# VITEK MS / Maestria Reporting Procedure

## Purpose

This procedure provides instructions on how to report the identification of organisms with the Vitek MS.

## Vitek MS FDA Cleared Organisms V3.3

Vitek MS IVD is a FDA 510(k) cleared system. The instrument is cleared for identification and release of results for a majority of clinically relevant organisms. Refer to the following lists of organisms that are covered. **IMPORTANT:** Always review the Vitek MS Reporting Scheme (see below) before reporting claimed organisms.

### GRAM NEGATIVE / POSITIVE BACTERIA

● Newly added clinically validated organisms

- *Achromobacter piechaudii*
- *Achromobacter spanius*
- *Acidaminococcus intestini*
- *Acinetobacter bereziniae*
- *Acinetobacter courvalinii*
- *Acinetobacter guillouiae*
- *Acinetobacter gyllenbergii*
- *Acinetobacter radioresistens*
- *Acinetobacter schindleri*
- *Acinetobacter seifertii*
- *Acinetobacter ursingii*
- *Actinobacillus seminis*
- *Actinobacillus ureae*
- *Actinomyces graevenitzii*
- *Actinomyces oris/viscosus*
- *Aerococcus christensenii*
- *Aerococcus sanguinicola*
- *Aerococcus urinae*
- *Aeromonas dhakensis*
- *Aeromonas eucrenophila*
- *Aeromonas schubertii*
- *Aeromonas veronii*
- *Aliarcobacter butzleri*
- *Alloscardovia omnicolens*
- *Anaerococcus tetradius*
- *Bacillus cereus*
- *Bacillus spizizenii*
- *Bacillus subtilis ssp subtilis*
- *Bordetella hinzii*
- *Bordetella holmesii*
- *Bordetella trematum*
- *Burkholderia ambifaria*
- *Burkholderia anthina*
- *Burkholderia arboris*
- *Burkholderia diffusa*
- *Burkholderia dolosa*
- *Burkholderia latens*
- *Burkholderia metallica*
- *Burkholderia pyrrocinia*
- *Burkholderia stabilis*
- *Burkholderia thailandensis*
- *Burkholderia ubonensis*
- *Citrobacter murliniae*
- *Clostridium paraputrificum*
- *Clostridium subterminale*
- *Collinsella aerofaciens*
- *Corynebacterium accolens*
- *Corynebacterium afermentans ssp afermentans*
- *Corynebacterium afermentans ssp lipophilum*
- *Corynebacterium amycolatum*
- *Corynebacterium argentoratense*
- *Corynebacterium aurimucosum*
- *Corynebacterium auris*
- *Corynebacterium auriscanis*
- *Corynebacterium bovis*
- *Corynebacterium confusum*
- *Corynebacterium coyleae*
- *Corynebacterium cystitidis*
- *Corynebacterium diphtheriae*
- *Corynebacterium durum*
- *Corynebacterium falsenii*
- *Corynebacterium freneyi*
- *Corynebacterium glucuronolyticum*
- *Corynebacterium glutamicum*
- *Corynebacterium glyciniphilum*
- *Corynebacterium imitans*
- *Corynebacterium macginleyi*
- *Corynebacterium mastitidis*
- *Corynebacterium matruchotii*
- *Corynebacterium mucifaciens*
- *Corynebacterium otitidis*
- *Corynebacterium pilosum*
- *Corynebacterium propinquum*
- *Corynebacterium pseudotuberculosis*
- *Corynebacterium renale*
- *Corynebacterium riegelii*
- *Corynebacterium simulans*
- *Corynebacterium stationis*
- *Corynebacterium striatum*
- *Corynebacterium sundsvallense*
- *Corynebacterium timonense*
- *Corynebacterium tuberculostearicum*
- *Corynebacterium ulcerans*
- *Corynebacterium variabile*
- *Corynebacterium xerosis*
- *Cupriavidus metallidurans*
- *Cutibacterium namnetense*
- *Enterobacter bugandensis*
- *Enterobacter hormaechei ssp hoffmannii*
- *Enterobacter hormaechei ssp oharae/xiangfangensis*
- *Enterobacter roggenkampii*
- *Enterocloster aldenensis*
- *Enterococcus raffinosus*
- *Enterococcus saccharolyticus*
- *Escherichia albertii*
- *Gemella bergeri*
- *Gemella sanguinis*
- *Gleimia europaea*
- *Globicatella sanguinis*
- *Gordonia bronchialis*
- *Haemophilus aegyptius*
- *Haemophilus haemolyticus*
- *Helicobacter fennelliae*
- *Helicobacter pylori*

