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<th>Test</th>
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| PAS                  | Dry or Formalin      | ![PAS Image](image1.png)                                                | **High sensitivity (few false negatives), but rarely organism specific**  
* 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                  | Dry or Formalin      | ![GMS Image](image2.png)                                                | **In tandem with PAS, highest sensitivity, but not organism specific**  
* 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 | Dry or Formalin      | ![FM Image](image3.png)                                                 | **Adds specificity (identifies dematiaceous fungi) and screens for pigmented lesions within nail matrix**  
* 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 |
| DNA (PCR) Test       | Dry Only             | ![PCR Image](image4.png)                                                | **Augments the superior sensitivity of PAS/GMS, by providing high specificity (organism identification) for targeted patient therapy**  
* 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 turnaround 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             | ![Culture Image](image5.png)                                            | **+ 28 days**  
* + 28 days |

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