

MOLECULAR BIOLOGY TEST LIST

Published July 2025



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Respiratory Multiplex PCR panels



Panel and Pathogens	Mnemonic	Specimen type	Turnaround time*
STAT respiratory panel **			
Viruses: Influenza A (subtyped), influenza B, RSV A&B, adenovirus, metapneumovirus, parainfluenza 1–4, rhino/enterovirus, coronavirus (229E, NL63, OC43, HKU1), SARS-CoV-2 Bacteria: <i>B. pertussis</i> , <i>B. parapertussis</i> , <i>C. pneumoniae</i> , <i>M. pneumoniae</i>	RESPPCR	Nasopharyngeal swab, nasopharyngeal aspirate, nasal mid-turbinate swab, throat swab, sputum, bronchoalveolar lavage, tracheal aspirate	6 hours
Comprehensive respiratory pathogen panel			
Viruses: Influenza A (subtyped), influenza B, RSV A&B, adenovirus, metapneumovirus, parainfluenza viruses, rhinovirus, enterovirus, coronavirus (229E, NL63, OC43, HKU1), SARS-CoV-2 Bacteria: <i>C. pneumoniae</i> , <i>M. pneumoniae</i> , <i>Legionella</i> species, <i>B. pertussis</i> , <i>B. parapertussis</i>	RPCOMPCR	Nasopharyngeal swab, nasopharyngeal aspirate, nasal mid-turbinate swab, throat swab, sputum, bronchoalveolar lavage, tracheal aspirate	24 hours
Core respiratory viral panel			
Viruses: SARS-CoV-2, influenza A (not subtyped), influenza B, RSV A&B, adenovirus, metapneumovirus, parainfluenza viruses, rhinovirus	RVCORPCR	Nasopharyngeal swab, nasopharyngeal aspirate, nasal mid-turbinate swab, throat swab, sputum, bronchoalveolar lavage, tracheal aspirate	24 hours
SARS-CoV-2, Influenza A and B, RSV multiplex panel			
Viruses: SARS-CoV-2, influenza A&B, RSV A&B	COVTRIPCR	Nasopharyngeal swab, nasopharyngeal aspirate, nasal mid-turbinate swab, throat swab, sputum, bronchoalveolar lavage, tracheal aspirate	6 hours
Biofire Filmarray Pneumonia plus panel***			
Viruses: Influenza A&B, parainfluenza virus, RSV A&B, MERS-CoV coronavirus (229E, NL63, OC43, HKU1), rhino/enterovirus, metapneumovirus and adenovirus This assay does not include SARS-CoV-2. Bacteria (semi-quantified): <i>E. coli</i> , <i>A. baumannii</i> complex, <i>E. cloacae</i> complex, <i>K. aerogenes</i> , <i>K. oxytoca</i> , <i>K. pneumoniae</i> group, <i>M. catarrhalis</i> , <i>Proteus</i> species, <i>P. aeruginosa</i> , <i>S. marcescens</i> , <i>S. aureus</i> , <i>S. agalactiae</i> , <i>S. pyogenes</i> , <i>S. pneumoniae</i> , <i>H. influenzae</i> Atypical bacteria: <i>C. pneumoniae</i> , <i>M. pneumoniae</i> , <i>Legionella pneumophila</i> Antimicrobial resistance genes: NDM, KPC, IMP, OXA-48, VIM, CTX-M, MecA/C, MREJ	PNEUMOPCR	Sputum, tracheal aspirate, bronchoalveolar lavage	6 hours
Atypical pneumonia multiplex PCR			
Bacteria: <i>M. pneumoniae</i> , <i>L. pneumophila</i> , <i>C. pneumoniae</i> , <i>C. psittaci</i>	BACPMPCR	Sputum, tracheal aspirate, bronchoalveolar lavage Nasopharyngeal swabs, throat swabs and pleural fluid also accepted but have lower sensitivity. A negative result on these specimens does not exclude the infection.	24 hours

*Once received in the laboratory.

**For the rapid diagnosis of respiratory viral and atypical pathogens.

Only reimbursed by medical aid on admitted patients.

***For the rapid detection of the causative pathogen in cases of severe community, hospital and ventilator acquired pneumonia.

