

# Validation and implementation of Colorex™ CHROMagar™ Staph aureus on WASP™/WASPLab™ for screening for Staphylococcus aureus using the ESwab™

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## Introduction

*Staphylococcus aureus* (*S. aureus*) causes purulent bacterial infections, many of which can lead to serious complications resulting in significant morbidity and healthcare costs. A quarter of the population carry *S. aureus* asymptomatically and its early detection is vital in preventing transmission and subsequent infection. In patients with cystic fibrosis, *S. aureus* is one of the most commonly isolated pathogens and is associated with advanced pulmonary disease.

## Objective:

The objective of this study was to validate the use of Colorex™ Staph aureus (CHROMagar™) to screen for *S. aureus* in nasal surveillance specimens and respiratory specimens from cystic fibrosis patients. Plates were seeded on the WASP™ using a 30 ul loop and incubated and analyzed on the WASPLab™ with digital imaging analysis.

## Material/methods

In this study 130 clinical specimens were collected with ESwab™ kits and processed on a WASP™ using Colorex™ Staph aureus (CHROMagar™) agar plates and a Staph aureus screening protocol with a 30 ul loop and a single type 5 streaking pattern. Plates were incubated in the WASPLab™ for 20 hours at which point imaging analysis was performed. Vitek MS (Maldi-ToF) was performed on target and non-target colour colonies isolated. Results were compared to the same samples set up on Mannitol Salt agar incubated at 35 degrees C for 20 hours.



Figure 2: WASP™

## Results

Of the 130 specimens tested, 40 were positive for *S. aureus* using Mannitol Salt agar. An additional 8 specimens tested positive for *S. aureus* using the Colorex™ Staph aureus (CHROMagar™) plates for a total of 48 positive specimens. 9 specimens showed non-target colour growth, usually white, on Colorex™ Staph aureus (CHROMagar™) agar. These colonies were identified by Vitek MS as *Staphylococcus haemolyticus*. One light pink colony identified as *Staphylococcus scheriferi*. Colorex™ Staph aureus (CHROMagar™) showed a sensitivity of 100% (95%CI 0.91-1) and a specificity of 100% (95%CI 0.95-1) as compared to Mannitol Salt agar which showed a sensitivity of 83% (95%CI 0.70-0.91).



