

Determination of Minimum inhibitory concentration in Primary Panel of Gram-Positive, Gram Negative Bacteria and fungal Panel

The Minimum Inhibitory Concentration (MIC) of a compound is established by determining the lowest concentration which inhibits the growth of specified organisms. NAEJA utilizes the Beckman 2000 Automated Workstation to provide accurate high-throughput activity screening in accordance with current CLSI guidelines (formerly NCCLS). The Beckman 2000 Automated Workstation is programmed to load 96-well plates with a series of decreasing compound concentrations in the appropriate culture broth. Organisms to be tested are cultured using agar media. The resulting isolated colonies are used to prepare standardized inoculums based on spectrophotometric absorbance. Following incubation, the 96 well plates are read using the Beckman Automated Plate Reader to identify the correct MIC.

| Gram-Positive Primary Panel | | | | | | | | | | | | | | | | |
|-----------------------------------|--------|----------|--------|--------|--------|--------|--------|------|-------|------|--------|------|--------|-------|--------|--|
| Species | Source | Strain # | AMPC | DMPPC | CAZ | CTRX | IMP | AZT | TET | Vanc | ERY | MTR | CPLX | GM | PCG | |
| <i>Staphylococcus aureus</i> | ATCC | 29213 | 1 | 2 | 16 | 2 | <0.12 | >128 | 1 | 0.5 | 1 | >128 | 1 | 1 | 0.5 | |
| <i>Staphylococcus aureus</i> | ATCC | 33591 | 2 | 64 | > 64 | > 64 | 32 | > 64 | > 64 | 0.25 | 2 | > 64 | <0.125 | | 32 | |
| <i>Staphylococcus aureus</i> | ATCC | BAA-39 | 32 | 32 | >64 | >64 | 0.25 | >64 | <0.12 | 2 | 8 | >64 | 32 | 2 | 16 | |
| <i>Staphylococcus aureus</i> | ATCC | 700787 | 32 | 32 | > 64 | 16 | 0.25 | > 64 | <0.12 | 2 | 8 | > 64 | 32 | 2 | 16 | |
| <i>Staphylococcus epidermidis</i> | ATCC | 29887 | 16 | 8 | 16 | 16 | ≤0.12 | >64 | 0.5 | 1 | ≤0.12 | >64 | ≤0.12 | ≤0.12 | 16 | |
| <i>Streptococcus pyogenes</i> | ATCC | 19615 | <0.125 | <0.125 | <0.125 | <0.125 | <0.125 | 16 | <0.12 | 0.25 | <0.015 | > 64 | 0.25 | 4 | <0.125 | |
| <i>Streptococcus pneumoniae</i> | ATCC | 6301 | <0.12 | 0.25 | <0.12 | <0.12 | <0.12 | 64 | <0.12 | 0.25 | <0.12 | >64 | 0.25 | 16 | | |
| <i>Streptococcus pneumoniae</i> | ATCC | 700674 | <0.12 | 0.25 | <0.12 | <0.12 | <0.12 | 32 | <0.12 | 0.25 | <0.12 | >64 | 0.25 | 16 | 0.25 | |
| <i>Bacillus cereus</i> | ATCC | 11778 | 64 | 64 | >128 | >128 | 16 | >128 | 16 | 1 | 1 | 128 | 1 | 1 | | |
| <i>Bacillus subtilis</i> | ATCC | 23857 | 1 | 1 | 16 | 8 | 1 | >128 | 1 | 1 | 1 | 64 | 1 | 1 | | |
| <i>Enterococcus faecalis</i> | ATCC | 29212 | 1 | 32 | > 64 | > 64 | 0.5 | > 64 | 16 | 2 | 1 | > 64 | 0.5 | 16 | 2 | |
| <i>Enterococcus faecalis</i> | ATCC | 51575 | 0.5 | 64 | > 64 | > 64 | 16 | > 64 | > 64 | > 64 | > 64 | > 64 | 2 | > 64 | 2 | |
| <i>Enterococcus faecium</i> | ATCC | 700221 | 64 | >64 | >64 | >64 | >64 | >64 | ≤0.12 | >64 | >64 | >64 | >64 | >64 | >64 | |
| <i>Enterococcus faecium</i> | Taiho | CT-26 | 16 | >128 | >128 | >128 | >128 | >128 | 128 | 1 | >128 | >128 | 128 | 8 | | |
| <i>Mycobacterium aurum</i> | ATCC | 23071 | 128 | >128 | 64 | >128 | 64 | >128 | 32 | >128 | 128 | >128 | 16 | 64 | | |