## GRAM NEGATIVE / POSITIVE BACTERIA

- *Kerstersia gyiorum*
- *Kocuria rosea*
- *Kocuria varians*
- *Legionella anisa*
- *Legionella birminghamensis*
- *Legionella feeleii*
- *Legionella jamestowniensis*
- *Legionella longbeachae*
- *Leptotrichia trevisanii*
- *Listeria fleischmannii*
- *Massilia timonae*
- *Myroides odoratimimus*
- *Myroides odoratus*
- *Pasteurella canis*
- *Pasteurella dagmatis*
- *Peptoniphilus coxii*
- *Photorhabdus asymbiotica ssp asymbiotica*
- *Photorhabdus australis*
- *Photorhabdus group*
- *Photorhabdus laumondii ssp laumondii*
- *Prevotella disiens*
- *Pseudomonas otitidis*
- *Ralstonia insidiosa*
- *Ralstonia mannitolilytica*
- *Roseomona gilardii*
- *Rothia kristinae*
- *Salmonella enterica ssp houtenae*
- *Schaalia hyovaginalis*
- *Schaalia turicensis*
- *Shewanella algae*
- *Solobacterium moorei*
- *Sphingomonas koreensis*
- *Staphylococcus argenteus*
- *Staphylococcus aureus ssp anaerobius*
- *Staphylococcus caprae*
- *Staphylococcus coagulans/ schleiferi ssp schleiferi*
- *Staphylococcus condimenti*
- *Staphylococcus croceilyticus/ petrasii*
- *Streptococcus hyovaginalis*
- *Streptococcus parauberis*
- *Streptococcus pluranimalium*
- *Streptococcus urinalis*
- *Sutterella wadsworthensis*
- *Suttonella indologenes*
- *Tissierella praeacuta*
- *Trueperella bernardiae*
- *Veillonella parvula*
- *Yokenella regensburgei*
- *Abiotrophia defectiva*
- *Achromobacter denitrificans*
- *Achromobacter xylosoxidans*
- *Acidipropionibacterium acidipropionici*
- *Acinetobacter baumannii*
- *Acinetobacter calcoaceticus*
- *Acinetobacter haemolyticus Acinetobacter johnsonii*
- *Acinetobacter junii*
- *Acinetobacter lwoffii*
- *Acinetobacter nosocomialis*
- *Acinetobacter pittii*
- *Actinomyces bovis*
- *Actinomyces israelii*
- *Actinomyces naeslundii*
- *Actinotignum schaalii*
- *Aerococcus viridans*
- *Aeromonas hydrophila*
- *Aeromonas jandaei*
- *Aeromonas punctata (caviae)*
- *Aeromonas sobria*
- *Aggregatibacter actinomycetemcomitans*
- *Aggregatibacter aphrophilus*
- *Aggregatibacter segnis*
- *Agrobacterium radiobacter*
- *Alcaligenes faecalis ssp faecalis*
- *Bacteroides caccae*
- *Bacteroides eggerthii*
- *Bacteroides fragilis*
- *Bacteroides ovatus/ xylanisolvens*
- *Bacteroides pyogenes*
- *Bacteroides stercoris*
- *Bacteroides thetaiotaomicron*
- *Bacteroides uniformis*
- *Bifidobacterium spp*
- *Bilophila wadsworthia*
- *Bordetella avium*
- *Bordetella bronchiseptica*
- *Bordetella parapertussis*
- *Bordetella pertussis*
- *Brevundimonas diminuta*
- *Brevundimonas vesicularis*
- *Brucella (Ochrobactrum) anthropi*
- *Brucella ssp*
- *Burkholderia cenocepacia*
- *Burkholderia cepacia*
- *Burkholderia contaminans*
- *Burkholderia gladioli*
- *Burkholderia multivorans*
- *Burkholderia vietnamiensis*
- *Campylobacter coli*
- *Campylobacter jejuni*
- *Campylobacter rectus*
- *Cedecea davisae*

- *Cedecea lapagei*
- *Cedecea neteri*
- *Chryseobacterium gleum*
- *Chryseobacterium indologenes*
- *Citrobacter amalonaticus*
- *Citrobacter braakii*
- *Citrobacter farmeri*
- *Citrobacter freundii*
- *Citrobacter koseri*
- *Citrobacter youngae*
- *Clostridioides (Clostridium) difficile*
- *Clostridium baratii*
- *Clostridium beijerinckii*
- *Clostridium butyricum*
- *Clostridium cadaveris*
- *Clostridium innocuum*
- *Clostridium novyi*
- *Clostridium perfringens*
- *Clostridium ramosum*
- *Clostridium septicum*
- *Clostridium sporogenes*
- *Clostridium tertium*
- *Clostridium tetani*
- *Comamonas testosteroni*
- *Corynebacterium jeikeium*
- *Cronobacter muytjensii*
- *Cronobacter sakazakii*
- *Cronobacter turicensis*
- *Curtobacterium flaccumfaciens*
- *Cutibacterium acnes*
- *Cutibacterium avidum*
- *Cutibacterium granulosum*
- *Delftia acidovorans*
- *Edwardsiella hoshinae*
- *Edwardsiella tarda*
- *Eikenella corrodens*
- *Elizabethkingia anophelis*
- *Elizabethkingia meningoseptica*
- *Elizabethkingia miricola*
- *Enterobacter asburiae*
- *Enterobacter cancerogenus*
- *Enterobacter cloacae* ssp *cloacae*
- *Enterobacter cloacae* ssp *dissolvens*
- *Enterobacter hormaechei* ssp *hormaechei*
- *Enterobacter hormaechei* ssp *steigerwaltii*
- *Enterobacter kobei*
- *Enterobacter ludwigii*
- *Enterocloster clostridioformis*
- *Enterococcus avium*
- *Enterococcus casseliflavus*
- *Enterococcus durans*
- *Enterococcus faecalis*
- *Enterococcus faecium*
- *Enterococcus gallinarum*
- *Enterococcus hirae*
- *Escherichia coli*
- *Escherichia fergusonii*
- *Escherichia hermannii*
- *Ewingella americana*
- *Finegoldia magna*
- *Fusobacterium mortiferum*
- *Fusobacterium necrophorum*
- *Fusobacterium nucleatum*
- *Fusobacterium periodonticum*
- *Gardnerella vaginalis*
- *Gemella haemolysans*
- *Gemella morbillorum*
- *Granulicatella adiacens*
- *Haemophilus influenzae*
- *Haemophilus parahaemolyticus*
- *Haemophilus parainfluenzae*
- *Hathewaya histolytica*
- *Kingella denitrificans*
- *Kingella kingae Klebsiella aerogenes*
- *Klebsiella oxytoca*
- *Klebsiella pneumoniae*
- *Kluyvera ascorbata*
- *Kluyvera cryocrescens Kluyvera intermedia*
- *Kocuria rhizophila*
- *Lactococcus garvieae*
- *Lactococcus lactis*
- *Leclercia adecarboxylata*
- *Legionella pneumophila*
- *Lelliottia amnigena*
- *Leuconostoc mesenteroides*
- *Leuconostoc pseudomesenteroides*
- *Listeria monocytogenes*
- *Mammaliicoccus lentus*
- *Mammaliicoccus sciuri*
- *Mannheimia haemolytica*
- *Micrococcus luteus*
- *Mobiluncus curtisii*
- *Moraxella lacunata*
- *Moraxella catarrhalis*
- *Moraxella nonliquefaciens*
- *Moraxella osloensis*
- *Morganella morganii*
- *Neisseria cinerea*
- *Neisseria gonorrhoeae*
- *Neisseria meningitidis*
- *Neisseria mucosa/sicca*
- *Hafnia alvei*
- *Oligella ureolytica*
- *Oligella urethralis*

