

# Urinary Tract Infections

# 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 an era of syndromic diagnosis when patients often present with symptoms that are analogous in viral and bacterial infections.

Having the ability to detect and differentiate between multiple pathogens and simultaneously identifying the optimal treatment plan is critical for deciding medical interventions for best patient outcomes.

Multiplexed molecular methods are becoming the gold standard for the detection of urinary tract infections (UTIs) 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

# Urinary Tract Infections TandemPlex® Panels

## Urinary Tract Infections

Comprehensive detection of pathogens associated with urinary tract infections.

### Urinary Tract Infection 16-well REF 22421 (RUO)



#### Bacteria

*Acinetobacter baumannii*  
*Citrobacter freundii*  
*Enterobacter cloacae* complex  
*Enterococcus faecalis*  
*Escherichia coli*  
*Klebsiella pneumoniae*  
*Morganella morganii*  
*Proteus mirabilis*  
*Pseudomonas aeruginosa*  
*Staphylococcus aureus*  
*Staphylococcus saprophyticus*  
*Streptococcus agalactiae*

#### Yeasts

*Candida glabrata*  
*Candida albicans*

#### Resistance genes

*Staphylococcus aureus femA*  
*Staphylococcus aureus mecA*

### UTI 24-well, Universal REF 82422 (RUO)



#### Bacteria

*Acinetobacter baumannii*  
*Actinotignum schaalii*  
*Aerococcus urinae*  
*Citrobacter freundii*  
*Citrobacter koseri*  
*Corynebacterium urealyticum*  
*Enterobacter cloacae* complex  
*Enterococcus faecalis*  
*Escherichia coli*  
*Klebsiella pneumoniae*  
*Morganella morganii*  
*Mycoplasma hominis*  
*Proteus mirabilis*  
*Pseudomonas aeruginosa*

*Serratia marcescens*  
*Staphylococcus aureus*  
*Staphylococcus epidermidis*  
*Staphylococcus saprophyticus*  
*Streptococcus agalactiae*  
*Streptococcus pyogenes*  
*Ureaplasma urealyticum*

#### Yeasts

*Candida albicans*  
*Candida glabrata*  
*Candida tropicalis*



TandemPlex® panel compatible with Highplex instrument



TandemPlex® panel compatible with Ultralex 3 instrument



8-well TandemPlex® panel



12-well TandemPlex® panel



16-well TandemPlex® panel



24-well TandemPlex® panel

## UTI Resistance

The widest panel for the detection of a broad range of common pathogens that cause respiratory infection.

### UTI Antibiotic Resistance 16-well REF 22422 (RUO)



#### β-lactamases

β-lactamase DHA-1  
β-lactamase pan-TEM  
OXA-48 like β-lactamase

#### Carbapenemase

Klebsiella pneumoniae  
carbapenemase (KPC)

#### Dihydrofolate reductase

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

#### Macrolide resistance

Macrolide resistance *ErmA*  
Macrolide resistance *ErmB* (*Tn5398*)  
Macrolide resistance *ErmC*

#### Quinolone resistance

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

#### Sulfonamide resistance

Sulfonamide resistance *SulI*

#### Vancomycin resistance

Vancomycin resistance *vanA*  
Vancomycin resistance *vanB*

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



#### 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)

#### Dihydrofolate reductase

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

#### Colistin resistance

Colistin resistance *mcr1*  
Colistin resistance *mcr9*

#### Macrolide resistance

Macrolide resistance *ErmA*  
Macrolide resistance *ErmB* (*Tn5398*)  
Macrolide resistance *ErmC*

#### 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 *QnrB*  
Quinolone and fluoroquinolone  
resistance *QnrS*

#### Sulfonamide resistance

Sulfonamide resistance *SulI*

#### Vancomycin resistance

Vancomycin resistance *vanA*  
Vancomycin resistance *vanB*

### Staphylococcus & VRE 8-well REF 21340



#### Bacteria

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

#### Resistance genes

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

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



#### 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)

#### Yeast

*Candida auris* (ITS)

#### Resistance genes

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

#### Carbapenemase

*Klebsiella pneumoniae*  
carbapenemase (KPC)

