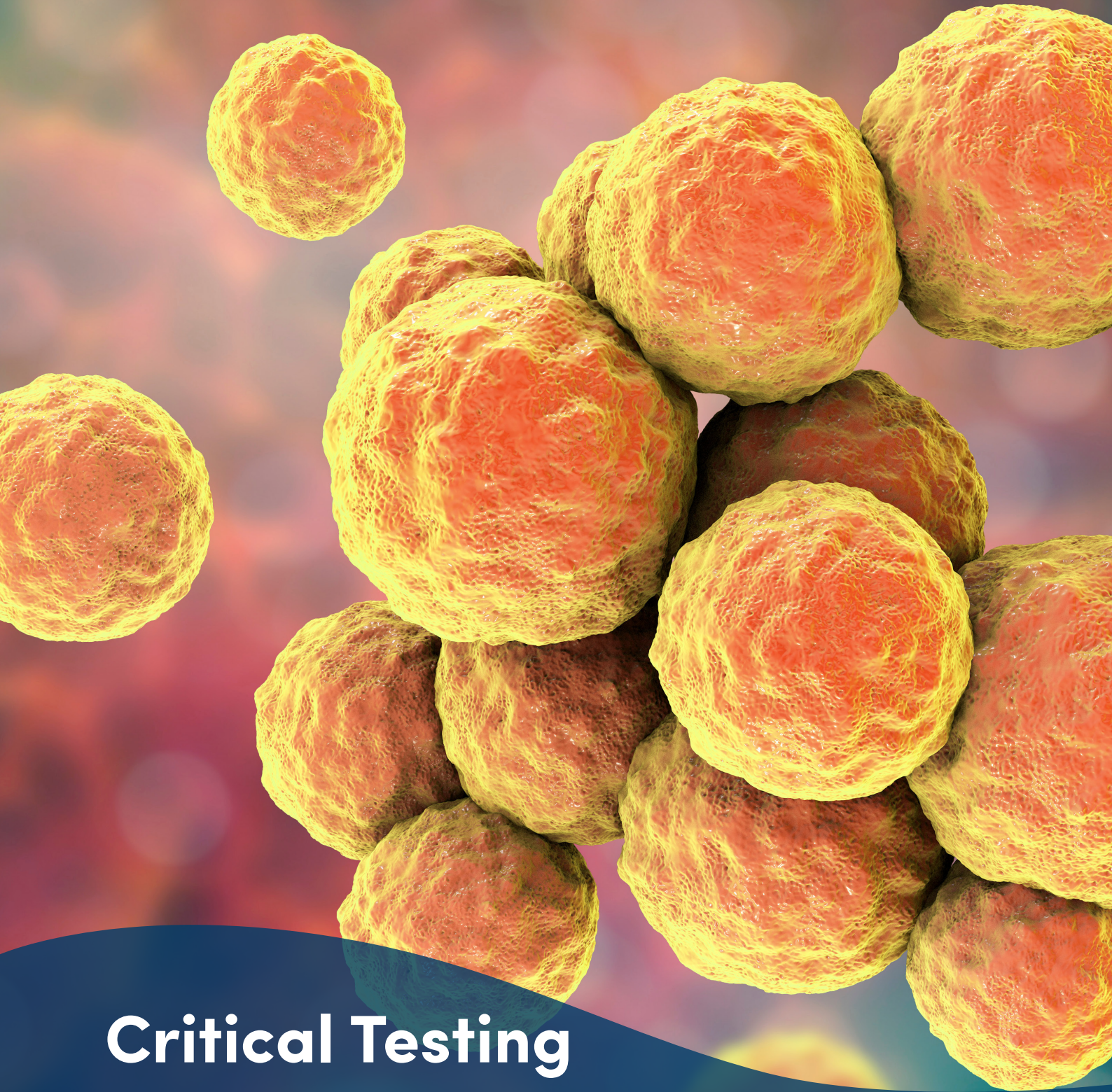


AusDiagnostics



**Critical Testing  
& Drug Resistance**



# TandemPlex®

TandemPlex® panels feature multiplex tandem PCR, or MT-PCR, a multiplexed molecular method that provides the added capability to detect multiple pathogens and antimicrobial resistance genes in one go, bringing great benefits for differential diagnosis. This is important in the global fight against antimicrobial resistance and improving antimicrobial stewardship.

Detecting and differentiating between multiple pathogens while identifying resistance genes is critical for determining the most appropriate medical interventions for best patient outcomes.

Multiplexed molecular methods are becoming the gold standard for drug resistance and critical testing due to their superior sensitivity, rapid turnaround time, simplicity, and ability to identify multiple pathogens, some of which are slow growing or difficult to culture.

