IMPC phenotyping SOPs in JMC

Challenge Whole Body Plethysmography IMPC_CHL_004

Purpose

The purpose of this procedure is to record the respiratory function of mice under the by means of Unrestrained Whole-Body Plethysmography, without any immunological challenge airway agonist.

Ontological description: MP:0002327 - abnormal respiratory function

Experimental Design

Minimum number of animals: 4 mice/genotype

Age at test: 13 weeks

Sex: Both (sexually dimorphic)

Equipment

1. Balance
2. Flow chambers
3. Plethysmographs
4. Nebulizers
5. Computer connected to flow chamber
6. Personal safety equipment (masks, gloves, etc.)

Procedure

1. Transfer the cohort to be tested to the test room.
2. Before starting, make sure the plethysmographic chambers are calibrated.
3. Turn on amplifier and computer.
4. Weigh each mouse in the cohort and record weight.
5. Place each mouse in an individual plethysmographic chamber.
6. Start the experimental recording phase (in two sessions; 30 min + 30 min).
7. Remove mice from chambers and place back in the home cages.

Parameters

	Version	Type	Increment	Option	Derived	Unit	Data Type
Body weight IMPC_CHL_001_001	1.1	simpleParameter				g	FLOAT

	Version	Type	Increment	Option	Derived	Unit	Data Type
Frequency of breathing (f) IMPC_CHL_002_001	1.5	seriesParameter	datetime Minimum: 1			bpm	FLOAT
Tidal volume (TVb) IMPC_CHL_003_001	1.2	seriesParameter	datetime Minimum: 1			ml	FLOAT
Minute volume (MVb) IMPC_CHL_004_001	1.2	seriesParameter	datetime Minimum: 1			ml/min	FLOAT
Peak expiratory flow (PEFb) IMPC_CHL_005_001	1.2	seriesParameter	datetime Minimum: 1			ml/s	FLOAT
Peak inspiratory flow (PIFb) IMPC_CHL_006_001	1.2	seriesParameter	datetime Minimum: 1			ml/s	FLOAT
Pause (PAU) IMPC_CHL_007_001	1.2	seriesParameter	datetime Minimum: 1			s	FLOAT
Inspiratory time (Ti) IMPC_CHL_008_001	1.2	seriesParameter	datetime Minimum: 1			s	FLOAT
Expiratory time (Te) IMPC_CHL_009_001	1.3	seriesParameter	datetime Minimum: 1			s	FLOAT
Relaxation time (Tr) IMPC_CHL_010_001	1.2	seriesParameter	datetime Minimum: 1			s	FLOAT
Time of pause (Tp) IMPC_CHL_011_001	1.3	seriesParameter	datetime Minimum: 1			s	FLOAT
Enhanced pause (Penh) IMPC_CHL_012_001	1.2	seriesParameter	datetime Minimum: 1				FLOAT
Rejection index (Rinx) IMPC_CHL_013_001	1.2	seriesParameter	datetime Minimum: 1				FLOAT
Rpef IMPC_CHL_014_001	1.2	seriesParameter	datetime Minimum: 1				FLOAT
TB IMPC_CHL_015_001	1.2	seriesParameter	datetime Minimum: 1			%	FLOAT
Compensation (Comp) IMPC_CHL_016_001	1.2	seriesParameter	datetime Minimum: 1				FLOAT
Flow at point 50% TV expired (EF50) IMPC_CHL_017_001	1.2	seriesParameter	datetime Minimum: 1			ml/s	FLOAT