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Targeted respiratory pathogen and Mycobacterial PCR panels



Panel and Pathogens	Mnemonic	Specimen type	Turnaround time*
Aspergillus PCR	ASPPCR	Blood (EDTA) bronchoalveolar lavage, sputum	24 hours
Pneumocystis jirovecii PCR	PJPCR	Sputum, tracheal aspirate, bronchoalveolar lavage. Nasopharyngeal swabs/aspirates, and throat swab also accepted but have lower sensitivity. A negative result on these specimens does not exclude the infection.	24 hours
Legionella species PCR	LEGPCR	Sputum, tracheal aspirate, bronchoalveolar lavage. Nasopharyngeal swab/aspirates, throat swab and pleural fluid also accepted but have lower sensitivity. A negative result on these specimens does not exclude the infection.	24 hours
Mycoplasma pneumoniae PCR	MYCPCR	Sputum, tracheal aspirate, tissue, bronchoalveolar lavage, CSF. Nasopharyngeal swab/aspirates, throat swabs also accepted but have lower sensitivity. A negative result on these specimens does not exclude the infection.	24 hours
Chlamydia psittaci PCR	CPNPCR	Sputum, tracheal aspirate, bronchoalveolar lavage. Nasopharyngeal swab/aspirates, throat swabs also accepted but have lower sensitivity. A negative result on these specimens does not exclude the infection.	24 hours
Bordetella pertussis and parapertussis PCR Bacteria: <i>B. pertussis</i> , <i>B. parapertussis</i> , <i>B. holmesii</i>	BPPCR	Sputum, tracheal aspirate, bronchoalveolar lavage Nasopharyngeal swab/aspirate, throat swab, sputum, tracheal aspirate, bronchoalveolar lavage, pleural fluid, tissue.	24 hours
SARS-CoV-2 PCR	COVID19PCR	Nasopharyngeal swab, nasopharyngeal aspirate, nasal mid-turbinate swab, throat swab, sputum, bronchoalveolar lavage, tracheal aspirate	24 hours
Mycobacterial tests			
Mycobacterium tuberculosis Both rifampicin and isoniazid genotypic susceptibility determined NOTE: Second line genotypic susceptibility testing of fluoroquinolones and aminoglycosides will be performed if rifampicin or isoniazid resistance is detected	TBPCR	Bronchoalveolar lavage, CSF, sputum, tracheal aspirate, pleural fluid, pericardial fluid, synovial fluid, fluid, pus, pus swab, slides, tissue, fixed tissue, urine, bone marrow, gastric juice, stool	48 hours
Mycobacterium species PCR Detects <i>Mycobacterium</i> species directly from clinical specimens and identifies the 12 most commonly detected non-tuberculous <i>Mycobacteria</i> to species level Species identified: <i>M. avium</i> complex, <i>M. abscessus</i> complex, <i>M. kansasii</i> , <i>M. tuberculosis</i> complex, <i>M. chelonae</i> , <i>M. fortuitum</i> group, <i>M. gordonae</i> , <i>M. interjectum</i> , <i>M. szulgai</i> , <i>M. intracellulare</i> / <i>M. scrofulaceum</i> / <i>M. malmoense</i> , <i>M. marinum</i> / <i>M. ulcerans</i>	MOTTPCR	Bronchoalveolar lavage, CSF, sputum, tracheal aspirate, pleural fluid, pericardial fluid, synovial fluid, fluid, pus, slides, tissue, fixed tissue, bone marrow	72 hours
TB GeneXpert <i>Mycobacterium tuberculosis</i> and genotypic rifampicin susceptibility	TBXPRT	CSF, Sputum, Bronchoalveolar lavage, tracheal aspirate	24 hours

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Gastrointestinal multiplex PCR panels



