detection facilitates the selection of confirmatory methods, and considerably reduces time and global costs of analysis ”

1 TEST / 10 ANTIBIOTICS FAMILIES

TETRACYCLINES

SULFONAMIDES
(INCL. DAPSONE)

β-LACTAMS

AMINOGLYCOSIDES

LINCOSAMIDES

MACROLIDES

POLYMYXINS

PHENICOLS
(INCL. CHLORAMPHENICOL)

(FLUORO)QUINOLONES

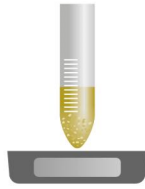
PLEUROMUTILINS

TEST PROCEDURE

BUFFER EXTRACTION

01

Take 1g of sample



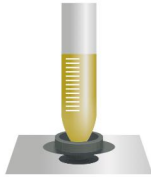
02

Add 1 ml of extraction buffer



03

Shake 10 min.



04

Centrifuge 15 min.



05

Filtrate supernatant



ASSAY (96-MICROPLATE FORMAT)

01

Add 50 μ l filtrated extract
+ 50 μ l beads mix
+ 50 μ l primary binders mix per well



INCUBATE 30 MIN.
+ WASH

02

Add 150 μ l fluorescent secondary binders per well

INCUBATE 15 MIN.
+ WASH

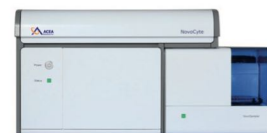
03

Add 150 μ l assay buffer per well

PLATE READING

04

Microplate analysis with Flow Cytometer



BENEFITS



BROAD SPECTRUM

> 80 antibiotics from 10 families in one single test.



HIGH THROUGHPUT

96 tests in microplate format.



SENSITIVITY/SELECTIVITY

Low limits of detection (\leq MRL).



ROBUSTNESS

Reliable results.



RAPIDITY

From sample to results in a few hours.



USER-FRIENDLY



BROAD APPLICABILITY

Muscle tissue (porcine, bovine and poultry), fish and seafood, eggs and raw milk.



ECO-FRIENDLY

No organic solvents required.

PRODUCT REFERENCE

KIT087
BEADYPLEX
96 tests

CONTENT

2x 1.2 μ m filterplate (96 wells)
1x 96 wells microplate
2x Assay buffer bottles
1x Extraction buffer bottle
1x Beads mix vial
1x Primary binders vial
1x Secondary binders vial
2x Positive standard vials

SENSITIVITY

LIMITS OF DETECTION (PPB) FOR REPRESENTATIVE ANTIBIOTICS

Family	Antibiotic	Porcine muscle	Bovine muscle	Poultry muscle	Salmon	Tuna	Prawn	Egg	Raw milk
Aminoglycosides	Streptomycin	250	250	250	\leq 500	\leq 500	\leq 500	\leq 500	\leq 200
	Gentamicin	50	50	50	\leq 50	\leq 50	\leq 50	\leq 50	\leq 100
β -Lactams	Amoxicillin	50	50	50	\leq 50	\leq 50	\leq 50	\leq 50	\leq 4
Lincosamides	Lincomycin	25	25	25	\leq 100	\leq 100	\leq 100	\leq 50	\leq 150
Polymyxins	Colistin	150	150	150	\leq 150	\leq 150	\leq 150	\leq 300	\leq 50
Macrolides	Tylosin A	10	10	10	\leq 100	\leq 100	\leq 100	\leq 200	\leq 50
Sulfonamides	Sulfadiazine	50	\leq 100	\leq 100	\leq 100	\leq 100	\leq 100	\leq 100	\leq 100
Phenicol	Chloramphenicol	0.45	$>$ 0.45	$>$ 0.45	$>$ 0.45	$>$ 0.45	$>$ 0.45	\leq 0.45	\leq 0.45
Tetracyclines	Oxytetracycline	50	50	50	\leq 100	\leq 100	\leq 100	\leq 100	\leq 100
(Fluoro)quinolones	Enrofloxacin	5	5	5	\leq 100	\leq 100	\leq 100	\leq 100	\leq 100
Pleuromutilins	Valnemulin	50	50	50	\leq 50	\leq 50	\leq 50	\leq 50	\leq 50

Allée de la Cense-Rouge 98 | 4102 Ougrée (Liège) | Belgium

Phone +32 4 252 66 02 | Fax +32 4 252 90 55 | info@unisensor.be | www.unisensor.be