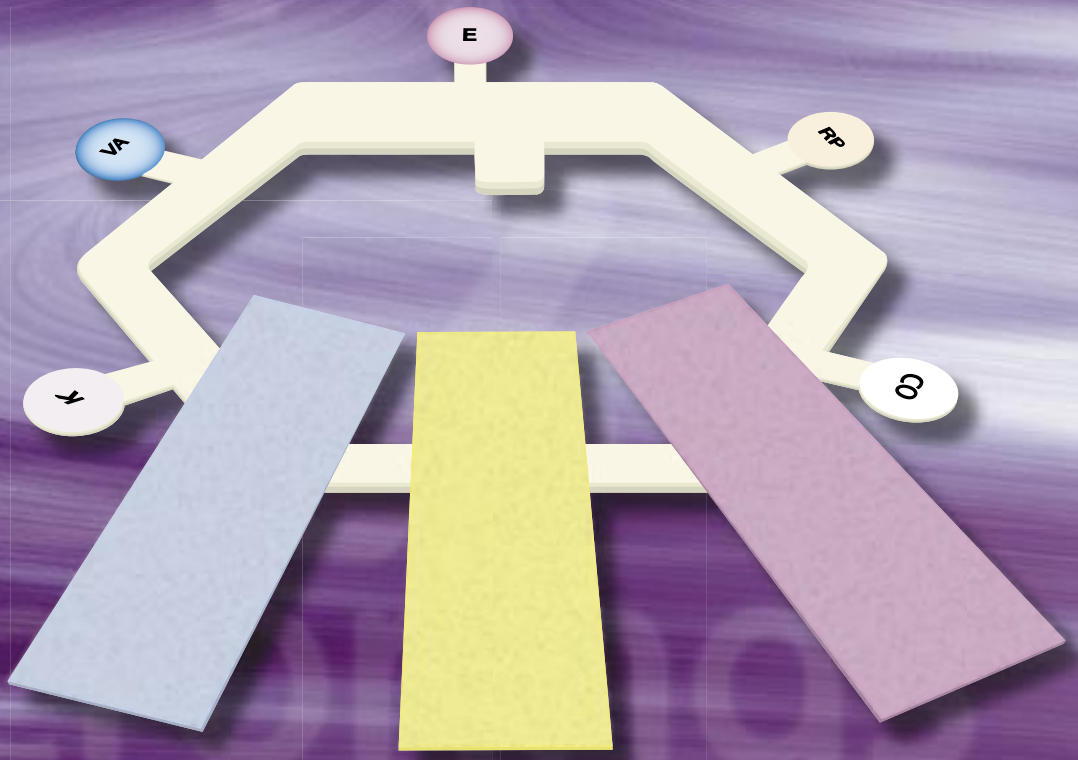
MW&E

Convenient and cost-effective identification for

Haemophilus
Anaerobes
Gardnerella
Yeasts
Indole

Beta-lactamase
Urease
Oxidase
Gram Test

Aesculin Hydrolysis
Coagulase
MRSA
Bacteruria

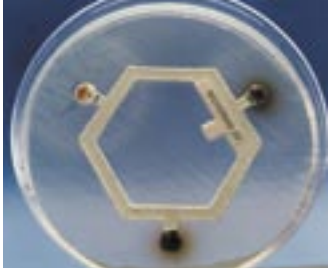


Diagnostics

Microrings®
& Rapid Strip Tests™

CE

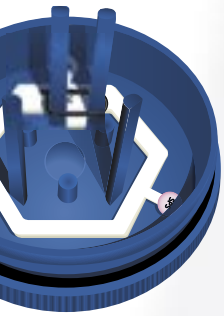
Microrings®



Microring® AN & Microring® AC

Simple Identification Scheme for Anaerobes

- ***Low cost identification of commonly isolated anaerobes***
- ***Easy to set up***
- ***Clear zones of susceptibility, simple to interpret***
- ***No specialised culture medium required***
- ***Simple application of multiple discs in one step***
- ***Excellent correlation with traditional tests***



Microring® AN has 6 tips impregnated with a range of antibiotics for the identification of species of anaerobic Gram-negative bacilli and can distinguish Gram-positive cocci from Gram-negative cocci. ®

Microring® AC (3 tips) provides additional tests which will assist with the identification of the Gram – positive anaerobic cocci, and of some microaerophilic cocci. In particular, *P. anaerobius* can be readily picked out by its sensitivity to SPS, and *P. magnus* can be distinguished from *P. micros* by its resistance to novobiocin.