Figure 3: WASPLab System

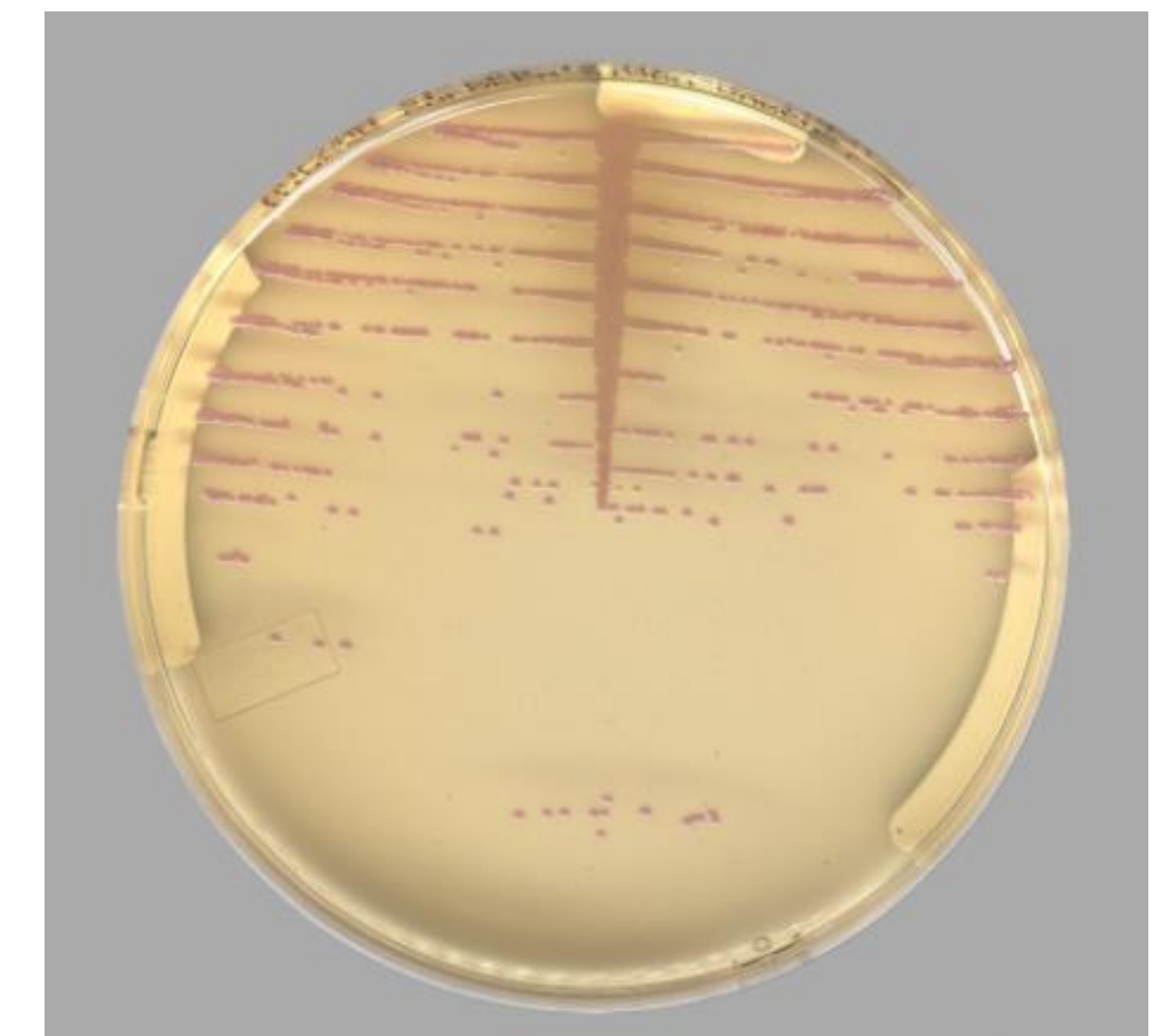


Figure 4: Colorex™ Staph aureus (CHROMagar™)

## Conclusion

Results showed Colorex™ Staph aureus (CHROMagar™) had a significantly greater sensitivity than Mannitol Salt in isolating *S. aureus* from nasal surveillance specimens. The use of the WASP for set up provides efficient and consistent processing and WASPLab™ imaging allows for high resolution digital imaging analysis.

