Identifying Bacteria Through Red and Cyan Fluorescence with the MolecuLight i:X® Led to Optimized Sampling

This patient presented at the clinic with a deteriorating diabetic foot ulcer as a result of poorly controlled diabetes. At this stage, the clinician suspected contamination and infection with pathogenic bacteria. This was ultimately confirmed. An infection of a diabetic foot ulcer is a serious complication requiring immediate treatment. Accurate sampling to correctly identify the causative pathogens and their sensitivity or resistance to antibiotics can be critical to determining the appropriate treatment selection.

Polymicrobial wound infections by such pathogens as Pseudomonas aeruginosa and Staphylococcus aureus can be more virulent than single pathogen infections, resulting in worse patient outcomes1,2. Early detection of bacteria, through fluorescence imaging in combination with clinical signs and symptoms (CSS), can help to more quickly and accurately treat these wounds.

In this case study, the clinician used the MolecuLight i:X to assess this wound and fluorescence images (Figure 2) revealed both cyan and red fluorescence indicating the presence of Pseudomonas aeruginosa (cyan) and at least one other bacterial species (at >10⁵ CFU/g)3,4. Most bacteria fluoresce red when imaged with violet light using the MolecuLight i:X (e.g. Staphylococcus aureus), however Pseudomonas aeruginosa uniquely fluoresces cyan3,4.

In the absence of the MolecuLight i:X, the clinician indicated he would have swabbed the middle of this wound, however the fluorescence image (Figure 2) guided the clinician to sample both the red and cyan fluorescent regions, thereby increasing the likelihood of detecting multiple species.

Curettage samples confirmed the presence of Pseudomonas aeruginosa and Staphylococcus aureus in this wound.
The MolecuLight i:X allows clinicians to quickly, safely and easily identify wounds with bacteria (at loads of >10^4 CFU/g, in combination with CSS) and measure wounds at the point of care to provide them with valuable information to inform treatment and monitor progress.

— Ron Linden, MD

Visit www.moleculight.com

+1.647.362.4684
Toll Free 1.877.818.4360 (Canada)
info@moleculight.com

Testimonial

“Previously, I would have swabbed in the middle of the wound, getting results which would be positive for *Pseudomonas* but missing the *Staphylococcus aureus*. If you’re involved in wound care the MolecuLight i:X is an essential tool.”

— Ron Linden, MD

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References:


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The MolecuLight i:X Imaging Device is approved by Health Canada for sale in Canada and has CE marking for sale in the European Union. The MolecuLight i:X Imaging Device has received FDA clearance.

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