

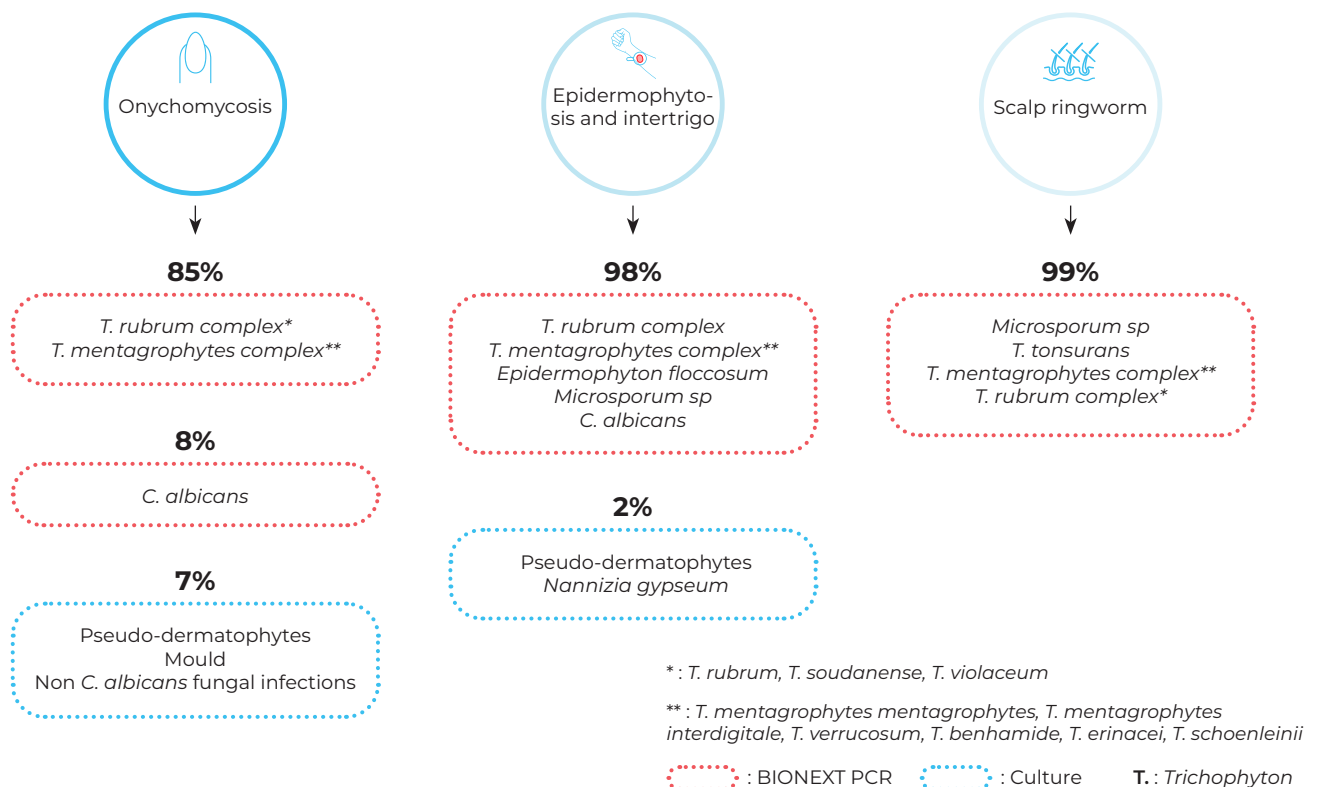


# FUNGAL INFECTIONS OF THE SKIN AND ITS APPENDAGES

## DIAGNOSTIC APPROACH

Dermatophyte fungi occupy a predominant place in the area of infectious skin conditions. They are believed to affect nearly a quarter of the world population. In recent years, molecular diagnosis kits for dermatophyte infections have emerged in the market. This technology is now at the centre of the algorithm for detecting fungal infections of the skin and its appendages used by Bionext, saving significant time in patient management.

### Epidemiology: Fungal lesions



### Available techniques

|                                                               | Culture | PCR conventional | BIONEXT PCR |
|---------------------------------------------------------------|---------|------------------|-------------|
| Technical time requirement                                    | 4 weeks | 24 hours         | 24 hours    |
| •Impact of sample quality<br>•Impact of preliminary treatment | High    | Low              | Low         |
| Sensitivity                                                   | 30-50%  | 90%              | 95%         |
| Specificity                                                   | 90-100% | 55-70%           | 80%         |

The choice of a kit with the best technical performance (sensitivity and specificity) allows **improved detection of the most common pathogens**. PCR tests detecting a larger number of targets generally demonstrate lower performance (risk of false positives).

