

# METHOD FOR THE REAL-TIME MEASUREMENT OF A WALL THICKNESS AND USES THEREOF

New imaging of the cell wall allowing to measure its thickness in real time and to follow its development usable for various application.

# ERG\NEO

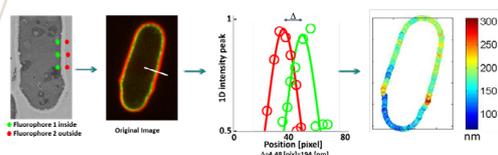
L'AVENIR EST FAIT D'AUDACE

## PRESENTATION

Fungal diseases are highly relevant to human health and agriculture.

In Humans, Candidiasis, Aspergillosis or Cryptococcosis mostly affect immunocompromised patients and cause death penalties of ~1.7 million deaths per year. In plants, fungal diseases cause around 10-30% loss in crops representing a risk for food availability. While anti-fungal treatments remain unsatisfactory to date due to species diversity and adaptation mechanisms, we need new tools to assess the efficiency of newly developed drugs. Cell wall thickness is critical for the survival and development of fungal cells.

The team has developed a new method based on light microscopy and image analysis pipelines to monitor Cell Wall thickness in live cells and in large populations of living cells, thereby allowing to quickly and accurately define the thickness of the cell wall. This method can be used in fundamental and applied research, and is compatible with screening strategies to allow the identification of new agents capable of altering the cell wall.



Imaging Method - Cell Wall thickness - Live imaging  
Fungal diseases - Screening

## APPLICATIONS

- Microbiology/Infectiology
- Anti-fungal Drug Screening for fungal diseases affecting humans and crops
- Fundamental and applied research tool to assess cell wall integrity

## COMPETITIVE ADVANTAGES

- No need to fix the cell
- Allows dynamic observation of the cell wall
- Spatio-temporal maps of cell wall thickness in live cells, with a precision of +/-10-20nm
- Less time-consuming than Electron Microscopy and Biochemical fractionation

## INTELLECTUAL PROPERTY

Patent Application EP2017/070729

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## DEVELOPMENT PHASE

- Initial Validation in model yeast cells
- Further validated in all fungal strains tested (*Aspergillus nidulans*, *Botrytis cinerea*, *Neurospora crassa*, *Schizosaccharomyces pombe*, *Candida albicans*, *Saccharomyces cerevisiae*)
- Screen of a large panel of conditions affecting cell walls (drugs, environmental conditions, ...)

## PUBLICATIONS

Davi, Minc et al. 2017