## GRAM NEGATIVE / POSITIVE BACTERIA

- *Paeniclostridium sordellii*
- *Pantoea agglomerans*
- *Pantoea dispersa*
- *Paraclostridium bifermentans*
- *Parvimonas micra*
- *Pasteurella aerogenes*
- *Pasteurella multocida*
- *Pediococcus acidilactici*
- *Peptoniphilus asaccharolyticus*
- *Peptostreptococcus anaerobius*
- *Phocaeicola vulgatus*
- *Plesiomonas shigelloides*
- *Pluralibacter gergoviae*
- *Porphyromonas asaccharolytica/ uenonis*
- *Porphyromonas gingivalis*
- *Prevotella bivia*
- *Prevotella buccae*
- *Prevotella denticola*
- *Prevotella intermedia*
- *Prevotella loescheii*
- *Prevotella melaninogenica*
- *Prevotella oralis*
- *Prevotella oris*
- *Proteus mirabilis*
- *Proteus penneri*
- *Proteus vulgaris*
- *Providencia alcalifaciens*
- *Providencia rettgeri*
- *Providencia rustigianii*
- *Providencia stuartii*
- *Pseudescherichia vulneris*
- *Pseudomonas aeruginosa*
- *Pseudomonas alcaligenes*
- *Pseudomonas fluorescens*
- *Pseudomonas luteola*
- *Pseudomonas mendocina*
- *Pseudomonas oryzihabitans*
- *Pseudomonas putida*
- *Pseudomonas stutzeri*
- *Pseudomonas aeruginosa*
- *Pseudomonas alcaligenes*
- *Pseudomonas fluorescens*
- *Pseudomonas luteola*
- *Pseudomonas mendocina*
- *Pseudomonas oryzihabitans*
- *Pseudomonas putida*
- *Pseudomonas stutzeri*
- *Pseudopropionibacterium propionicum*
- *Ralstonia pickettii*
- *Raoultella ornithinolytica*
- *Raoultella planticola*
- *Raoultella terrigena*
- *Rothia mucilaginosa*
- *Salmonella enterica* ssp *enterica*
- *Schaalia meyeri*
- *Schaalia odontolyticus*
- *Serratia ficaria*
- *Serratia fonticola*
- *Serratia grimesii*
- *Serratia liquefaciens*
- *Serratia marcescens*
- *Serratia odorifera*
- *Serratia plymuthica*
- *Serratia proteamaculans*
- *Serratia quinivorans*
- *Serratia rubidaea*
- *Shewanella putrefaciens*
- *Sphingobacterium multivorum*
- *Sphingobacterium spiritivorum*
- *Sphingomonas paucimobilis*
- *Staphylococcus aureus* ssp *aureus*
- *Staphylococcus auricularis*
- *Staphylococcus capitis*
- *Staphylococcus chromogenes*
- *Staphylococcus cohnii* ssp *cohnii*
- *Staphylococcus epidermidis*
- *Staphylococcus haemolyticus*
- *Staphylococcus hominis*
- *Staphylococcus hyicus*
- *Staphylococcus intermedius*
- *Staphylococcus pseudintermedius*
- *Staphylococcus kloosii*
- *Staphylococcus lugdunensis*
- *Staphylococcus saprophyticus*
- *Staphylococcus simulans*
- *Staphylococcus ureilyticus*
- *Staphylococcus warneri*
- *Staphylococcus xylosus*
- *Stenotrophomonas maltophilia*
- *Streptococcus agalactiae*
- *Streptococcus alactolyticus*
- *Streptococcus anginosus*
- *Streptococcus canis*
- *Streptococcus constellatus*
- *Streptococcus cristatus*
- *Streptococcus dysgalactiae* ssp *dysgalactiae*
- *Streptococcus dysgalactiae* ssp *equisimilis*
- *Streptococcus equi* ssp *equi*
- *Streptococcus equi* ssp *zooepidemicus*
- *Streptococcus equinus*
- *Streptococcus gallolyticus* ssp *gallolyticus*
- *Streptococcus gallolyticus* ssp *pasteurianus*