## Benefits of TandemPlex® panels

- Detect up to 40 targets with a single panel
- High specificity for reliable results
- Separated 2-step process that allows parallel processing for greater efficiency
- Low amount of sample required so you can retain some for further analysis
- Low number of multiplexed amplification cycles which limits competition and preserves relative quantitation

 TandemPlex® panel compatible with Highplex instrument

 TandemPlex® panel compatible with Ultraplex 3 instrument

 8-well TandemPlex® panel

 12-well TandemPlex® panel

 16-well TandemPlex® panel

 24-well TandemPlex® panel

# Critical Testing & Drug Resistance Panels

## CRE & ESBL

A selection of clinically relevant panels that detect resistance markers of enterobacteriaceae which commonly cause infections within healthcare and community settings, as well as extended-spectrum betalactamases (ESBL).

Carbapenems are one of the few remaining antibiotics that can treat ESBL-producing germs, but resistance enzymes that destroy these antibiotics are on the rise.

### CRE 16-well REF 21098

#### β-lactamases

β-lactamase pan-CMY  
β-lactamase CTX-M group 1  
β-lactamase CTX-M group 9  
β-lactamase GES  
Metallo β-lactamase VIM  
Metallo β-lactamase IMP  
New Delhi Metallo-β-lactamases (NDM)  
OXA-23-like β-lactamase  
OXA-48-like β-lactamase  
OXA-51-like β-lactamase

#### Carbapenemases

SME carbapenemase  
Carbapenem-hydrolysing oxacillinase  
(blaOXA-58) gene OXA-58  
Klebsiella pneumoniae carbapenemase (KPC)

#### Other resistance markers

Bacteria 16S RNA  
Imipenemase resistance (IMI)

### CRE EU 16-well REF 21099

#### β-lactamases

β-lactamase FRI-1  
β-lactamase GES  
β-lactamase GIM  
β-lactamase SIM  
Metallo β-lactamase VIM  
Metallo β-lactamase IMP  
Metallo β-lactamase 8  
Metallo β-lactamase IMP-14a  
New Delhi Metallo-β-lactamase  
OXA-48-like β-lactamase

#### Carbapenemases

Klebsiella pneumoniae carbapenemase (KPC)  
SME carbapenemase

#### Other resistance markers

Colistin resistance (*mcr1*)  
Imipenemase resistance (IMI)

### CRE Reference 24-well, Universal REF 81099

#### β-lactamases

β-lactamase DIM  
β-lactamase FRI  
β-lactamase GES  
β-lactamase GIM  
β-lactamase PER  
β-lactamase SIM  
β-lactamase SPM  
β-lactamase VEB-1  
OXA-23 like β-lactamase  
OXA-24 like β-lactamase  
OXA-48 like β-lactamase  
OXA-51 like β-lactamase  
New Delhi Metallo-β-lactamases (NDM)  
Metallo β-lactamase pan-IMP  
Metallo β-lactamase IMP-8  
Metallo β-lactamase IMP-14  
Metallo β-lactamase VIM

#### Carbapenemases

Carbapenem-hydrolysing oxacillinase OXA-58  
Klebsiella pneumoniae carbapenemase (KPC)  
KPC mutation (D179Y)  
SME

#### Other resistance markers

Colistin resistance (*mcr1*)  
Imipenemase resistance (IMI)

## ESBL 16-well REF 21093

16  
well HP  
24

### β-lactamases

β-lactamase TEM  
β-lactamase SHV  
β-lactamase VEB-1  
β-lactamase CMY-1  
β-lactamase DHA-1  
β-lactamase pan-CMY  
β-lactamase CTX-M group 1  
β-lactamase CTX-M group 9  
OXA-1 like β-lactamase  
OXA-48 like β-lactamase  
Metallo β-lactamase VIM  
Metallo β-lactamase IMP  
Metallo β-lactamase IMP-14a  
New Delhi Metallo-β-lactamases (NDM)

### Carbapenemase

Klebsiella pneumoniae  
carbapenemase (KPC)

### Bacteria

Bacteria 16S RNA

## Gram Positive

A select panel of gram-positive uropathogens that are a common cause urinary tract infections (UTIs) and resistance markers.

## Staphylococcus & VRE 8-well REF 21340

8  
well HP  
24

### Bacteria

*Staphylococcus aureus*  
*Enterococcus faecium*  
*Enterococcus faecalis*

### Resistance genes

Methicillin resistance *mecA*  
Vancomycin resistance *vanA*  
Vancomycin resistance *vanB*  
*Staphylococcus aureus femA*

## Resistance Screening

A dedicated panel to detect antibiotic resistance markers associated with the most common pathogens responsible for urinary tract infections (UTIs).