Panel and Pathogens	Mnemonic	Specimen type	Turnaround time*
EntericBio multiplex PCR <i>Salmonella</i> species, <i>Shigella</i> species, <i>Campylobacter</i> species, Shiga toxin, <i>Cryptosporidium</i> species, <i>Giardia lamblia</i>	ENTERICPCR	Stool	24 hours
STAT gastrointestinal panel** Viruses: Adenovirus, astrovirus, norovirus G1/G2, rotavirus, sapovirus Bacteria: <i>Campylobacter</i> , <i>Clostridioides difficile</i> toxin A/B, <i>Plesiomonas shigelloides</i> , <i>Salmonella</i> , <i>Vibrio</i> spp., <i>Vibrio cholerae</i> , <i>Yersinia enterocolitica</i> , Enteroaggregative <i>E. coli</i> , Enteropathogenic <i>E. coli</i> , Enterotoxigenic <i>E. coli</i> , Shiga-like toxin-producing <i>E. coli</i> / <i>E. coli</i> O157, <i>Shigella</i> /Enteroinvasive <i>E. coli</i> Parasites: <i>Cryptosporidium</i> , <i>Cyclospora cayetanensis</i> , <i>Entamoeba histolytica</i> , <i>Giardia lamblia</i>	GASTROPCR	Stool	6 hours
Viral gastro multiplex PCR Viruses: Rotavirus, norovirus 1/2, astrovirus, adenovirus, sapovirus	GASTROPCR	Stool, rectal swab, vomitus, tissue	24 hours
<i>Clostridioides difficile</i> PCR	CDPCR	Stool, rectal swab, tissue	6 hours
Stool parasite multiplex PCR Parasites: <i>Entamoeba histolytica</i> , <i>Giardia lamblia</i> , <i>Cryptosporidium</i> species	GASTROPPCR	Stool, rectal swab, tissue	24 hours

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Cerebrospinal fluid (meningitis/encephalitis) PCR panels



Panel and Pathogens	Mnemonic	Specimen type	Turnaround time*
STAT meningitis/encephalitis panel** Bacteria: <i>Escherichia coli</i> K1, <i>Haemophilus influenzae</i> , <i>Listeria monocytogenes</i> , <i>Neisseria meningitidis</i> , <i>Streptococcus agalactiae</i> , <i>Streptococcus pneumoniae</i> Viruses: Cytomegalovirus, enterovirus (EV), herpes simplex virus 1 (HSV-1), herpes simplex virus 2 (HSV-2), human herpesvirus 6 (HHV-6), human parechovirus (HPeV), varicella zoster virus (VZV) Fungi: <i>Cryptococcus</i> (<i>C. neoformans</i> / <i>C. gattii</i>)	CSFPCR	CSF	6 hours
Viral meningitis PCR Viruses: HSV-1, HSV-2, VZV, adenovirus, enterovirus, mumps, parechovirus	VMPCR	CSF, stool, lesion swab, vesicle fluid, blood, eye fluid	24 hours
Neonatal bacterial meningitis PCR panel 1 (0-4 weeks old) Bacteria: <i>E. coli</i> , <i>Listeria monocytogenes</i> , Group B <i>Streptococcus</i> (<i>S. agalactiae</i>)	BMENPCR1	CSF, brain biopsy	24 hours
Bacterial meningitis panel 2 (>23 months old) Bacteria: <i>H. influenzae</i> , <i>S. pneumoniae</i> , <i>N. meningitidis</i>	BMENPCR2	CSF, brain biopsy	24 hours
Bacterial meningitis panel 3 (>4 weeks – 23 months old) Bacteria: <i>Escherichia coli</i> , <i>Listeria monocytogenes</i> , <i>Streptococcus agalactiae</i> , <i>Streptococcus pneumoniae</i> , <i>Neisseria meningitidis</i> , <i>Haemophilus influenzae</i>	BMENPCR3	CSF, brain biopsy	24 hours

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HIV diagnosis and monitoring. HIV resistance testing and other sexually transmitted infections



Pathogen(s)	Mnemonic	Specimen type	Turnaround time*
HIV tests			
HIV PCR	HIVPCR	Blood (EDTA), semen wash, breast milk	48 hours
HIV viral load	HIVVL	Blood (EDTA), CSF, semen wash, breast milk	24 hours
HIV drug resistance Routine test: Reverse transcriptase, protease and integrase inhibitors tested as routine Note: A recent (1 month old) HIVVL of >1000 copies/mL is required	HIVDR	Blood (EDTA)	7 working days
HIV drug resistance testing Integrase inhibitor only Note: A recent (1 month old) HIVVL of >1000 copies/mL is required	HIVDRINT	Blood (EDTA)	7 working days
HIV co-receptor tropism (CCR5/ CXCR4 testing)	HIVTROP	Blood (EDTA)	7 working days
Sexually transmitted diseases multiplex panels			
Please note: all swabs submitted for PCR testing must be dry swabs, not in gel medium.			
Bacterial vaginosis PCR Bacterial vaginosis, <i>Candida</i> group (azole sensitive), <i>C. krusei</i> , <i>C. glabrata</i> , <i>Trichomonas vaginalis</i>	BVPCR	Vaginal swab	48 hours
Human papillomavirus DNA PCR HPV 16, HPV 18, other high risk HPV types (including HPV 45)	HPV	Liquid based cytology, cervical swab, anal swab, vaginal swab, no penile swabs	48 hours
Genital ulcer PCR Cytomegalovirus, herpes simplex type 1 and 2, varicella zoster virus, <i>Chlamydia trachomatis</i> serovar L, <i>Haemophilus ducreyi</i> , <i>Treponema pallidum</i>	GENULPCR	Genital ulcer swab, bubo aspirate, rectal swab	48 hours
STD/Infertility screen PCR <i>Neisseria gonorrhoeae</i> , <i>Chlamydia trachomatis</i> , <i>Trichomonas vaginalis</i> , <i>Mycoplasma genitalium</i> , <i>Mycoplasma hominis</i> , <i>Ureaplasma parvum</i> , <i>Ureaplasma urealyticum</i>	STDPCR	Genital swab, throat swab, eye swab, nasopharyngeal swab, nasopharyngeal aspirate, tissue, liquid based cytology, urine, semen	48 hours

