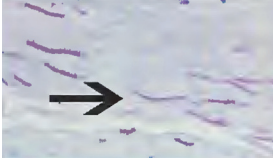
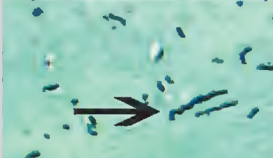
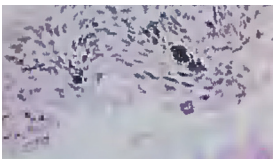


Nail Unit Testing Reference Guide

| Test | Medium | Example | Notes |
|---|-----------------|---|---|
| PAS Periodic acid-Schiff reaction | Dry or Formalin |  | <p>High sensitivity (few false negative tests), but rarely organism specific</p> <ul style="list-style-type: none"> • Chemical reaction, whereby carbohydrates are oxidized to form aldehydes • Aldehydes react with Schiff reagent to produce a magenta color • Shows excellent fungal morphology • Best for superficial skin/nail infections, which do not disclose abundant acute inflammation/suppuration • Reacts with most, but not all, fungi and yeast • Better at demonstrating non-degenerated organisms |
| GMS Gomori Methenamine Silver Silver-based histochemical stain | Dry or Formalin |  | <p>In tandem with PAS, highest sensitivity, but not organism specific</p> <ul style="list-style-type: none"> • Stains carbohydrates (sugars) • Tissue is pre-treated with chromic acid, then silver is applied • Offers high sensitivity, but poor morphology (target acquires a “dirty” granular appearance) • Arguably better for fungal infections found in association with abscesses • Better visualization of fungal infections in the deep tissues • Stains most, but not all, fungi and yeast • May excel at staining degenerated organisms |
| Fontana Masson Stain Silver-based histochemical stain | Dry or Formalin |  | <p>Adds specificity (identifies dematiaceous fungi) and screens for pigmented lesions within nail matrix</p> <ul style="list-style-type: none"> • Highlights melanin pigment in fungal organisms • Large quantities of melanin pigment favors dematiaceous fungi (pigmented saprophytic mold) • Deciphers melanin pigment from other pigments (hemosiderin) • Validates the presence of an underlying melanocytic process, e.g. benign matrical melanotic macule, nevus, or melanoma |
| Molecular Genetic Testing / PCR Assay | Dry Only | | <p>Augments the superior sensitivity of PAS/GMS, by providing high specificity (organism identification) for targeted patient therapy</p> <ul style="list-style-type: none"> • Detects the genetic material of pathologic fungi (dermatophytes, saprophytes, and/or yeasts) • If detected, genes specific for the pathogens genus +/- species are sought • Offers 1-2 day turn-around-time, rather than 28+ days via culture • Compared to culture, offers 25% higher sensitivity than culture overall, and twice its sensitivity when detecting dermatophytes • Organism identification may be necessary for preauthorization of targeted antifungal therapies |
| Culture | Dry Only | | <ul style="list-style-type: none"> • + 28 days |























Nail Dystrophy Expertise



Best Together: Anatomic Pathology + PCR

Turnaround Time: 1-2 Days

- Anatomic pathology allows for an accurate diagnosis in cases of non-infectious nail dystrophy
- PCR will identify the causative organism in cases of infectious nail dystrophy
- Combined, these tests provide the most comprehensive evaluation of nail unit dystrophy enabling targeted therapy for the underlying etiology
- By using these technologies in tandem, dermatologists receive the highest sensitivity and specificity available
- Cutis Diagnostics provides the shortest turnaround time in the industry

| | Poor | Good | Better | Best! |
|-------------------------------|---|---|--|--|
| |  Culture |  Anatomic Pathology |  Cutis PCR |  Anatomic Pathology with Cutis PCR |
| Turnaround Time |  30-45 days |  1-2 days |  1-2 days |  1-2 days |
| Sensitivity |  42% false negative rates |  Highest |  Up to 2X culture |  Highest |
| Genus/Species |  42% false negative rates |  |  |  |
| Non-infectious Nail Dystrophy |  |  |  |  |

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