Metadata

	Version	Type	Increment	Option	Derived	Unit	Data Type
Equipment ID IMPC_CHL_018_001	1.0	procedureMetadata					TEXT
Experimenter ID IMPC_CHL_019_001	1.0	procedureMetadata					TEXT
Equipment manufacturer IMPC_CHL_020_001	1.1	procedureMetadata		Buxco			TEXT
Equipment model IMPC_CHL_021_001	1.1	procedureMetadata					TEXT
Date equipment last calibrated IMPC_CHL_022_001	1.2	procedureMetadata					DATE
Chamber temperature (Tc) IMPC_CHL_026_001	1.1	procedureMetadata				C	FLOAT
Relative Humidity (RH) IMPC_CHL_027_001	1.0	procedureMetadata				%	FLOAT
Hypoxia challenge data present in submission IMPC_CHL_029_001	1.1	procedureMetadata					BOOL
Methacholine challenge: duration of PBS measurement period IMPC_CHL_023_001	1.0	procedureMetadata				min	FLOAT
Methacholine challenge: start of PBS measurement timestamp IMPC_CHL_031_001	1.1	procedureMetadata					DATETIME
Methacholine challenge: end of PBS measurement timestamp IMPC_CHL_032_001	1.1	procedureMetadata					DATETIME
Methacholine challenge: duration of 12.5 mg/ml MCh measurement period IMPC_CHL_024_001	1.2	procedureMetadata				min	FLOAT
Methacholine challenge: start of 12.5 mg/ml MCh measurement timestamp IMPC_CHL_033_001	1.2	procedureMetadata					DATETIME
Methacholine challenge: end of 12.5 mg/ml MCh measurement timestamp IMPC_CHL_034_001	1.2	procedureMetadata					DATETIME
Methacholine challenge: duration of 25 mg/ml MCh measurement period IMPC_CHL_025_001	1.1	procedureMetadata				min	FLOAT
Methacholine challenge: start of 25 mg/ml MCh measurement timestamp IMPC_CHL_035_001	1.3	procedureMetadata					DATETIME
Methacholine challenge: end of 25 mg/ml MCh measurement timestamp IMPC_CHL_036_001	1.2	procedureMetadata					DATETIME
Methacholine challenge: duration of 50 mg/ml MCh measurement period IMPC_CHL_030_001	1.3	procedureMetadata				min	FLOAT
Methacholine challenge: start of 50 mg/ml MCh measurement timestamp IMPC_CHL_037_001	1.2	procedureMetadata					DATETIME
Methacholine challenge: end of 50 mg/ml MCh measurement timestamp IMPC_CHL_038_001	1.2	procedureMetadata					DATETIME
Hypoxia challenge: duration of Unchallenged measurement period IMPC_CHL_028_001	1.1	procedureMetadata				min	FLOAT

	Version	Type	Increment	Option	Derived	Unit	Data Type
Hypoxia challenge: start of Unchallenged measurement timestamp IMPC_CHL_039_001	1.2	procedureMetadata					DATETIME
Hypoxia challenge: end of Unchallenged measurement timestamp IMPC_CHL_040_001	1.1	procedureMetadata					DATETIME
Hypoxia challenge: duration of 10% O2 measurement period IMPC_CHL_041_001	1.0	procedureMetadata				min	FLOAT
Hypoxia challenge: start of 10% O2 measurement timestamp IMPC_CHL_042_001	1.1	procedureMetadata					DATETIME
Hypoxia challenge: end of 10% O2 measurement timestamp IMPC_CHL_043_001	1.1	procedureMetadata					DATETIME
Hypoxia challenge: duration of 21% O2 measurement period IMPC_CHL_044_001	1.0	procedureMetadata				min	FLOAT
Hypoxia challenge: start of 21% O2 measurement timestamp IMPC_CHL_045_001	1.1	procedureMetadata					DATETIME
Hypoxia challenge: end of 21% O2 measurement timestamp IMPC_CHL_046_001	1.1	procedureMetadata					DATETIME
Hypoxia challenge: duration of Baseline measurement period IMPC_CHL_047_001	1.0	procedureMetadata				min	FLOAT
Hypoxia challenge: start of Baseline measurement timestamp IMPC_CHL_048_001	1.1	procedureMetadata					DATETIME
Hypoxia challenge: end of Baseline measurement timestamp IMPC_CHL_049_001	1.1	procedureMetadata					DATETIME