AMPC=Amoxicillin; DMPPC=Methicillin; CAZ=Ceftazidime; CTRX=Ceftriaxone; IMP=Imipenem; AZT=Aztreonam; TET=Tetracycline; VANC=Vancomycin
ERY=Erythromycin; MTR=Metronidazole; CPLX=Ciprofloxacin; GM=Gentamicin; PCG=Penicillin G

Gram-Negative primary Panel

| Species | Source | Strain # | AMP C | DMPPC | CAZ | CTRX | IMP | AZT | TET | Vanc | ERY | MTR | CPLX | GM | PCG | TOB |
|--|-------------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|-----|
| <i>Acinetobacter</i> spp. | ATCC | 15473 | 128 | >128 | 4 | 16 | 1 | 32 | 8 | 128 | 8 | >128 | 1 | 1 | | |
| <i>Burkholderia cepacia</i> | ATCC | 13945 | >128 | >128 | 2 | 4 | 32 | 32 | >128 | >128 | >128 | >128 | 4 | 128 | | |
| <i>Burkholderia cepacia</i> | ATCC | 25416 | >128 | >128 | 8 | 128 | 32 | >128 | >128 | >128 | 128 | >128 | 2 | 32 | | |
| <i>Citrobacter diversus</i> | PLM | NA | 64 | >128 | 1 | 1 | 1 | 1 | 1 | 128 | 64 | >128 | 1 | 1 | | |
| <i>Enterobacter aerogenes</i> | ATCC | 13048 | >128 | >128 | 128 | >128 | 1 | >128 | 1 | >128 | >128 | >128 | 64 | 32 | | |
| <i>Enterobacter aerogenes</i> | ATCC | 29751 | >128 | >128 | 16 | 8 | 1 | 4 | 2 | >128 | 64 | >128 | 1 | 1 | | |
| <i>Escherichia coli</i> | ATCC | 12014 | 1 | 32 | 1 | 1 | 1 | 1 | 1 | 128 | 32 | >128 | 1 | 1 | | |
| <i>Escherichia coli</i> | ATCC | 25922 | 4 | 32 | 1 | ≤0.12 | ≤0.12 | 1 | 1 | 32 | 128 | >128 | ≤0.12 | 1 | 32 | |
| <i>Escherichia coli</i> | ET/Schering | ECM 1694 | 1 | | ≤0.12 | ≤0.12 | 0.25 | ≤0.12 | 0.25 | 32 | 1 | > 64 | ≤0.12 | 1 | 32 | 0.5 |
| <i>Flavobacterium odoratum</i> | ATCC | 29979 | 128 | > 128 | 64 | > 128 | 64 | > 128 | 32 | > 128 | 128 | > 128 | 16 | 64 | | |
| <i>Haemophilus actinomycetemcomitans</i> | ATCC | 29523 | 0.25 | 16 | ≤0.12 | ≤0.12 | 0.25 | ≤0.12 | ≤0.12 | 64 | 2 | 2 | ≤0.12 | 16 | | |
| <i>Haemophilus influenzae</i> | ATCC | 49766 | 0.5 | 8 | ≤0.12 | ≤0.12 | 0.25 | ≤0.12 | 0.25 | 16 | 8 | 64 | ≤0.12 | 8 | 0.25 | |
| <i>Helicobacter pylori</i> | ATCC | 43504 | ≤0.12 | | 4 | 0.25 | ≤0.12 | 2 | ≤0.12 | >64 | ≤0.12 | 64 | 0.25 | 8 | ≤0.12 | |
| <i>Helicobacter pylori</i> | ATCC | 49503 | ≤0.12 | | 0.5 | ≤0.12 | ≤0.12 | 2 | ≤0.12 | >64 | ≤0.12 | 1 | ≤0.12 | 2 | ≤0.12 | |
