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RNA Extraction from Mouse Tissues using the Minilys

Cystic Fibrosis and Pulmonary Research Center, University of North Carolina at Chapel Hill, North Carolina, USA

CONTEXT

Our research focuses on studying the normal physiology of airway surface liquids and failure of this system, which results in cystic fibrosis and chronic pulmonary disease (COPD). We examine RNA expression of MUC5AC in various mouse tissues, which is associated with COPD development. The aim of this study is to improve workflow efficiency by comparing the performance of two instruments for mouse lung and tracheal tissue homogenization.

MATERIAL

- **Minilys Homogenizer**
- Precellys lysing kit: CK28-R_2mL (KT03961-1-007.2)
- Competitor B (Beadbug Microtube Homogenizer)
- Samples: mouse lung (20 mg) and trachea (200 mg)
- Buffer: 1.3 mL of Qiagen RLT lysis buffer

PROTOCOL

- Minilys: 5000 rpm (maximum speed) for 45 sec
- Competitor B: 4000 rpm (maximum speed) for 45 sec, 1.0 and 1.5 mm ceramic beads, 2.8 mm stainless steel beads

THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

RESULTS

Replicate samples from lung and tracheal mouse tissue were prepared and homogenized on the Minilys and Competitor B. Visual images were captured for lung tissue before and after homogenization to compare efficiency. Figure 1 demonstrates that Competitor B yields incomplete homogenization after running a protocol at the unit's maximum speed. Figure 2 shows that the lung tissues were thoroughly homogenized on the Minilys.

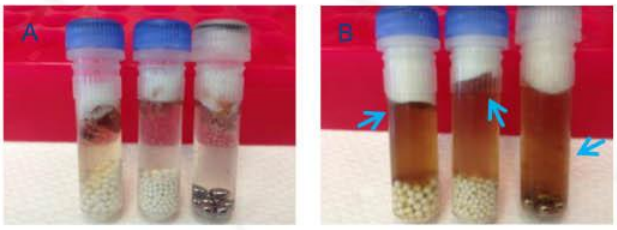

Figure 1. Lung tissue before (A) and after homogenization (B) on Competitor B. The blue arrows indicate unhomogenized tissue.

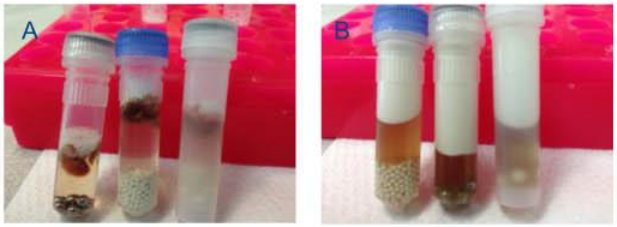

Figure 2. Lung tissue before (A) and after homogenization (B) on the Minilys.

CONCLUSION

The **Minilys** can be used to investigate changes in gene expression and has demonstrated to be effective in processing lung and tracheal mouse tissue for RNA extraction. **The Minilys improves laboratory workflow and offers superior homogenization efficiency compared to the competitor.**

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For more details, please contact precellys@bertin.fr

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