- *Streptococcus gordonii*
- *Streptococcus infantarius ssp coli (Str.lutetiensis)*
- *Streptococcus infantarius ssp infantarius*
- *Streptococcus intermedius*
- *Streptococcus mitis/ Streptococcus oralis*
- *Streptococcus mutans*
- *Streptococcus parasanguinis*
- *Streptococcus pneumoniae*
- *Streptococcus pseudoporcinus*
- *Streptococcus pyogenes*
- *Streptococcus salivarius ssp salivarius*
- *Streptococcus vestibularis*
- *Streptococcus sanguinis*
- *Streptococcus sobrinus*
- *Streptococcus suis*
- *Streptococcus uberis*
- *Tannerella forsythia*
- *Veillonella dispar*
- *Vibrio alginolyticus*
- *Vibrio cholerae*
- *Vibrio fluvialis*
- *Vibrio metschnikovii*
- *Vibrio mimicus*
- *Vibrio parahaemolyticus*
- *Vibrio vulnificus*
- *Winkia neuii*
- *Yersinia aldovae*
- *Yersinia enterocolitica*
- *Yersinia frederiksenii*
- *Yersinia intermedia*
- *Yersinia kristensenii*
- *Yersinia pseudotuberculosis*
- *Yersinia ruckeri*

## YEAST

● Newly added clinically validated organisms

- *Candida blankii*
- *Candida ciferrii*
- *Candida fabianii*
- *Candida fermentati*
- *Candida nivariensis*
- *Candida pararugosa*
- *Candida sake*
- *Cryptococcus albidus*
- *Cystobasidium minutum*
- *Naganishia diffluens*
- *Saprochaete clavata*
- *Trichosporon asteroides*
- *Candida albicans*
- *Candida auris*
- *Candida dubliniensis*
- *Candida duobushaemulonis*
- *Candida famata*
- *Candida glabrata*
- *Candida guilliermondii*
- *Candida haemuloni*
- *Candida inconspicua*
- *Candida intermedia*
- *Candida kefyr*
- *Candida krusei*
- *Candida lambica*
- *Candida lipolytica*
- *Candida lusitaniae*
- *Candida metapsilosis*
- *Candida norvegensis*
- *Candida orthopsilosis*
- *Candida parapsilosis*
- *Candida pelliculosa*
- *Candida rugosa*
- *Candida tropicalis*
- *Candida utilis*
- *Candida zeylanoides*
- *Cryptococcus gattii*
- *Cryptococcus neoformans*
- *Kodamaea ohmeri*
- *Malassezia furfur*
- *Malassezia pachydermatis*
- *Rhodotorula mucilaginosa*
- *Saccharomyces cerevisiae*
- *Saprochaete capitata*
- *Trichosporon asahii*
- *Trichosporon dermatis/mucoides*
- *Trichosporon inkin*

**Not Claimed/ Not Validated Organisms**

1. Do not report results with the unclaimed symbol.

2. Identifications for *Mycobacteria, Nocardia* or Mold were not included in validation of the instrument and are not included in the above list of approved organisms to report.
3. If an identification is claimed on the MALDI but not included in the above list, report the organism as 'most closely resembling' the MALDI result and **send the organism to MDH for confirmation**.
    - Use Sunquest code MOST after the Gram stain result.
    - You will need to manually enter the result into Sunquest as the result will not cross Maestria into Sunquest. A code can be requested from LIS if warranted.
    - Reporting example: GPR-MOST-;*Mycobacteria smegmatis*

**Instructions for suspected *Bacillus* species**

1. Perform a Motility test on any large GPR, that is non-hemolytic and catalase positive before performing MALDI for identification. Do not perform MALDI on motility negative, GPR, non-hemolytic, catalase positive organisms. Send isolate to MDH for identification.
2. If MALDI is performed on suspected *Bacillus* species organisms, *Bacillus* is not identified, and an unclaimed identification is obtained:
    - Report 'GPR-Most Closely resembling-unclaimed MALDI ID-Previously known as-*Bacillus* species, not *B. anthracis* or *B. cereus*.'
        - Example: GPR-MOST-;Priesta megaterium-PVKA-BACAN
        - Use code PVKA for 'Previously known as'

**Confidence Levels**

The Vitek MS displays confidence level scores for each organism that is being run. The manufacturer's suggested cut-off values are as follows:

| Confidence Level | Choice | % Probability | Comments |
|---|---|---|---|
| High:  | 1 | 60 to 99.9 | Report to species level. |
| Medium:  | 2 to 4 | Sum = 100 | Refer to reporting scheme. If organism not listed, separate by further testing if necessary. |
| No ID:  | NA | NA | No significant choice |
| | >4 | Sum < 100 | Inconclusive identification |
|  | Non-clinically Validated Isolate icon – identification does not transfer to the LIS or VITEK 2. Perform an alternate method of identification. | | |

*****ALWAYS use caution when releasing results.** Ensure that plate morphology/gram stain matches the result that is displayed. If this is not the case, complete further confirmatory testing.

