Background and Aims

- Acute respiratory distress syndrome (ARDS) is a serious complication of COVID-19 and present in a large percentage of COVID-19 deaths.
- Many studies suggest that people with obesity are at increased risk of severe COVID-19, however, mechanism on liver-lung axis remains unknown.
- We aimed to evaluate whether bile acid (BA) trafficking interfere with acute lung injury (ALI) in animal model with obesity.

Materials and Methods

- Leptin deficient (ob/ob) mice were i.p injected with oleic acid (OA) to induce ALI.
- To modulate BA uptake, mice were i.p treated with anti-sodium taurocholate co-transporting polypeptide (NTCP, BA-transporter and has a major role as a membrane transporter affecting the enterohepatic circulation of bile salts).
- Broncho alveolar lavage fluid (BALF), lungs, livers and serum were obtained from mice groups and assessed for inflammatory (H&E staining, ALT and IL-6), fibrosis (Sirius red staining, a-smooth muscle actin) and metabolic (bile acids, Cholesterol, triglyceride, glucose tolerance test (GTT) and fasting blood sugar (FBS)) profiles. Moreover, lung and liver weights were calculated.

Results

- **Result 1. NTCP blocking ameliorates liver histological outcome.**
- **Result 2. NTCP blocking improves Serum metabolic markers.**
- **Result 3. NTCP blocking improves fasting blood glucose and GGT.**
- **Result 4. NTCP blocking prevents lung shrinking following OA treatment.**
- **Result 5. NTCP blocking prevents improves BAs and pro-inflammatory cytokine in BALF.**
- **Result 6. NTCP blocking prevents lungs injury.**

Antagonizing BAs uptake may suggest a therapeutic strategy in improving liver-lung axis.