## Resistance Screening 12-well (coming soon) REF 81091

12  
well HP  
24

### β-lactamases

β-lactamase CTX-M group 1  
β-lactamase CTX-M group 9  
OXA-48 like β-lactamase  
Metallo β-lactamase VIM  
Metallo β-lactamase IMP  
Metallo β-lactamase IMP-14a  
New Delhi Metallo β-lactamases (NDM)

### Carbapenemase

Klebsiella pneumoniae  
carbapenemase (KPC)

### Gram positive resistance markers

Vancomycin resistance *vanA*  
Vancomycin resistance *vanB*  
Methicillin-resistance *mecA*

### Critical fungal infection

*Candida auris* (ITS)

## UTI Resistance

Comprehensive panel of common and uncommon pathogens responsible for acute and chronic urinary tract infections (UTIs) and associated antibiotic resistance markers.

## UTI Resistance 24-well (coming soon) REF 81092

24  
well HP  
24 UP  
96

### β-lactamases

β-lactamases  
β-lactamase CTX-M group 1  
β-lactamase CTX-M group 9  
β-lactamase DHA-1  
β-lactamase pan-TEM  
OXA-23 like β-lactamase  
OXA-48 like β-lactamase  
Metallo β-lactamase VIM  
Metallo β-lactamase IMP  
Metallo β-lactamase IMP-8  
Metallo β-lactamase IMP-14a  
New Delhi Metallo β-lactamases (NDM)

### Carbapenemase

Klebsiella pneumoniae  
carbapenemase (KPC)

### Colistin resistance

Colistin resistance *mcr1*  
Colistin resistance *mcr9*

### Dihydrofolate reductase

Dihydrofolate reductase *dfrA1*  
Dihydrofolate reductase *dfrA5*  
Dihydrofolate reductase *dfrA12*  
Dihydrofolate reductase *dfrA17*

### Macrolide resistance

Macrolide resistance *ErmA*  
Macrolide resistance *ErmC*  
Macrolide resistance *Tn5398*

### Methicillin resistance

Methicillin resistance *mecA*

### Nitrofurantoin resistance

Nitrofurantoin resistance (*oqxA*)  
Nitrofurantoin resistance (*oqxB*)

### Quinolone resistance

Quinolone resistance *aac6'-Ib*  
Quinolone and fluoroquinolone  
resistance *QnrA*  
Quinolone and fluoroquinolone  
resistance *QnrS*  
Quinolone and fluoroquinolone  
resistance *QnrB*

### Sulfonamide resistance

Sulfonamide resistance *SulI*

### Vancomycin resistance

Vancomycin resistance *vanA*  
Vancomycin resistance *vanB*

## Urinary & Resistance

6 targets for major STIs, 3 targets for conditionally pathogenic flora, and 3 resistance genes.

## Urinary & Resistance 12-well (coming soon) REF 87213

12  
well HP  
24

### Major STI

*Chlamydia trachomatis*  
*Chlamydia trachomatis* LGV  
*Neisseria gonorrhoeae opaJ*  
*Neisseria gonorrhoeae opaH*  
*Trichomonas vaginalis*  
*Mycoplasma genitalium*

### Resistance genes

*M. genitalium parC*  
fluoroquinolone resistance  
*M. genitalium* 23S macrolide  
resistance  
*N. gonorrhoeae* ceftriaxone  
resistance mosaic *penA*

### Conditionally pathogenic flora

*Mycoplasma hominis*  
*Ureaplasma parvum*  
*Ureaplasma urealyticum*

# Encephalitis & Meningitis, Herpes Panels

Analysis of cerebral spinal fluid (CSF) is crucial for the diagnosis and management of central nervous system (CNS) infection. Molecular methods for the detection and identification of bacterial pathogens have recognised value for patients with clinical symptoms consistent with bacterial CNS infection.

Tests that target bacteria that most commonly infect the CNS such as *haemophilus influenzae*, *streptococcus pneumoniae*, *neisseria meningitis*, *listeria monocytogenes* or *escherichia coli* are recommended. PCR has also become the standard for detecting viruses associated with aseptic meningitis or encephalitis.

Depending on the age and immune status of the patient, many different viruses can cause infection. These include herpes simplex virus (HSV), Varicella zoster virus (VZV), cytomegalovirus (CMV), Human herpesvirus 6 (HHV-6), Epstein-Barr virus (EBV), enterovirus (EV), and human parechovirus (HPeV)

## Viral Infections

Detect and distinguish viral infections.