**Do not report results with the (N) symbol. These are considered not claimed and are not approved for use.**

## Maestria: Releasing Vitek MS Results

1. Using a network PC, double click the Maestria icon on the desktop.


*Maestria can also be utilized by launching Internet Explorer and typing the following: https://10.28.17.253/portal/p

2. Enter your unique user name, password, and click the login button.

3. Click the **Vitek MS** button (Figure 1).

Figure 1


4. This will bring you the Vitek MS Software website. IP address is 10.28.17.253.

5. Under the Results tab, the “To Review” will display results needing review (Figure 2).

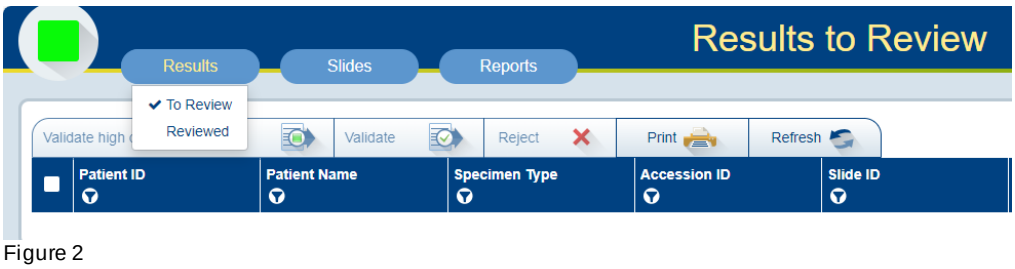


Figure 2

6. A confidence level is displayed for each isolate (Figure 3).

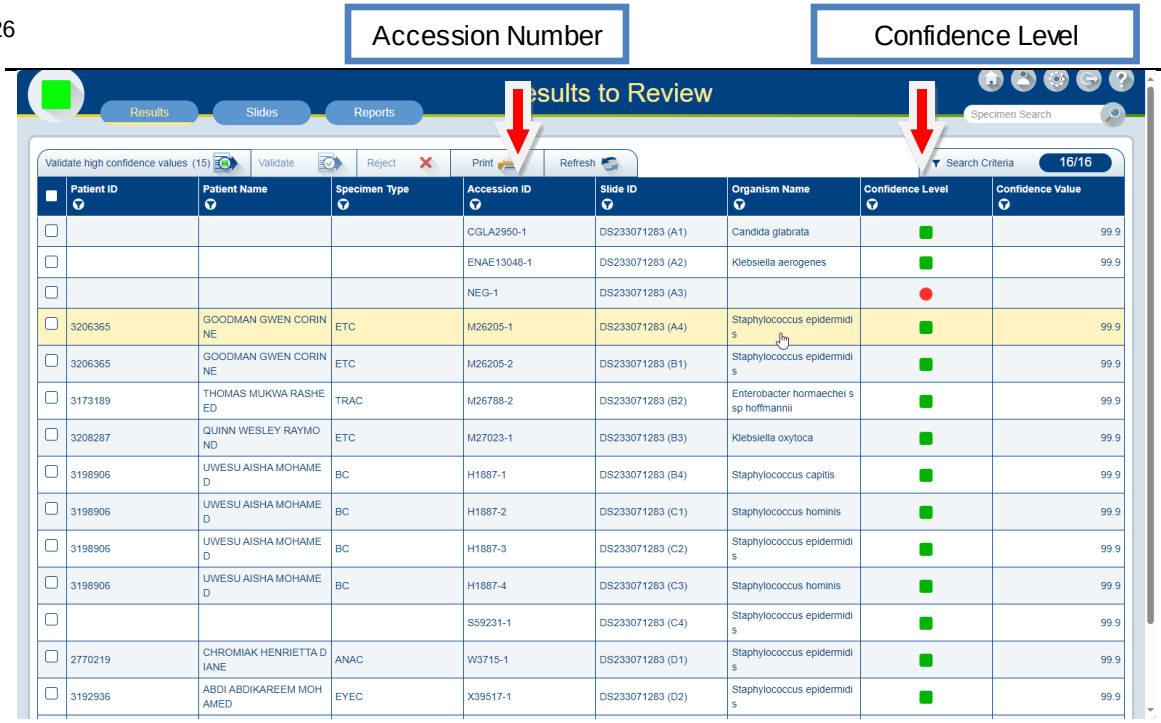

Figure 3

7. Select and individually review all High Confidence results with a green box. Click on Validate with green check mark.

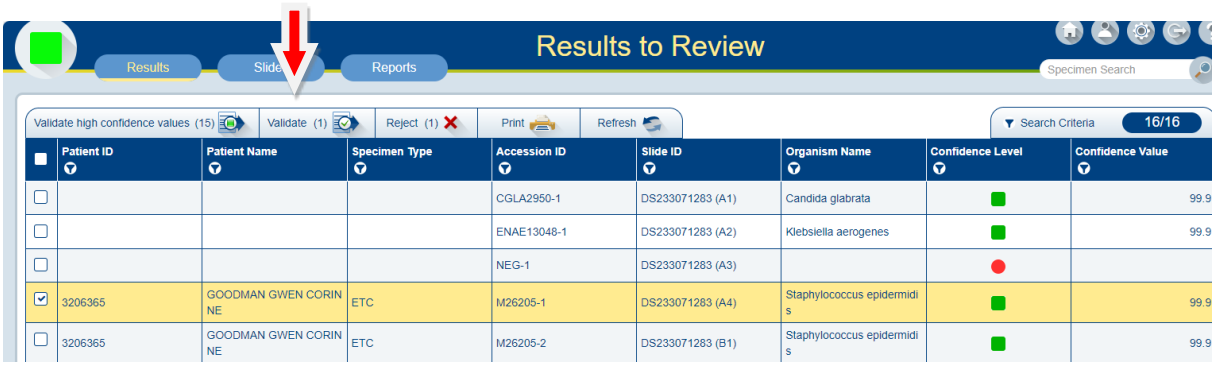

Figure 4

8. Isolates that are recognized as highly pathogenic or critical will have this icon  .

9. Reviewed results will be sent through the interface into Sunquest.

10. Individually review each Medium Confidence isolate with an orange triangle in the “To Review” tab.

11. Click the Accession Number (ID) button to display the Review Detail screen.

12. For discrepant isolate results, first reacquire (re-shoot) the spectrum. If this does not help, perfom additional testing or retest in a new acquisition group. See step 20 below for instructions on reacquiring the spectrum.

13. Click the validate button to accept this result (Figure 5).

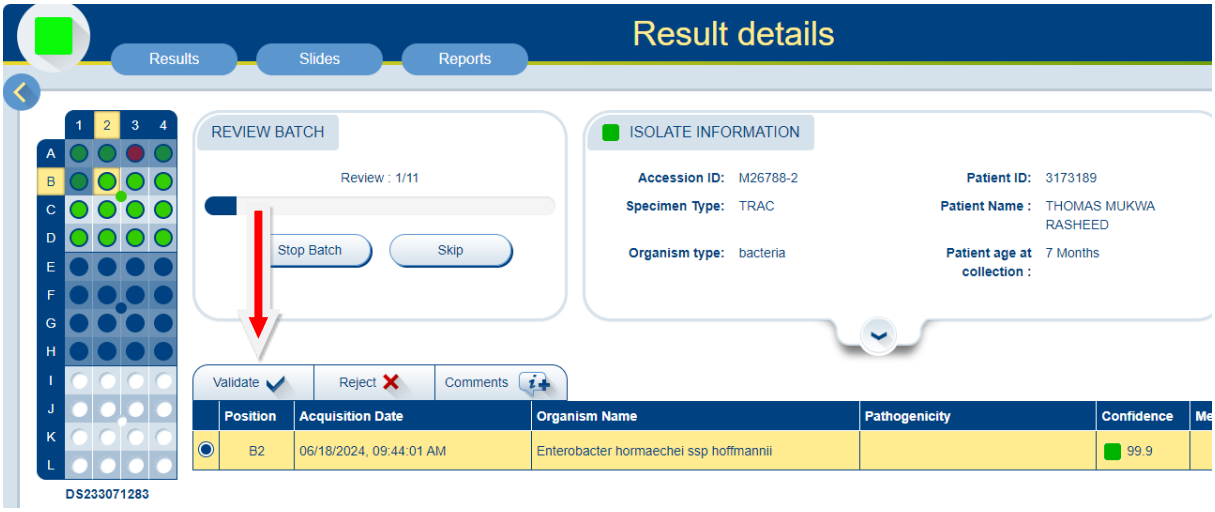

Figure 5.

14. Select each isolate that has No ID.

15. If necessary, click the Accession ID button to display the Result Detail screen and note the Acquisition/Computation Messages in the last column.