| <i>Helicobacter pylori</i> | ATCC | 51110 | ≤0.12 | | 2 | ≤0.12 | ≤0.12 | 2 | ≤0.12 | >64 | ≤0.12 | 0.5 | ≤0.12 | 8 | ≤0.12 | |
| <i>Klebsiella oxytoca</i> | ATCC | 15764 | | >128 | 1 | 1 | 1 | 1 | 1 | >128 | 64 | >128 | 1 | 1 | | |
| <i>Klebsiella pneumoniae</i> | ATCC | 13883 | 64 | 32 | ≤0.12 | ≤0.12 | ≤0.12 | ≤0.12 | ≤0.12 | >64 | 4 | >64 | ≤0.12 | 0.25 | | |
| <i>Klebsiella pneumoniae</i> | ATCC | 51503 | >64 | >64 | >64 | >64 | >64 | >64 | >64 | >64 | 32 | >64 | <0.12 | 0.5 | | |
| <i>Klebsiella pneumoniae</i> | ATCC | 700603 | >64 | >64 | >64 | 32 | 0.25 | >64 | 4 | 64 | 64 | >64 | ≤0.12 | 64 | | |
| <i>Moraxella catarrhalis</i> | ATCC | 25238 | <0.12 | <0.12 | <0.12 | ≤0.12 | ≤0.12 | ≤0.12 | ≤0.12 | 32 | <0.12 | 32 | <0.12 | 4 | | |
| <i>Proteus vulgaris (P.hauseri)</i> | ATCC | 13315 | 16 | >128 | >128 | 1 | 4 | 128 | 16 | >128 | >128 | >128 | 1 | 1 | | |
| <i>Providencia rettgeri</i> | ATCC | 29944 | 128 | 32 | 2 | 1 | 1 | 1 | 32 | >128 | >128 | >128 | 1 | 1 | | |
| <i>Pseudomonas aeruginosa</i> | ATCC | 9027 | > 64 | > 64 | 1 | 64 | 2 | 8 | 16 | .64 | 64 | > 64 | <0.12 | 1 | > 64 | 0.5 |
| <i>Pseudomonas aeruginosa</i> | ATCC | 27853 | > 64 | > 64 | 1 | 64 | 8 | 8 | > 64 | > 64 | > 64 | > 64 | 0.25 | 1 | >64 | 4 |
| <i>Pseudomonas</i> spp. | ATCC | 14696 | >128 | 16 | 1 | 1 | 1 | 1 | 32 | >128 | 128 | >128 | 1 | 16 | | |
| <i>Salmonella choleraesuis</i> | ATCC | 14028 | >128 | 8 | 1 | 1 | 1 | 1 | 1 | >128 | 128 | >128 | 1 | 1 | | |
| <i>Serratia marcescens</i> | ATCC | 8100 | >128 | >128 | >128 | >128 | >128 | 8 | 32 | >128 | >128 | >128 | 2 | 4 | | |
| <i>Serratia marcescens</i> | ATCC | 13880 | >128 | 2 | 1 | 1 | 1 | 1 | 128 | >128 | 128 | 16 | 1 | 1 | | |
| <i>Serratia marcescens</i> | ATCC | 29882 | >128 | >128 | 1 | 1 | 1 | 1 | 64 | >128 | >128 | >128 | 32 | 1 | | |
| <i>Shigella sonnei</i> | ATCC | 11060 | 4 | 2 | 16 | 4 | 1 | >128 | >128 | 1 | 1 | >128 | 1 | 1 | | |
| <i>Stenotrophomonas maltophilia</i> | U.A.H. | PH 0095 | >128 | >128 | >128 | >128 | >128 | >128 | 8 | >128 | >128 | >128 | 1 | 64 | | |
| <i>Yersinia pseudotuberculosis</i> | ATCC | 29833 | 0.25 | 4 | ≤0.12 | 0.25 | 0.5 | ≤0.12 | 1 | > 64 | 32 | > 64 | ≤0.12 | 0.5 | | |