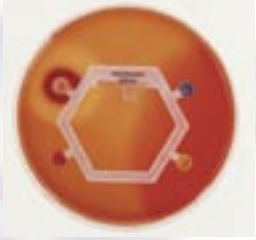
Gram-negative anaerobic rods are found in more than half of clinical specimens containing anaerobes. Although difficult to perform precise identifications, in practice most groups can be presumptively identified from their antibiotic susceptibility profile, which is the basis of the Microring® AN test scheme. Recently a new scheme has been developed in Japan, combining Microring® AN with a series of further tests, and facilitating the identification of many more anaerobes.

Anaerobic Gram-positive cocci are also often found in mixed infections. They are widely present as part of the normal flora of humans and animals, particularly on skin, and mucosal surfaces such as oropharynx, upper respiratory tract, gut, and urogenital tract. They are reported as having been recovered from the vagina of ninety per cent of pregnant women, and from sixty per cent of periodontal specimens.

Anaerobic Gram-positive cocci do not always stain correctly as Gram-positive. Some can appear as Gram-negative coccobacilli, and any of them can lose their positivity during the process of staining. For this reason other methods such as **Gram-Test** (testing for aminopeptidase), vancomycin susceptibility, and the KOH - Test (the "string test") may be required . Accurate identification requires access to gas chromatography, but presumptive identification is possible using a scheme such as that provided by Microrings® AN & AC.

Microring® GV

Simple and Accurate Identification of Gardnerella vaginalis



Tip	Reagent
MTZ	Metronidazole
TRM	Trimethoprim
STZ	Sulphathiazole
BIL	Bile Salt

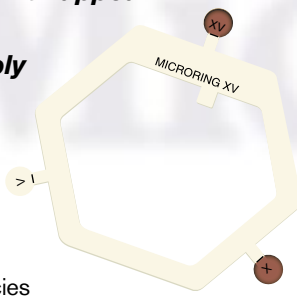
Microring® GV is an accurate, low cost identification system for *Gardnerella vaginalis* based on differential antibiotic susceptibility. Microrings® are unique filter paper rings, in this instance carrying four antibiotic impregnated tips. Each tip performs as a single identification disc because of an isolating hydrophobic barrier.

Microring® XV

Haemophilus speciation.

X, V, and XV factors plus a buit-in porphyrin test incorporated in one unique, easy to handle ring.

- ***Quick and easy to set up – one procedure allows the application of multiple tests***
- ***Simple to read – clear halos of growth appear around essential growth factors***
- ***Porphyrin synthesis detected simply using an ultraviolet lamp***
- ***Cost effective – less expensive than purchasing separate discs***
- ***No wastage and easier to reorder than individual tests***



Microring® XV differentiates Haemophilus species on the basis of growth requirements for haemin (X-factor) and nicotinamide adenine dinucleotide-NAD (V-factor). Microring® XV also features a porphyrin synthesis test for rapidly demonstrating X-factor requirement.

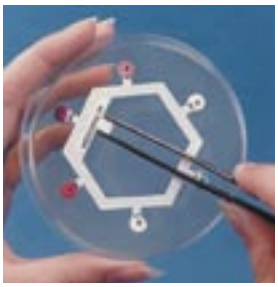
Each Microring® XV has 3 tips clearly labelled and impregnated as follows:

X	Haemin
V	NAD and ∂-aminolaevulinic acid
XV	Haemin and NAD

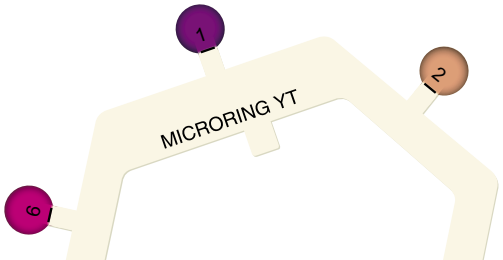
Microring® YT

Identification system for use with clinically important yeasts and especially Candida species.

Standard methods for yeast identification rely on fermentation and assimilation tests. Microring® YT uses the organism's profile of susceptibilities to a small range of reagents as the basis of identification.



The Microring® device carries 6 tips impregnated with a range of dyes and antimicrobial reagents. Each tip acts like an individual disc because of the isolating hydrophobic barrier. A Sabaraud Dextrose Agar Plate is inoculated with a suspension of the organism to be tested and the ring is placed on top. Following incubation for 24 or 48 hours the susceptibility profile can be recorded and compared against a table of the profiles of known organisms, allowing the organism to be identified.