16. Discard the isolate by the Reject tab with red **X**.

17. Before an isolate is reviewed, you will the ability to edit the isolate number.

18. Select an identification by utilizing the General Reporting Scheme found at the end of this procedure.

19. To reacquire spectra (repeat) for isolates that have Low Confidence levels or have no ID, utilize the Acquisition Station. Select the spots that need to be re-shot and click Start. The calibration needs to pass again. Once the organism(s) have been re-shot, repeat steps 4-19 for resulting.

| Additional Icons | |
|---|---|
|  | Print Icon – print a single page report for each isolate. |
|  | Comment – enter a result comment for an isolate. This can be used to refer to additional testing that has been or needs to be performed. |

# Vitek MS Reporting Scheme

**VITEK MS Reporting Scheme**

| What to do with *Escherichia coli* on VITEK MS | | |
|---|---|---|
| **Source** | **Additional Testing** | **Reporting Instructions** |
| ALL sources (except stool)<br><br>If MSID = *Escherichia coli* | Lactose Fermenter | *Escherichia coli* |
| | β- hemolysis on SB agar | *Escherichia coli* |
| | Non-Lactose Fermenter & non-hemolytic on SB agar:<br>Indole (+) or Indole (neg) | Run GN ID card on VITEK 2 for identification |
| Stool<br><br>If MSID = *Escherichia coli* | **Then do:**<br><br>MILS & SB subculture | For the following combinations, **report NSSY**:<br>*MOT (+) IND (+) LYS (P/P)<br>*MOT (+) IND (+) LYS (P/Y)<br>*MOT (neg) IND (+) LYS (P/P)<br>*MOT (+) IND (neg) LYS (P/P)<br>*MOT (+) IND (neg) LYS (P/Y)<br>*MOT (neg) IND (neg) LYS (P/P)<br><br>For the following combinations, run a GN ID on VITEK 2 for identification:<br>*MOT (neg) IND (neg) LYS (P/Y)<br>*MOT (neg) IND (+) LYS (P/Y) |