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Targeted viral panels



Pathogen(s)	Mnemonic	Specimen type	Turnaround time*
Please note: all swabs submitted for PCR testing must be dry swabs, not in gel medium			
Adenovirus PCR	ADVPCR	Bronchoalveolar lavage, eye swab, throat swab, nasopharyngeal swab/aspirate, sputum, tracheal aspirate, eye fluid, urine, CSF, blood (EDTA), stool Special request: Tissue	24 hours
BK virus PCR Reported as BK viral load if positive	BKVB BKVU	Blood (EDTA) Urine	24 hours
Cytomegalovirus PCR	CMVPCR	Amniotic fluid, bronchoalveolar lavage, breast milk, nasopharyngeal aspirate, CSF, blood (EDTA), eye swab, sputum, tissue, fixed tissue, urine, stool, eye fluid, pleural fluid, tracheal aspirate, pericardial fluid Special request: Bone marrow	24 hours
Cytomegalovirus viral load	CMVVL	Amniotic fluid, pleural fluid, eye fluid, pericardial fluid, breast milk, blood (EDTA), CSF, urine (ONLY for age 0 to 3 weeks - after that special request only) No tissue samples	24 hours
Epstein-Barr virus PCR	EBVPCR	Blood (EDTA), CSF, eye fluid Special request: Other fluids	24 hours
Epstein-Barr viral load	EBVVL	Blood (EDTA), CSF, eye fluid Special request: Other fluids	24 hours
Enterovirus PCR	EVPCR	Blood (EDTA,SST), CSF, throat swab, stool, tissue, vesicle swab, eye swab, eye fluid	24 hours
Hepatitis B PCR	HEPBPCR	Blood (EDTA,SST)	72 hours
Hepatitis B viral load	HEPBVL	Blood (EDTA,SST)	72 hours
Hepatitis C PCR	HEPCPCR	Blood (EDTA,SST)	24 hours
Hepatitis C viral load	HCVVL	Blood (EDTA,SST)	24 hours
Hepatitis C genotyping Note: A recent (<1 month old) hepatitis C viral load of >1000 copies/mL is required	HCVGEN	Blood (EDTA,SST)	7 working days
Herpes simplex virus PCR	HSVPCR	CSF, tissue (biopsy of vesicle lesion), Blood (EDTA,SST), vesicle swab, eye fluid, corneal scrapings, eye swab, vesicle fluid Special request: Slides, Bronchoalveolar lavage, sputum	24 hours

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Other targeted viral panels



Pathogen(s)	Mnemonic	Specimen type	Turnaround time*
Please note: all swabs submitted for PCR testing must be dry swabs, not in gel medium			
Human herpes virus 6 PCR	HHV6PCR	Blood (EDTA), CSF	24 hours
Human herpes virus 8 PCR	HHV8PCR	Blood (EDTA,SST), CSF, fixed tissue, fluid, bone marrow, tissue (biopsy of lesion)	24 hours
JC virus PCR	JCVPCR	Blood (EDTA,SST), CSF	24 hours
Measles PCR	MEAPCR	Nasopharyngeal swab, throat swab, urine Special Request: CSF	24 hours
Mumps PCR	MUMPSPCR	CSF, throat swab, saliva, urine, blood (EDTA,SST), nasopharyngeal swab	24 hours
Mpox PCR	MONPOXPCR	Vesicle swab, tissue (scabs/crust)	48 hours
Parvovirus PCR Reported as viral load if positive	PARVPCR	Blood (EDTA,SST), amniotic fluid, CSF, bone marrow	24 hours
Rubella PCR	RUBPCR	Blood (EDTA), urine, throat swab, amniotic fluid, CSF (in children with congenital rubella syndrome), tissue (placenta/ foetal material)	24 hours
Tropical fever virus PCR Pathogens detected: dengue virus, chikungunya virus, zika virus and West Nile virus	TFPCR	Blood (EDTA), CSF	48 hours
Varicella zoster PCR	VZVPCR	Vesicle fluid, CSF, tissue (blister biopsy), blood (EDTA,SST), eye fluid, vesicle swab, stool	24 hours
Viral Vesicular PCR Pathogens detected: mpox virus clade I and II, orthopoxvirus, herpes simplex virus 1 and 2, human herpes virus 6, enterovirus and varicella zoster virus	VVPCR	Dry swab of vesicular fluid and/or ulcer base.	24 hours