Rapid Strip Tests™

Rapid Strip Tests™

Convenient, ready-to-use filter paper strips impregnated with reagents for a range of popular microbiological tests.

Beta-Test®

Detects ß-lactamase in bacteria including common pathogens such as *Staphylococcus aureus, Neisseria gonorrhoeae, Branhamella catarrhalis and Haemophilus influenzae*. Benzylpenilcillin in the test strip is hydrolysed by ß-lactamase, yielding penicilloic acid, and the reduced pH causes an indicator (bromocresol purple) to change to yellow. The test can be done as soon as there is visible growth on the primary culture plate.

- ***Result within 5 minutes!***

PRO-TEST®

Rapid test for the detection of Proteus and Helicobacter.

Proteus and Helicobacter species will rapidly hydrolyse urea. Each PRO-TEST® strip is impregnated with urea solution and the indicator phenol red. Urease breaks down urea releasing ammonia and carbon dioxide. Ammonia causes the pH to rise, resulting in the phenol red changing colour from yellow to pink-red.

PRO-TEST® can be used to rapidly identify Proteus species cultured from urine samples, leg ulcer swabs, or ear swabs, distinguishing them from other non-lactose fermenters such as *Salmonella*, *Shigella*, and *Pseudomonas*.

- ***Result within 2 minutes!***

PYO-TEST®

Rapid test for the identification of Oxidase positive organisms.

PYO-TEST® rapidly detects Cytochrome Oxidase produced by a number of bacteria, including *Pseudomonas*, *Neisseria* and *Campylobacter*. Each PYO-TEST® strip is impregnated with a colourless redox dye (tetramethyl-p-phenylenediamine dihydrochloride) and ascorbic acid. Oxidase positive bacteria rapidly convert the dye to indophenol blue (deep purple) in seconds. Ascorbic acid acts as a reducing agent to prevent the autooxidation which occurs with traditional liquids.

PYO-TEST® is thus a convenient ready-to-use oxidase test, without the daily requirement to prepare fresh reagent.

- ***Result within seconds!***

INDO-TEST®

Rapid test for the detection of indole positive organisms

INDO-TEST® is based on the indole spot test of Vracko and Sherris. Certain bacteria, most notably E. coli will break down tryptophan to produce indole, pyruvate and ammonia. The indole molecule is detected by its chemical reaction with p-dimethylamino-cinnamaldehyde (DMACA) impregnated in the test strip, which produces a distinct coloured compound. DMACA reagent is more sensitive than traditional Ehrlich's or Kovac's reagents, and allows more rapid detection of indole.

INDO-TEST® is a useful rapid test for E. coli isolated from urine samples. This organism accounts for up to 80% of urinary tract infections, and can be quickly confirmed using INDO-TEST®.

- ***Result within 30 seconds!***

GRAM-TEST®

Gram Test® with NO STAIN!!!

Detects aminopeptidase for rapid differentiation of Gram-positive from Gram negative organisms.

GRAM-TEST® provides rapid differentiation of Gram –positive and Gram-negative aerobes and facultative anaerobes. The test detects cell wall aminopeptidase present in Gram-negative organisms by using the chromogenic substrate L-aniline-4-nitroanilide (LANA). Each strip is impregnated with LANA (colourless), and the aminopeptidase hydrolyses LANA yielding bright yellow nitroaniline. Gram-positive organisms do not produce any colour change.

The technique is convenient, reliable and clean! It has been shown to work in the presence of non-cultivable organisms, allowing their Gram classification to be assigned.

- ***Result within 1 minute!***

AH TEST

Rapid and simple detection of aesculin hydrolysis

AH-TEST is a simple, inexpensive test for demonstrating aesculin hydrolysis performed on colonies taken directly from isolation plates. Results can be used to distinguish Lancefield Group D streptococcus from other streptococci.

The test works by demonstrating an organism's ability to hydrolyse the glycoside aesculin in the presence of bile. Material from a colony is simply smeared on the strip which is then incubated at 37°C. The strips contain aesculin, ferric citrate, and bile salts. The aesculin is hydrolysed to aesculetin and glucose, and the aesculetin reacts with the ferric citrate to form the visible dark brown or black complex which indicates a positive reaction. A result will be available within 4 hours, and a good positive may be seen after 1 hour.