AMP C=Amoxicillin; DMPPC=Methicillin; CAZ=Ceftazidime; CTRX=Ceftriaxone; IMP=Imipenem; AZT=Aztreonam; TET=Tetracycline;VANC=Vancomycin
ERY=Erythromycin; MTR=Metronidazole; CPLX-Ciprofloxacin; GM=Gentamicin; PCG=Penicillin G

| Fungal Primary Panel | | | | | | |
|------------------------------------|--------|----------|------|--------|--------|--------|
| Species | Source | Strain # | FLU | ITRA | VORI | AMB |
| <i>Aspergillus fumigatus</i> | ATCC | 13073 | >64 | 0.5 | 0.25 | ≤0.12 |
| <i>Aspergillus fumigatus</i> | ATCC | 46645 | >128 | 0.5-1 | | 1-2 |
| <i>Aspergillus nidulans</i> | ATCC | 10074 | 128 | 0.065 | 0.125 | 0.25 |
| <i>Candida albicans</i> | ATCC | 14053 | 0.09 | ≤0.048 | ≤0.048 | 0.19 |
| <i>Candida albicans</i> | ATCC | 90028 | 0.25 | ≤0.12 | ≤0.12 | ≤0.12 |
| <i>Candida albicans</i> | ATCC | 24433 | 4 | 0.031 | 0.5 | 0.25 |
| <i>Candida glabrata</i> | ATCC | 90030 | 4 | ≤0.5 | ≤0.5 | ≤0.5 |
| <i>Candida kefyr</i> | ATCC | 38296 | 0.39 | <0.048 | <0.048 | <0.048 |
| <i>Candida krusei</i> | ATCC | 44507 | 8 | ≤0.5 | ≤0.5 | ≤0.5 |
| <i>Candida parapsilosis</i> | ATCC | 22019 | 2 | ≤0.5 | ≤0.5 | ≤0.5 |
| <i>Candida parapsilosis</i> | ATCC | 10232 | 4 | <0.032 | 0.125 | <0.032 |
| <i>Candida parapsilosis</i> | ATCC | 34136 | 1 | <0.032 | <0.032 | 0.065 |
| <i>Candida parapsilosis</i> | ATCC | 38291 | 2 | <0.032 | 0.065 | 0.125 |
| <i>Candida parapsilosis</i> | ATCC | 60548 | 1 | <0.032 | <0.032 | 0.065 |
| <i>Candida parapsilosis</i> | ATCC | 14054 | 2 | <0.032 | <0.032 | <0.032 |
| <i>Candida tropicalis</i> | ATCC | 13803 | ≤0.5 | 1 | ≤0.5 | ≤0.5 |
| <i>Cryptococcus neoformans</i> | ATCC | 32045 | 0.5 | <0.12 | <0.12 | <0.12 |
| <i>Cryptococcus neoformans</i> | PLM | 94-24 | 6.25 | 0.19 | ≤0.048 | 0.19 |
| <i>Epidermophyton floccosum</i> | ATCC | 52066 | 2 | ≤0.5 | ≤0.5 | ≤0.5 |
| <i>Fusarium solanii</i> | ATCC | 36031 | 256 | > 256 | 4 | ≤0.5 |
| <i>Malassezia furfur</i> | ATCC | 44344 | 16 | ≤0.5 | ≤0.5 | 4 |
| <i>Malassezia sympodialis</i> | ATCC | 44031 | 1 | ≤0.5 | ≤0.5 | ≤0.5 |
| <i>Malassezia pachydermatis</i> | ATCC | 96746 | 4 | ≤0.5 | ≤0.5 | ≤0.5 |
| <i>Microsporum audouinii</i> | ATCC | 42558 | 64 | ≤0.5 | ≤0.5 | ≤0.5 |
| <i>Microsporum canis</i> | ATCC | 10214 | 32 | ≤0.5 | ≤0.5 | ≤0.5 |
| <i>Microsporum gypseum</i> | ATCC | 24103 | 64 | ≤0.5 | ≤0.5 | ≤0.5 |
| <i>Trichophyton mentagrophytes</i> | ATCC | 28185 | 32 | ≤0.12 | ≤0.12 | ≤0.12 |
| <i>Trichophyton mentagrophytes</i> | PLM | MY 9923 | 32 | ≤0.12 | ≤0.12 | ≤0.12 |
| <i>Trichophyton rubrum</i> | ATCC | 28188 | | ≤0.12 | ≤0.12 | ≤0.12 |
| <i>Trichophyton rubrum</i> | PLM | MY 4761 | 1 | ≤0.12 | ≤0.12 | ≤0.12 |
| <i>Trichophyton tonsurans</i> | ATCC | 28942 | 64 | ≤0.5 | ≤0.5 | ≤0.5 |

Flu=Fluconazole;ITRA=Itraconazole;Vori=Voriconazole;AMB=Amphotericin B