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Comparison of the innate immune response to infection by mycobacteria and SARS-CoV-2 in humans using an ex vivo physiological lung model

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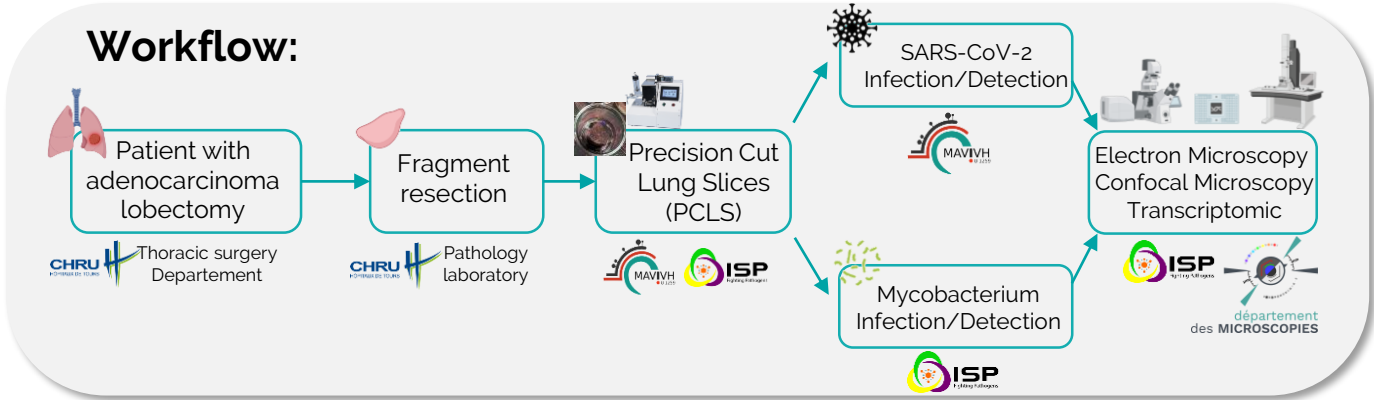


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Objective
 To compare the innate immune response to infection by mycobacteria and SARS-CoV-2 in humans using an *ex vivo* physiological lung model

Uninfected

- ✓ PCLS: Lung environment preserved, and all cell types present (imaging)
- ✓ Excellent viability (LDH release assay + ciliary activity)

Transmission Electronic microscopy (TEM) of PCLS at day 3 of culture.

M.tuberculosis

Ex vivo infection triggered macrophages (CD163+ cells) recruitment in alveoli

Confocal (48hpi)

Mtb (*) were in close contact to epithelial cells and activated macrophages (#)

TEM (48hpi)

SARS-CoV-2

Detection of viral genome by qPCR at 5 dpi

Sample Type	Variant	VRNA (copies/μL)
Tissue lysates	Delta	~10 ⁵
Supernatant	Delta	~10 ⁷
Supernatant	Omicron	~10 ⁶

Visualisation of infected cells by confocal microscopy (dsRNA antibody)

TEM: no virus or infected cells observed so far

Our next steps:

- Transcriptomic signature of infected PCLS (Fluidigm Biomark): differences between pathogens?
- Production of effectors by infected PCLS (ELISA)
- SARS-Cov-2: improving infection/detection
- Quantification of macrophages' recruitment to infected alveoli after mycobacterial infection: comparison of human and cattle strains