- ***Result possible within 1 hour!***

Diagnostic Products

Coag-Test

Rapid screening for Staphyloccus aureus and Staphyloccus epidermis

Fresh lyophilised rabbit plasma for slide and tube coagulase tests

Clear results by slide or tube!

- ***High quality rabbit plasma***
- ***Result within 10 seconds for slide test***
- ***Avoids the risks associated with human plasma***
- ***Convenient pack of 5 vials (2ml) minimises wastage***
- ***Plasma is simply reconstituted with sterile distilled water***
- ***Batch tested against selected strains of coagulase positive and coagulase negative staphylococci***
- ***12 month shelf-life in lyophilised state***

The coagulase test remains the most widely used method for the rapid differentiation of colonies of *Staphyloccus aureus* and *Staphyloccus epidermis*. The test is done by tube for free coagulase, and by slide for bound coagulase. The tube test is regarded as definitive, while the slide test provides a convenient and rapid screening tool for the identification of *Staphyloccus aureus*.

Bactiuristrips

- ***Strips for Bacteriuria Quantitation***
- ***Simple to use***
- ***Standardised method***
- ***Low cost***
- ***No special storage***

There are many methods for the quantification of organisms in urine, ranging from simple cultural techniques to expensive automated apparatus. One of the most cost-effective and simple tests uses a sterile paper strip to pick up precise amounts of urine which are plated onto media to give a count after incubation which is related to the number of bacteria in the original sample.

The product consists of sterile strips of filter paper, 60cmm x 5mm, with a bend 15mm from the tip.

Methitest™

Methicillin Strips for the detection of MRSA

MRSA-screening has become one of the most frequently requested tests in clinical microbiology laboratories placing an increasing burden on laboratories. Methitest™ can help by simplifying the task of sensitivity testing of S. aureus isolates. One simple Methitest strip replaces a set of single discs, and allows all MRSA –screening to be carried out on dedicated sensitivity plates.

- ***Convenient single strip instead of discs***
- ***Easy to handle***
- ***Up to six test organisms per plate***
- ***Easy to read***

Description

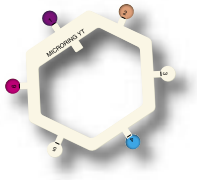
MW&E methicillin strips are 0.6 x 8cm long and contain 25mg per strip. This content is designed to give no zone with MRSA with a high MIC and a small zone, 10mm smaller than a control non-sensitive ß-lactamase producing *S. aureus*, with MRSA having minimum inhibitory concentration (MIC) just above the 4mg/ml break point recommended by the BSAC working party.

VIABANK™

For the long-term storage of microorganisms at low temperatures

VIABANK™ is a convenient, easy-to-use cryoprotection system for the storage of microorganisms. The culture to be preserved is added to the cryopreservative solution in the vial, thus coating the beads. The vial can be stored in a freezer, and when required, individual beads are removed and used to establish a fresh culture of the microorganism.

VIABANK™ vials contain a minimum of 25 glass beads of one colour immersed in cryopreservative. Each box contains either 80 vials of one colour, or 20 vials of each of 4 different colours. The boxes are stackable.



Microring® AC and AN

Microring® AC Code	Colour	Antibiotic	Amount
MZ	White	Metronidazole	5µg
SPS	Pink	Sodium Polyanethol Sulphonate	1mg
NO	Blue	Novobiocin	5µg

Microring® AN Code	Colour	Antibiotic	Amount
E	Red	Erythromycin	60µg
RP	Dark Red	Rifampicin	15µg
CO	White	Colistin	10µg
PG	Pink	Penicillin G	2 units
K	Salmon	Kanamycin	1000µg
VA	Blue	Vancomycin	5µg

Procedure

A suspension of the test organism is spread across the surface of a suitable anaerobic culture plate, allowed to dry, and then the appropriate Microring® is placed on the surface. The plate is incubated under anaerobic conditions at 37°C for 24 - 48 hours, after which the results can be read.

Interpretation

Measure zones of inhibition around each tip. Overall zone diameters of 15mm or greater are considered susceptible, while those less than 15mm are deemed resistant.