## Diagnostic approach

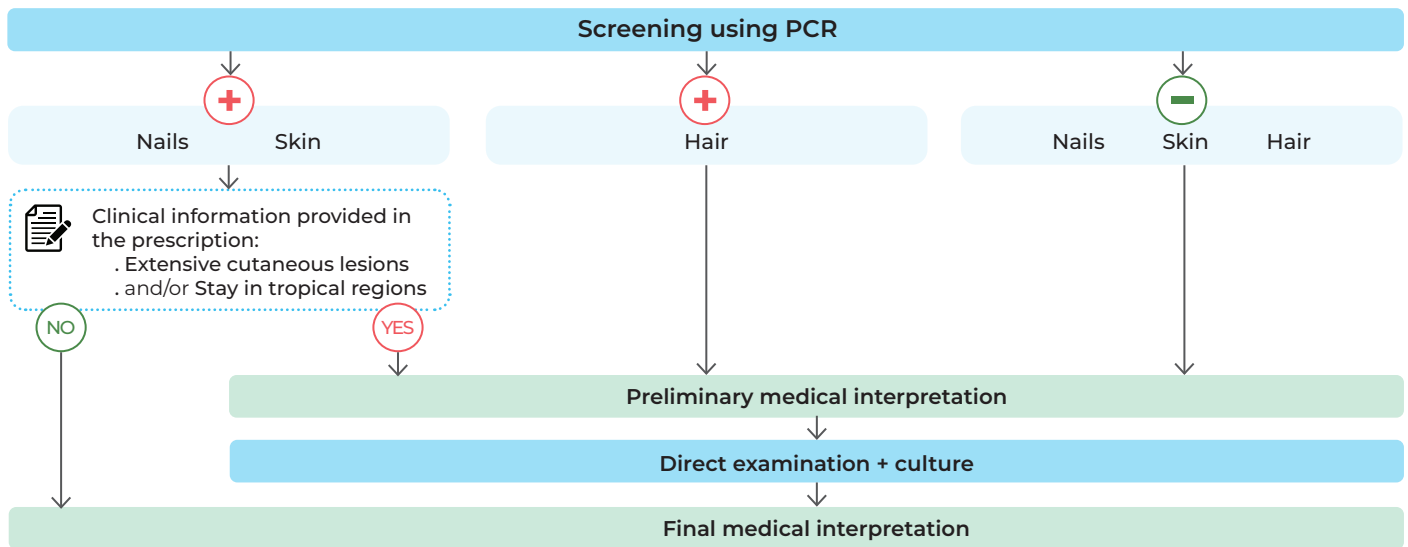


Figure 1: Diagnosis algorithm (based on the recommendations of scientific societies)

In view of the superiority of PCR testing in terms of sensitivity and speed, it is used as a screening technique. In order to provide a complete diagnosis and rule out (or in) a fungal origin, it is subsequently supplemented by culture if necessary.

## When is culture carried out?

### Negative PCR

A negative PCR result rules out the most common dermatophytes. Additional culture examination makes it possible to detect other fungal agents that have also been described as responsible for skin conditions, but which are less prevalent.

**Positive PCR on skin & nails** if extensive lesions and/or stay in tropical region

When faced with extensive lesions and/or travelling in tropical regions, it is important to look for co-infection by pseudo-dermatophytes or to secure a species diagnosis for *T. indotineae*.

- **Pseudo-dermatophytes**: endemic in tropical areas. Not detected by PCR, require a culture for identification.
- ***T. indotineae***: detection by PCR within the *T. mentagrophytes* complex. Genotyping from culture is necessary. This dermatophyte is the subject of close epidemiological surveillance due to its emergence in Europe and its **frequent resistance to terbinafine**.

**Positive PCR in hair**

Some pathogens are identified at genus level (*Microsporum* sp.) or at complex level (*T. mentagrophytes* complex) without differentiating between **zoophilic** and **anthropophilic** species. A culture makes it possible to identify the species, and is required for putting in place additional measures (screening +/- treatment of others in the family or treatment of pets).

### In practice Prescription procedure

- Indicate “PCR Dermatophytes +/- culture” on the prescription for CNS cover.
- Indicate on the prescription whether there are extensive skin lesions particularly if they are resistant to Terbinafine (suspicion of *T. indotineae*)
- Bionext can collect your samples from the office every day, for more information:

☎ 27 321 285

✉ [bio@bionext.lu](mailto:bio@bionext.lu)

### Key points

- ✓ PCR offering the **best sensitivity/specificity** in the market.
- ✓ Speedy PCR result.
- ✓ **Start treatment only after the sample is collected**, even though the impact on PCR is not as great.
- ✓ Additional **culture** will be carried out if necessary.
- ✓ **Advice suited** to each species is mentioned on the report (treatment recommendations, additional measures).