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Bacterial and Parasite panels



Pathogen(s)	Mnemonic	Specimen type	Turnaround time*
Bacteria and Parasites			
<i>Acanthamoeba</i> PCR	ACANPCR	Corneal scrapings/biopsies, contact lenses, contact lens solution	48 hours
<i>Bartonella</i> PCR	BARTPCR	Blood (EDTA), CSF, tissue, fixed tissue (e.g. heart valves, lymph node aspirates/biopsy, liver biopsy)	48 hours
<i>Bilharzia (Schistosoma)</i> PCR	BILPCR	Blood (EDTA/SST), CSF, urine, stool, tissue (e.g. rectal biopsy/snips or bladder samples)	24 hours
<i>Brucella</i> PCR	BRUCPCR	Blood (EDTA/SST), CSF, tissue, bone marrow, swab	24 hours
Enterohaemorrhagic <i>E.coli</i> PCR	EHCP	Stool	24 hours
<i>Helicobacter pylori</i> PCR Includes genotypic clarithromycin susceptibility testing	HPPCR	Stool, tissue (gastric biopsy)	72 hours
<i>Leishmania</i> species PCR	LEISHPCR	Blood (EDTA), tissue (biopsy), CSF, bone marrow	48 hours
<i>Listeria monocytogenes</i> PCR	LISTPCR	Blood (EDTA), CSF	24 hours
Malaria PCR Detects but does not distinguish between: <i>Plasmodium falciparum</i> , <i>P. ovale</i> , <i>P. vivax</i> , <i>P. malariae</i> , <i>P. knowlesi</i>	MALPCR	Blood (EDTA)	24 hours
Malaria species identification PCR Distinguishes between: <i>P.falciparum</i> , <i>P.vivax</i> , <i>P.ovale</i> , <i>P.malariae</i>	MALIDPCR	Blood (EDTA)	24 hours
<i>Rickettsia</i> PCR Tests for all <i>Rickettsia</i> species	RICPCR	Blood (EDTA), eschar tissue, eschar swab Special request: CSF	24 hours
<i>Tropheryma whipplei</i> PCR	WHIPPCR	Tissue, CSF, stool	48 hours
<i>Toxoplasma gondii</i> PCR	TOXOPCR	Blood (EDTA), CSF, amniotic fluid, eye fluid, tissue (brain biopsy)	24 hours

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Infection control screening tests and Pan-organism panels and genotyping



Pathogen(s)	Mnemonic	Specimen type	Turnaround time*
Infection control screening tests			
Carbapenemase screening PCR NDM-1, KPC, OXA-48, VIM	NDM1	Rectal swab, stool, environmental swab (dry swab only - no gel swabs)	24 hours
Candida auris screening	CAURISPCR	Dry swabs from three sites: 1. Bilateral axilla 2. Bilateral groin 3. Third site can be one of the following: anterior nares, wounds, external ear canal, catheter exit sites or rectum.	24 hours
Pan-organism panels			
Panbacterial PCR (16S rDNA PCR and sequencing)	PANBPCR	Tissue, pus, fluid, slides, fixed tissue	7 working days
Panfungal PCR (18S rDNA PCR and sequencing)	PANFPCR	Tissue, pus, fluid, slides, fixed tissue	7 working days
Burkholderia cepacia complex speciation	BURKPCR	Bacterial isolate (culture)	7 working days

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For more information, contact your local Ampath representative, the NRL molecular biology laboratory at 012 678 0667 or Client Services at 0861 AMPATH (0861 267 284).

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