Microring® AC Identification

Species / Strain*	Metronidazole	Novobiocin	SPS	Indole	Volatile fatty acids
Peptococcus niger	S	R	R	-	B,C,iv,a
Peptostreptococcus asaccharolyticus (proposed names: *Peptoniphilus asaccharolyticus, Sclieferella asaccharolytica)*	S	R	R	+	B,(A,p,l)
Peptostreptococcus indolicus (proposed names: *Peptoniphilus indolicus, Sclieferella indolica*)	S	R	R	+	B,(A,p,l)
Peptostreptococcus magnus (proposed name: *Finegoldia magnus*)	S	R	R	-	A
Anaerococcus prevotii (formerly *Peptostreptococcus prevotii*)	S	R	R	-	B,A,(L),p
Peptostreptococcus anaerobius	S	S	S	-	IC,A,(iv,ib,b)
Peptostreptococcus micros (proposed name: *Micromonas micros*)	S	R	R	-	A(s)
Peptostreptococcus productus	S	S	R	-	A,l,s
Peptostreptococcus tetradius (proposed name: *Anaerococcus tetradius*)	S		R	-	L,B (a,p)
Atopobium parvulum (formerly *Streptococcus parvulus*)	S	S	R	-	L,a
Staphylococcus saccharolyticus	R/S	R	R	-	F/A
Other microaerophilic streptococci					
Streptococcus intermedius	R	S	R	-	L,a
Gemella morbillorum	R	S	R	-	L,a
Streptococcus constellatus	R	S	R	-	L,a

* The names of organisms, and identification profiles shown here are believed to be correct at the time of publication. Please note, however, that there have been many changes in recent years in the classification and nomenclature of anaerobic bacteria, and users are encouraged to refer to the latest relevant publications for further information.

Microring® AN Identification

Species / Strain*	E	RP	CO	PG	K	VA	Aesculin hydrolysis	Growth in bile	Indole	Other details
B.Fragilis	S^R	S	R^S	R	R	R	+	+	+	
Prevotella melaninogenicus	S	S	V	S	R^S	R	-	-	-	Black pigmented colonies with brick red fluorescence
Prevotella oralis	S	S	S	S	R	R	+	-	-	
B.ureolyticus	S	S	S	S	S	R	-	-	-	Oxidase positive
F.nucleatum	S	S	S	S	S	R	-	-	+	
F.necrophorum	S	S	S	S	S	R	-	-	+	Lipolytic on egg yolk agar
F.varium	R	R	S	S	S	R	-	+	+	
F.mortiferum	R	R	S	S	S	R	+	+	-	
Gram-negative cocci (Veillonella)	S	S	S	S	S	R				
Gram-positive cocci	S	S	R	S	S	S				

E = Erythromycin, RP = Rifampicin, CO = Colistin, PG = Penicillin, K = Kanamycin, VA = Vancomycin.

Microring® AN (GIFU Method)

Recently a new identification scheme has been developed in Japan for use with Microring AN

Prepare bacterial suspension as above, but adjust turbidity to between 1 and 3 McFarland. This ensures adequate visible growth within 48 hours.Using this inoculum, resistance and sensitivity are measured as follows:

Size of zone (mm)	≤10	11-14	≥15
Interpretation	Resistant R	Intermediate I	Sensitive S

Microring® AN Identification (GIFU)

Species / Strain*	E Erythromycin	RP Rifampicin	CO Colistin	PG Penicillin	K Kanamycin	VA Vancomycin
B.Fragilis	V	S	R	R	R	R
Prevotella melaninogenicus	S	S	V	S	R^S	R
Pigmented *Prevotella*						
Prevotella intermedia	S	S	S	V	R^{IS}	R
Other Pigmented *Prevotella*	S	S	S^R	S^R	R^I	R
Prevotella oralis	S	S	S	S	R	R
Non-pigmented *Prevotella*	S^{IR}	S	S	R^{IS}	R	R
Porphyromonas	S	S	R	S^R	R^S	V
B.ureolyticus	S^I	I^S	S	I^S	S	R
F.nucleatum F.necrophorum	R	S^I	V	S^R	S	R
F.varium F.mortiferum	R	R	S	S	S	R
Gram-negative *cocci (Vellionella)*	I/R	S	S	R	V	R
Campylobacter	S	R	S	R	S	R
B.wadsworthia	R	R	S	R	S	R
Desulfovibrio	S^R	R^S	R	R	S	R
C.clostridioforme	V	R^S	R	R	S^R	S
C.symbiosum	S/I	S	R	R	S	S
Anaerobiospirillum (isolate)	R	S	S	R	S	R
D.pneumosintes JCM10004T	I	I	R	R	S	R
S.wadsorthensis ATCC51579T	S	S	S	R	S	R
L.buccalis DCM1135T	R	S	S	R	S	R
C.ochracea DCM7272T	S	S	R	I	R	R

A flow chart detailing a range of further tests for confirmation of identifications is available at www.mwe.co.uk .