### Viral 12-well REF 27095

#### Herpes virus

HSV-1 (Human herpesvirus 1)  
HSV-2 (Human herpesvirus 2)  
VZV (Human herpesvirus 3)  
EBV (Human Herpesvirus 4)  
CMV (Human herpes Virus 5)  
HHV-6 (Human herpes Virus 6)  
HHV-7 (Human herpes Virus 7)

#### Other viruses

Adenovirus group B, C, and E  
Enterovirus  
Parechovirus types 1-8

12  
HP  
24

### Viral 8-well REF 27093

#### Herpes virus

HSV 1 (Human herpesvirus 1)  
HSV 2 (Human herpesvirus 2)  
VZV (Human herpesvirus 3)

#### Other viruses

Enterovirus  
Adenovirus group B, C, and E

8  
HP  
24

### HEA 8-well REF 27091

#### Herpes virus

HSV 1 (Human herpesvirus 1)  
HSV 2 (Human herpesvirus 2)  
VZV (Human herpesvirus 3)  
CMV (Human herpesvirus 5)

#### Other viruses

Enterovirus  
Adenovirus group B, C, and E

8  
HP  
24

## Comprehensive testing

Detect and distinguish a comprehensive range of viral and bacterial infections.

### CSF 16-well REF 27050

#### Bacteria

*Neisseria meningitidis* (2 assays)  
*Streptococcus pneumoniae*  
*Listeria monocytogenes* (LMO)  
*Leptospira interrogans*  
*Mycobacterium tuberculosis*  
complex (MTB)  
*Cryptococcus neoformans*

#### Viruses

Enterovirus  
Haemophilus influenzae  
HSV-1 (Human herpesvirus 1)  
HSV-2 (Human herpesvirus 2)  
VZV (Human herpesvirus 3)  
EBV (Human herpesvirus 4)  
Parechovirus

16  
HP  
24

## Sample Results

Presence of a target gene is represented by the fluorescence detected during the MT-PCR process.

These results (Figure 1) are also presented as MELT curves and gene targets detected in the sample are automatically called for clear diagnosis.

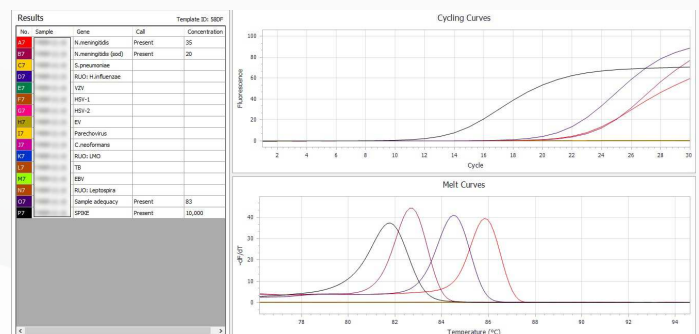
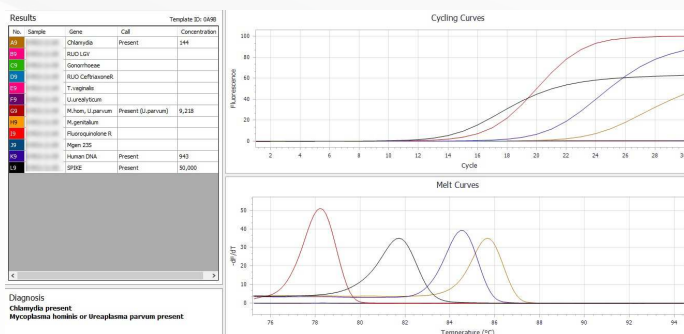


Figure 1: Sample results for Urinogenital & Resistance 12-well Panel (REF 87123)

Figure 2: Sample results for CSF 16-well Panel (REF 27050)

# Automation

Diagnostic testing using TandemPlex® panels is effortless with automation solutions for any workflow, ranging from low and versatile throughput to high throughput and screening applications.

## Highplex Alliance™

### Low-medium throughput

MT-Prep™ 24 sample purification with Highplex MT-PCR processing

- Sample to results from up to 24 samples<sup>1</sup> in 4 hrs 30 mins  
Extraction: 35 – 55 mins<sup>2</sup> | MT-PCR: 3 hrs 30 mins
- Quick and easy setup in less than 2 mins
- Ready-to-use reagents and key plastic consumables
- Small footprint – requires less than 2m of bench space
- UV deck sterilisation to prevent cross contamination
- Automatic results calling
- LIMS compatible



<sup>1</sup> 8-well, 12-well and 16-well TandemPlex® panels can run up to 24 samples; 24-well panels up to 16 samples.

