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New generation AIR SAMPLER
Quick & reliable air control

Pneumocystis jirovecii detection & quantification

Saint-Louis hospital, Paris

In partnership with Mr Firas Choukri, Lab. de Parasitologie-Mycologie, Hôpital Saint-Louis, APHP / EA 3520, Univ. D.Diderot, Paris

Context

Pneumocystis jirovecii is responsible for a disease affecting immuno-depressed patients: *Pneumocystis* pneumonia (PCP). Consequently, the control of air surrounding patients with PCP is required to prevent nosocomial infections spread. Unfortunately, the current sampling methods are unsuited and no quantitative epidemiological data are available. This is why the Coriolis® has been tested as a new method of detection and quantification to assess impaction on liquid medium for *P.jirovecii*. At a long term, this study should make possible to assess the risk of *P.jirovecii* spread and transmission from patients developing PCP.

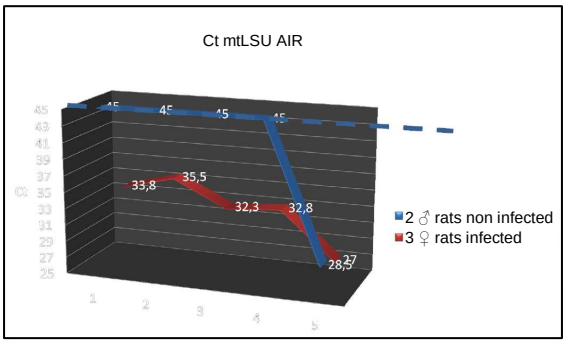
Material & methods

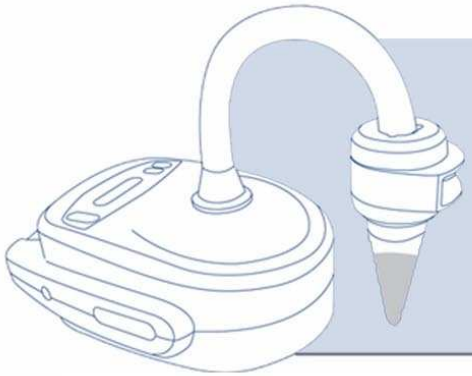
- 1m^3 of air collection: 4 minutes at 250 L/min with Coriolis® µ
- Air samples from non infected / infected rat cages *(Pneumocystis carinii)*
- 10 air samples from 7 rooms
- Centrifugation of the 15 mL sterile water at 3000 rpm
- Real-time PCR: mitochondrial large sub-unit rRNA gene target, 45 amplification cycles

Results

Detection and quantification of *P. carinii*: estimated fungal range between 2 to 1500 nuclei/m^3 of air

➔ Confirmation of *P.carinii* presence in the air surrounding infected rat cages
➔ First data on *P.jirovecii* quantification and detection into patient rooms by RT-PCR





Conclusion

Both short-time and high-flow sampling performed with Coriolis® facilitate epidemiological investigations with non-cultivable microorganisms like *Pneumocystis sp*. Besides impaction on liquid medium provides specific data thanks to its compatibility with efficient DNA extractions.

www.coriolis-airsampler.com
coriolis@bertin.fr
Phone: +33(0) 139 306 070
Fax: +33(0) 139 306 185

04131-203-SL006-A