# 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.

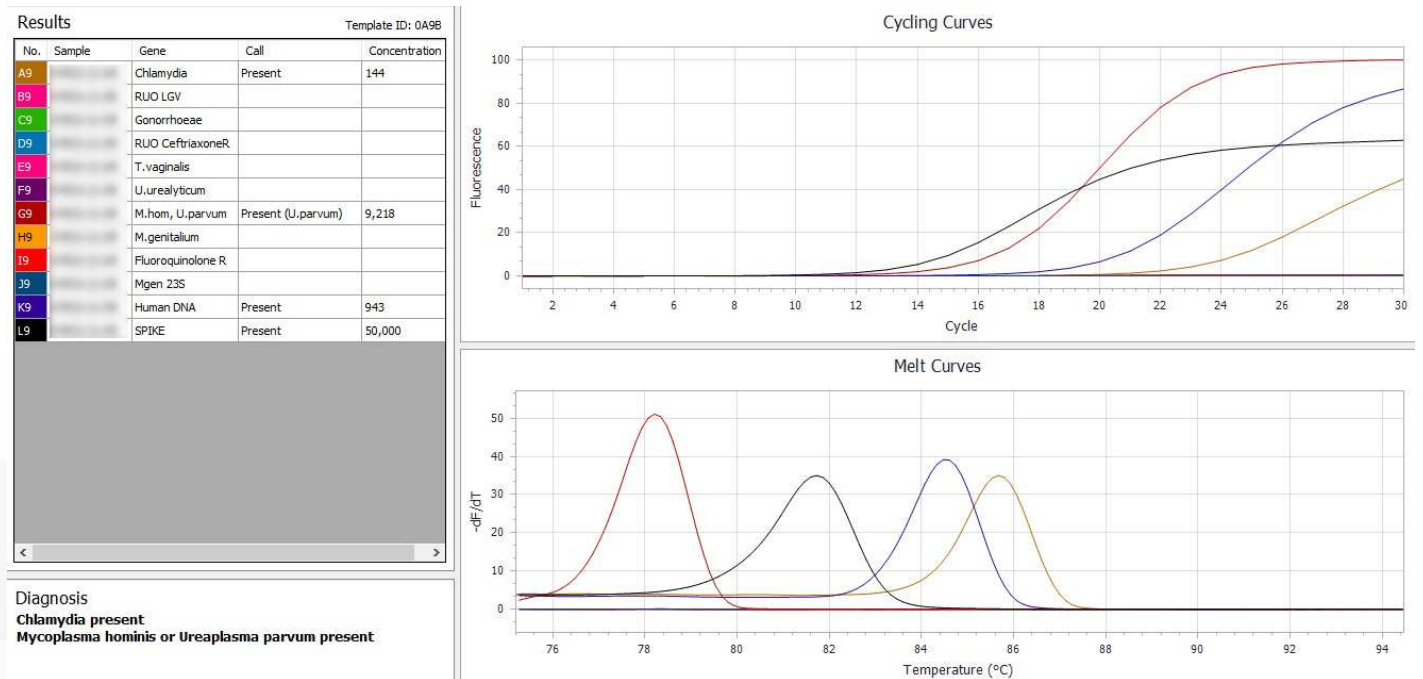


Figure 1: Sample results for UTI 16-well panel (REF 22421)

# 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.

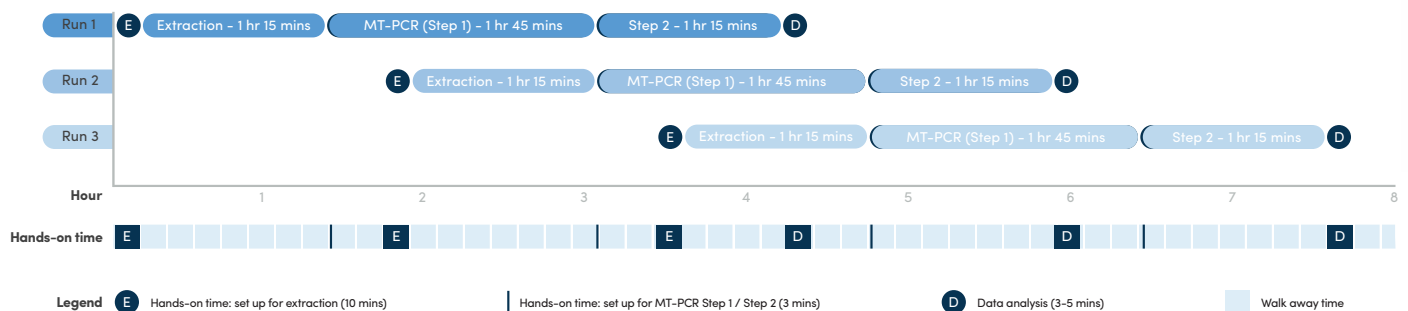
<sup>2</sup> using MT-Prep™ Viral/Pathogen Nucleic Acids Extraction Kit B. 35-minute rapid protocol, 55-minute standard protocol for up to 24 samples.

## 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. 80617S)
2. Step 2 Plates (e.g. 80617P)
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 <sub>24</sub>	UP <sub>96</sub>
xxxxxP	Step 2 Plates for the relevant panel	HP <sub>24</sub>	UP <sub>96</sub>
40231	Low DNA Reagent Cassette <sup>1</sup>	HP <sub>24</sub>	
40241	Demi DNA Reagent Cassette <sup>1</sup>	HP <sub>24</sub>	
40331	Low RNA Reagent Cassette <sup>1</sup>	HP <sub>24</sub>	
40341	Demi RNA Reagent Cassette <sup>1</sup>	HP <sub>24</sub>	
40421	Medium DNA Reagent Reservoir <sup>2</sup>	UP <sub>96</sub>	
40431	Low DNA Reagent Reservoir <sup>2</sup>	UP <sub>96</sub>	
40521	Medium RNA Reagent Reservoir <sup>2</sup>	UP <sub>96</sub>	
40531	Low RNA Reagent Reservoir <sup>2</sup>	UP <sub>96</sub>	
91151	Synthetic Positive Controls for Bacteria and Bacterial Resistance	HP <sub>24</sub>	UP <sub>96</sub>
<b>Highplex Alliance™</b>		HP <sub>24</sub>	
93100	MT-Prep™ 24		
90501	Highplex		
<b>Ultraplex Alliance™</b>			UP <sub>96</sub>
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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