The names of organisms, and identification profiles shown here are believed to be correct at the time of publication. Please note, however, that there have been many changes in recent years in the classification and nomenclature of anaerobic bacteria, and users are encouraged to refer to the latest relevant publications for further information.

References Microring® AN

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2. Watanabe, K. & K. Tanaka , 2006, presentation at 19th Annual Meeting of Rapid Method Microbiology, Matsuyama
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References Microring® AC

1. Wren M.W.D., Eldon C.P. and Dakin G.H. (1977). *J. Clin. Path.* Vol. 30, 620-622.
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4. Kazue Ueno, Institute of Anaerobic Bacteriology, Gifu University School of Medicine, Gifu, Japan. Proceedings of the 2nd International Symposium on Anaerobes Tokyo, Japan. June 1985. 109-122.
5. Takayuki Ezaki, Naoki Yamamoto, Keiu Ninomiya, Schoichiro Suzuki, and Eiko Yabuuchi. (1983). *Int. J. Sys. Bact.* Vol. 33. No.4. 683-698.

Microring® GV Interpretation

	MTZ	TRM	STZ	BIL
Gardnerella vaginalis	S	S	R	S
Vaginal lactobacilli	R	R	V	R
Catalase negative Corynebacter	R	R	V	R

Microring® XV Interpretation

Species	Growth Factor Requirements		Synthesis of porphyrins from ALA	Haenikysis on Horse Blood
	X	V		
H. influenzae	+	+	-	-
H. aegypticus	+	+	-	-
H. parainfluenzae	-	+	+	-
H. haemolyticus	+	+	-	+
H. parahaemolyticus	-	+	+	+

Microring® YT

Example

Tip	1	2	3	4	5	6
Zone	+	+	+	+	+	+
Score	1	2	3	4	5	6
Code	123456					
Identity	C. tropicalis (ATCC 750)					

Bactiuristrips Interpretation

No. of colonies on test area	Probable significance
20 - 30 colonies	Positive, indicates probable bacteriuria
5 - 20 colonies	Inconclusive
< 5 colonies	Negative. No infection evident

Methitest™

Methicillin Strips for the detection of MRSA

Instructions for use

1. Inoculate a sensitivity plate with added 6.5% salt and a sensitivity agar plate without added salt, with a streak of the test organism sufficient to give a heavy growth. Repeat the process with up to 6 organisms per plate. Similarly inoculate a streak of the control sensitive and resistant *S. aureus* quoted above.
2. Place a methicillin strip (MW981) onto the plate at right angles to the inoculum streaks.
3. Incubate salt agar plates at 35°C and non-salt agar plates at 30°C overnight.
4. The plate is inspected and the inhibition of growth streaks are compared with the control sensitive and control resistant organisms. Growth of sensitive strains is significantly inhibited, zones of 15-25mm. Resistant strains show no, or only a small amount of inhibition, zones of 0-10mm.

Typical reading and interpretation

Strain	Distance across zone of inhibition	MIC mg/l
S. aureus NCTC 6571	20mm	0.25
S. aureus ß-lactamase	15mm	2
S. aureus	8mm	8
S. aureus NCTC 11940	0mm	128

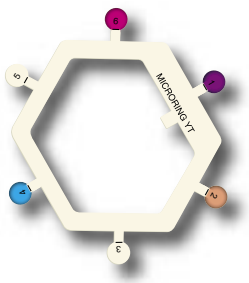
Order Details

Product	Description	Unit Size
MWAN	Microring® AN	50 rings
MWAC	Microring® AC	50 rings
MWGV	Microring® GV	50 rings
MWXV	Microring® XV	50 rings
MWYT	Microring® YT	50 rings
MW980	Beta Test	25 strips
MW985	Pro Test	25 strips
MW990	Pyo Test	25 strips
MW995	Indo Test	25 strips
MW991	Indo Test Supplement	1 x 5ml
MW983	AH Test	25 strips
MW993	Coag Test	5 x 2ml
MW984	Bactiuristrips	1000 strips
MW981	Methitest	50 strips
MWVIM	Viabank (Mixed)	80 vials
MWVIR	Viabank (Red)	80 vials
MWVIY	Viabank (Yellow)	80 vials
MWVIG	Viabank (Green)	80 vials
MWVIB	Viabank (Blue)	80 vials

ISO 9001 APPROVED

Reference

1. In Vitro Diagnostics Devices Directive (98/79/EC), 1998, Official Journal of European Communities, L331/1



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