Lung mechanics by forced oscillations CCP _LFO_001

Purpose

Measurement of lung mechanical parameters which are relevant to the respiratory function of the animal

Experimental Design

Minimum number of animals: 7 mice of each sex

Age at test: 13 weeks

Sex: both sexes

Equipment

- 1. Scales
- 2. Intubation platform
- 3. Bend forceps
- 4. Modified catheter insertion needle (blunted and slightly bend)
- 5. Catheters: 18G, 1.16 inch
- 6. Catheters: 20G, 1.16 inch
- 7. Stopper to block tube during calibration
- 8. Flexivent FX
- 9. Computer with the Flexiware software linked to the Flexivent
- 10. Cold light source with Flexible light arm
- 11. Heating pad
- 12. Eye gel
- 13. Ketamine (10 mg/ml)/xylazine (1 mg/ml) in saline
- 14. Optional: Pulse-oximeter which is usable in mice

Procedure

- 1. Weigh and anaesthetise mouse.
- 2. Set up the software program and perform tube calibration.
- 3. Intubate the mouse.
- 4. Attach the tube to the ventilator port and pulse-oximeter to a hind limb where applicable.
- 5. Check the tube was correctly inserted by checking the PAO curve. If required reintubate the mouse.
- 6. Perform 2 deep inflations to check for tube leakage.
- 7. Ensure that the oxygen saturation is adequate as indicated by minimum oxygen level of 95% or regular PAO curve.

- 1. If the saturation level is inadequate, leave the animal to be ventilated for 1 minute
- 2. If this does not improve the saturation increase the breathing frequency to 250 bpm and ventilate until oxygen saturation is adequate.
- 8. Start the measurements.
- 9. The ventilation frequency should be set to 180 bpm at the start. If necessary for obtaining valid measurements increase the frequency to 250 bpm allowing the oxygen saturation levels to recover before commencing measurements.
- 10. After execution of the script, repeat the perturbations which were excluded by the software until there are 5 valid measurements for each perturbation.
 - 1. Leave at least one minute of ventilation between the end of the script and the repeats
 - 2. Leave at least 20 seconds between individual perturbations.
 - 3. Perform a deep inflation every 5 perturbations
- 11. Stop ventilation and ensure the animal starts breathing spontaneously and then extubate the mouse.
- 12. Apply eye gel on the mouse and place it on a heat pad until it starts moving. Place back in its home cage.

Parameters and Metadata

Weight CCP_LFO_001_001 | v1.0

simpleParameter

Csn CCP_LFO_003_001 | v1.0

simpleParameter

Req. Analysis: false	Req. Upload: true	Is Annotated: true
Unit Measured: ml/cmH2O		
ESN CCP_LFO_004_001 simpleParameter	v1.0	
Req. Analysis: false	Req. Upload: true	Is Annotated: true
Unit Measured: cmH2O/ml		
Rqp CCP_LFO_005_001 simpleParameter	v1.0	
Req. Analysis: false	Req. Upload: true	Is Annotated: true
Unit Measured: cmH2O*s/ml		

Gqp CCP_LFO_006_001 | v1.0

simpleParameter

Req. Analysis: false	Req. Upload: true	Is Annotated: true
Unit Measured: cmH2O/ml		
Hqp CCP_LFO_007_001 simpleParameter	v1.0	
Req. Analysis: false	Req. Upload: true	Is Annotated: true
Unit Measured: cmH2O/ml		
Rp8 CCP_LFO_008_001 simpleParameter	v1.0	
Req. Analysis: false	Req. Upload: true	Is Annotated: true
Unit Measured: cmH2O*s/ml		
Gp8 CCP_LFO_009_001 simpleParameter	v1.0	
Req. Analysis: false	Req. Upload: true	Is Annotated: true
Unit Measured: cmH2O/ml		

Hp8 CCP_LFO_010_001 | v1.0

simpleParameter

Req. Analysis: false	Req. Upload: true	Is Annotated: true	
Unit Measured: cmH2O/ml			
Inspiratory capacit simpleParameter	y ccp_lfo_011_001 v1.0)	
Req. Analysis: false	Req. Upload: true	Is Annotated: true	
Unit Measured: ml			
comment CCP_LFO_012_001 v1.0 simpleParameter			
Req. Analysis: false	Req. Upload: false	Is Annotated: false	

Anaesthetic agent and dose CCP_LFO_013_001 | v1.0

procedureMetadata

Options:

Ketamine/xylazine: (0.1 mg/g + 1.0 mg) / (0.01 mg/g + 0.1 mg) males; (0.1 mg/g + 0.5 mg) / (0.01 mg/g + 0.05 mg) females,

Equipment manufacturer CCP_LFO_014_001 | v1.0

procedureMetadata

Req. Analysis: true	Req. Upload: true	Is Annotated: false
Options: Scireq,		
Equipment model of procedureMetadata	CCP_LFO_015_001 v1.0	

Options: Flexivent FX,

Equipment module CCP_LFO_016_001 | v1.0

procedureMetadata

Reg. Analysis: true Reg. Upload: true Is Annotated: false

Req. Analysis: true Req. Upload: true Is Annotated: false

Software version CCP_LFO_017_001 | v1.0

procedureMetadata

Req. Analysis: true	Req. Upload: true	Is Annotated: false
Options: 7.6, 8.4,		
procedureMetadata	0_018_001 v1.0	
Req. Analysis: false	Req. Upload: true	Is Annotated: false

Date of last calibration CCP_LFO_019_001 | v1.0

procedureMetadata

Req. Analysis: false	Req. Upload: true	Is Annotated: false