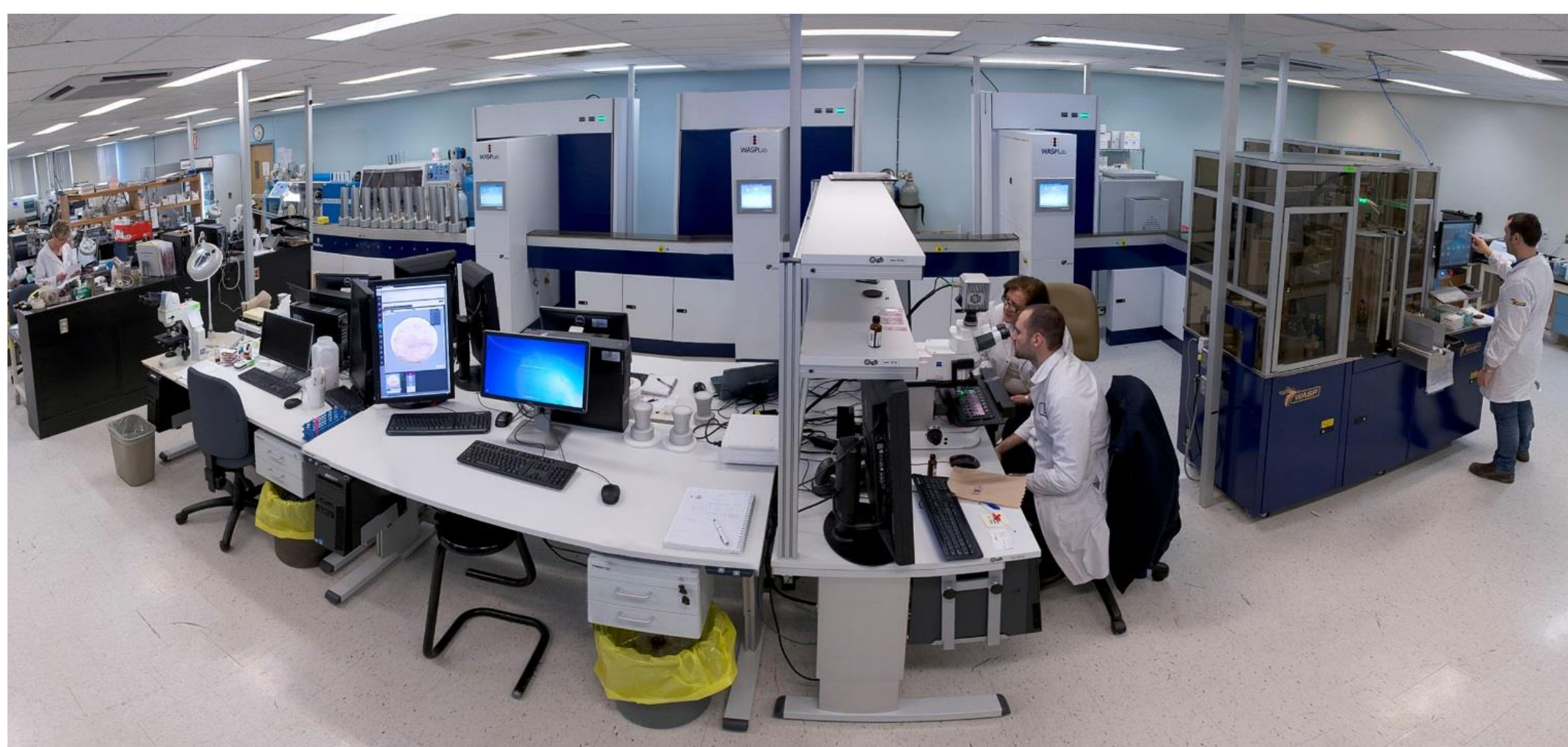


Figure 1: WASPLab System

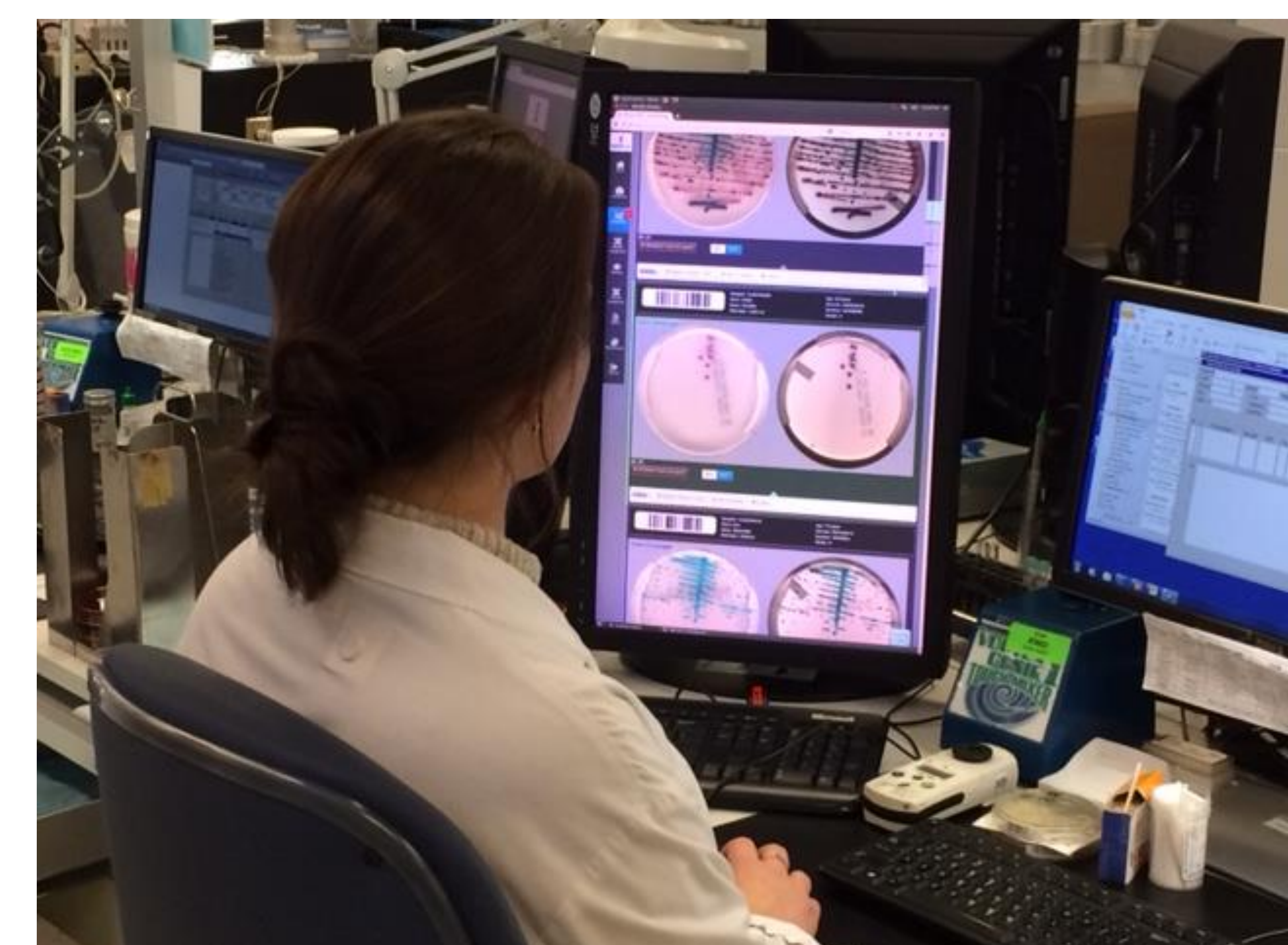


Figure 5: Digital Imaging Analysis