1. Frequently seen organisms in the laboratory with a probability score at **≥60%** may be released as long as colonial morphology and/or gram stain morphology matches.
2. Uncommon organisms in the laboratory should be reported as presumptive or by genus only until further testing can confirm the result. This includes FDA cleared organisms that are not identified to species level for which there are no reporting rules in place.
3. Use the following table to help determine the correct code to report for organisms included in a 'Complex'. Examples include some species of
    - *Acinetobacter*
    - *Aeromonas*
    - *Burkholderia*
    - *Citrobacter*
    - *Candida*
    - *Enterobacter*
4. When reporting an organism 'complex', ensure the organism is included in the 'complex'.
    - Example: there are Citrobacter species not included in the *Citrobacter freundii* complex.
5. Report the appropriate complex with identifications from the Vitek MS and Vitek 2XL (ID cards).

| Vitek MS Identification | Alternate Reporting Instructions | Sunquest Code | Claimed ID versus complex |
|---|---|---|---|
| *Achromobacter denitrificans*<br>*Achromobacter xylosoxidans*<br>(50.0 confidence / 50.0 confidence) | *Achromobacter denitrificans/Achromobacter xylosoxidans* | ACHDX | Can report individual organism with High Confidence (60%) |
| *Acinetobacter baumannii*<br>*Acinetobacter calcoaceticus*<br>*Acinetobacter nosocomialis*<br>*Acinetobacter pittii*<br>(can be slashline between species) | *Acinetobacter baumannii* complex | ABAUC | Always report as ABAUC |
| *Aeromonas hydrophila/caviae*<br>*Aeromonas sobria*<br>*Aeromonas jandaei*<br>(can be slashline between species) | *Aeromonas* species | AERO | Always report AERO |
| *Bacillus cereus* | *Bacillus cereus* | BACE | |
| Unclaimed *Bacillus* result- GPR, morph consistent with *Bacillus,* BH or NH, motility positive | *Bacillus, not anthracis* | BNA | |
| GPR, morph consistent with *Bacillus,* non-hemolytic, motility negative | Send to MDH to rule out anthracis | If anthracis ruled out, report BNA | |
| *Burkholderia cenocepacia*<br>*Burkholderia cepacia*<br>*Burkholderia contaminans*<br>*Burkholderia multivorans*<br>*Burkholderia vietnamiensis*<br>(can be slashline between species) | *Burkholderia cepacia* complex | BCEP | Always report as BCEP |
| *Candida metapsilosis*<br>*Candida orthopsilosis*<br>*Candida parapsilosis* | *Candida parapsilosis* complex | CPARC | Always report CPARC |
| *Citrobacter braakii*<br>*Citrobacter freundii*<br>*Citrobacter gilleni*<br>*Citrobacter sedlaki*<br>*Citrobacter youngae*<br>*Citrobacter werkmanii*<br>(can be slashline between species) | *Citrobacter freundii* complex | CIFC | Always report as CIFC |
| *Brucella* sp. | **DO NOT test or report by VITEK MS.**<br>Perform rule-out testing under the hood. Tape plates. | | |
| *Enterobacter asburiae*<br>*Enterobacter cloacae*<br>*Enterobacter hormaechei*<br>*Enterobacter kobei*<br>*Enterbacter ludwigii*<br>(can be slashline between species) | *Enterobacter cloacae* complex | ENCLC | Always report at ENCLC |
| *Francisella* sp. | **DO NOT test or report by VITEK MS.**<br>Perform rule-out testing under the hood. Tape plates. | | |
| *Klebsiella variicola*<br>(not claimed) | Klebsiella pneumoniae/variicola<br>(with BCID results of KLPNG)<br><br>Klebsiella species most closing resembling K. variicola<br>(with unclaimed MALDI result) | KLPV<br>--add comment KPAV when KLPNG was previously reported from the BCID<br><br>KLEB-MOST-KVAR | |