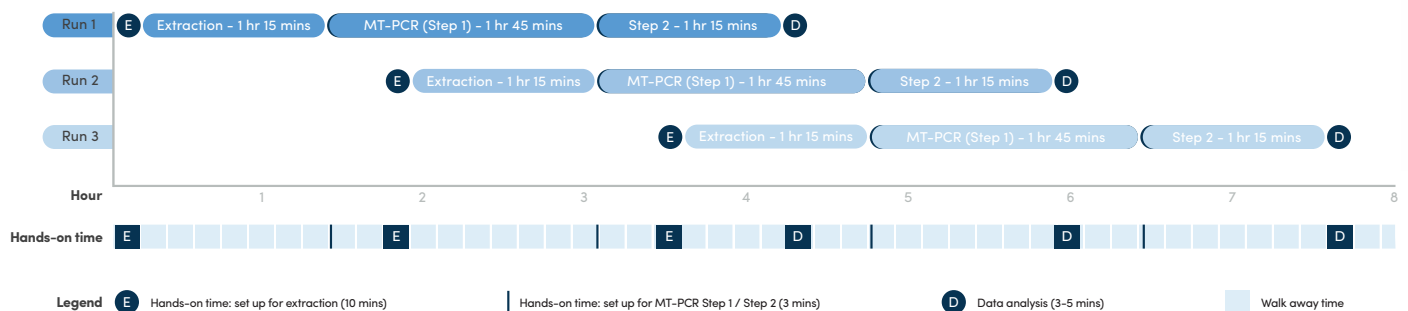
<sup>2</sup> using MT-Prep™ Viral/Pathogen Nucleic Acids Extraction Kit B. 35-minute rapid protocol, 55-minute standard protocol for up to 24 samples.

## Ultrplex Alliance™

### High throughput

MT-Prep™ XL sample purification with Ultrplex 3 MT-PCR processing

- Sample to results from up to 96 primary samples<sup>3</sup> in 4 hrs 15 mins  
Extraction: 1 hr 15 mins<sup>4</sup> | MT-PCR: 3 hrs 30 mins
- Set up in as little as 2 mins
- Ready-to-use reagents and key plastic consumables
- Multi-channel pipetting for efficient processing
- Use with universal TandemPlex® panels
- Automatic results calling
- LIMS compatible



<sup>3</sup> 8-well and 12-well TandemPlex® panels can run up to 96 samples; 24-well panels up to 48 samples.

<sup>4</sup> Sample purification using Puryx® Comprehensive DNA/RNA Extraction kit.

# Ordering information

Each TandemPlex® panel requires the following to run:

1. Step 1 Tubes (e.g. 81092S)
2. Step 2 Plates (e.g. 81092P)
3. Reagent Cassette for Highplex or Reagent Reservoir for Ultraplex instruments
4. Synthetic positive controls



Learn more

## Key reagents

xxxxxS	Step 1 Tubes for the relevant panel	HP 24	UP 96
xxxxxP	Step 2 Plates for the relevant panel	HP 24	UP 96
40231	Low DNA Reagent Cassette <sup>1</sup>	HP 24	
40241	Demi DNA Reagent Cassette <sup>1</sup>	HP 24	
40331	Low RNA Reagent Cassette <sup>1</sup>	HP 24	
40341	Demi RNA Reagent Cassette <sup>1</sup>	HP 24	
40421	Medium DNA Reagent Reservoir <sup>2</sup>	UP 96	
40431	Low DNA Reagent Reservoir <sup>2</sup>	UP 96	
40521	Medium RNA Reagent Reservoir <sup>2</sup>	UP 96	
40531	Low RNA Reagent Reservoir <sup>2</sup>	UP 96	
91151	Synthetic Positive Controls for Bacteria & Bacterial Resistance	HP 24	UP 96
91021	Synthetic Positive Controls for STDs and Herpes	HP 24	UP 96
91081	Synthetic Positive Control for CSF	HP 24	
<b>Highplex Alliance™</b>		HP 24	
93100	MT-Prep™ 24		
90501	Highplex		
<b>Ultraplex Alliance™</b>			UP 96
93600	MT-Prep™ XL		
94601	Ultraplex 3		

<sup>1</sup> For Highplex: Demi Reagent Cassettes are for 8-well panels; Low for 12-well, 16-well, and 24-well

<sup>2</sup> For Ultraplex 3: Low Reagent Reservoirs are for 8-well universal panels; Medium for 12-well and 24-well

Ordering information on consumables for the Highplex Alliance™ and Ultraplex Alliance™ is available from your local AusDiagnostics representative.

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