| Vitek MS Identification | Alternate Reporting Instructions | Sunquest Code | Claimed ID versus complex |
|---|---|---|---|
| *Nesseria cinerea*<br>*Nesseria mucosa/sicca* | Perform gram stain & oxidase, then report as: *Neisseria* sp. | NEIS | Can report individual organism with High Confidence (60%) |
| *Proteus penneri*<br>*Proteus vulgaris*<br>(can be slashline between species) | *Proteus penneri/Proteus vulgaris* | PRVP | Can report individual organism with High Confidence (60%) |
| *Raoultella ornithinolytica*<br>*Raoultella planticola*<br>*Raoutella terrigena*<br>(can be slashline between species) | *Raoultella* species | RAOSP | Always report RAOSP |
| *Salmonella* group | *Salmonella* species | SALM | |
| *Staphylococcus auricularis*<br>*Staphylococcus capitis*<br>*Staphylococcus cohinii*<br>*Staphylococcus epidermidis*<br>*Staphylococcus haemolyticus*<br>*Staphylococcus hominis*<br>*Staphylococcus schleiferi*<br>*Staphylococcus sciuri*<br>*Staphylococcus simulans*<br>*Staphylococcus warneri* | Report from the following sources: UC, Blood, CSF, RESP, Misc. (DSK1), Sterile body fluids, and surgical tissue specimens.<br><br>Include comment **TCINS**: ("This is a coagulase negative *Staphylococcus*.")<br><br>Not every species is listed. There are over 50 species listed as coagulase negative *Staphylococcus*. | | |
| *Staphylococcus lugdunensis*<br>*Staphylococcus saprophyticus* | Report with all sources. DO NOT include comment **TCINS**. | SLUG<br>SSAP | |
| *Streptococcus mitis*<br>*Streptococcus sanguinis*<br>*Streptococcus parasanguinis*<br>*Streptococcus gordonii*<br>*Streptococcus cristatus*<br>*Streptococcus oralis* | *Streptococcus mitis* group | SMITG<br><br>(use with slash line results) | Can report individual organism with High Confidence (60%) |
| *Streptococcus mutans*<br>*Streptococcus sobrinus* | *Streptococcus mutans* group | SMUTG (use with slash line results) | Can report individual organism with High Confidence (60%) |
| *Streptococcus salivarius*<br>*Streptococcus vestibularis* | *Streptococcus salivarius* group | SSALG (use with slash line results) | Can report individual organism with High Confidence (60%) |
| *Streptococcus bovis*<br>*Streptococcus equinis*<br>*Streptococcus gallolyticus*<br>*Streptococcus infantarius*<br>*Streptococcus alactolyticus* | *Streptococcus bovis group* | SBOVG (use with slash line results) | Can report individual organism with High Confidence (60%) |
| *Streptococcus anginosus*<br>*Streptococcus constellatus*<br>*Streptococcus intermedius* | *Streptococcus anginosus* group<br><br>Report species in sterile body sites | SANGG (use with slash line results) | Can report individual organism with High Confidence (60%) |
| *Veillonella dispar* | *Veillonella* species | VEIL | |
| *Yersinia pestis*<br>*Yersinia pseudotuberculosis* | **DO NOT test or report by VITEK MS.**<br>Perform rule-out testing under the hood. Tape plates.<br>**Yersinia pseudotuberculosis* is similar in spectra to *Yersinia pestis*. | | |

**Unclaimed Validated Results**

Unclaimed MALDI results may go through a validation process to obtain approval to be reported without further testing. Submit requests of selected organisms to the Technical Specialist and Medical Director. The list of unclaimed, validated organisms approved for reporting are:

- ✓ *Dolosigranulum pigrum*
- ✓ *Paenibacillus* species

Organism validated that are now claimed on version 3.3.

- ✓ *Aerococcus urinae*
- ✓ *Acinetobacter ursingii*
- ✓ *Bacillus cereus*
- ✓ *Pasteurella canis*
- ✓ *Corynebacterium otitidis (Turicella)*

**Trust but Verify Plan**

A Trust by Verify Plan was put into place after the validation in 2016 to confirm organisms that were not included in the validation. All organisms encountered in this laboratory were tested by another method and have been confirmed. The Trust But Verify plan was retired in December 2022.

If organisms are identified that you are unfamiliar with or sounds weird, consult with the Technical Specialist or Medical Director. Most closely resembling (MOST) may be used if Gram stain and colony morphology matches. List the organisms resulted as MOST on the Trust but Verify Spreadsheet under the Most Closely Resembling Tab. These will be reviewed by the Medical Director if encountered frequently.

**References**

Maestria Customer Training Course manual, 2024.
VITEK MS Clinical Workflow User Manual,
VITEK MS Customer Training Course manual, 2016.
VITEK MS “The Basics” manual, 2014.

**Training Plan/ Competency Assessment**

1. Employee must read the procedure and training documentation.
2. Employee will observe trainer performing the procedure.
3. Employee will demonstrate the ability to perform procedure, record results and document corrective action after instruction by the trainer.

**Historical Record**

| Version | Written/Revised by: | Effective Date: | Summary of Revisions |
|---|---|---|---|
| 1 | Andrew Fangel/ Dr. Phillip Heaton | 10/07/16 | Initial Version |
| 2 | Andrew Fangel/ Susan DeMeyere | 4/20/2018 | Added caution message to Confidence Level section. Updated General Reporting Scheme instructions. |
| 3 | Susan DeMeyere | 12/1/2022 | Added unclaimed organisms approved to report after validation. Removed Trust but Verify plan to report claimed organisms. Added instructions for *Mycobacteria*, *Nocardia* or Mold results. |
| 4 | Susan DeMeyere | 3/3/2023 | Added *Burkholderia multivorans* to cepacia complex. |

| | | | |
|---|---|---|---|
| 5 | Susan DeMeyere | 12/12/2023 | Added code KLPV for when K. variicola is identified and add comment KPAV after BCID KLPNG |
| 6 | Susan DeMeyere | 2/27/2026 | Add section for suspected Bacillus species. |