Fear Conditioning IMPC_FEA_001

Purpose

This procedure is used for measuring aversive learning and memory. A neutral conditioned stimulus (CS) such as steady tone is paired with an aversive unconditioned stimulus (US) such as one or more mild foot shocks. After conditioning, the spatial context or the CS (tone) elicits a central state of fear in the absence of the US (shock) that is expressed as reduced locomotor activity or total lack of movement (freezing). Immobility time is used as a measure of learning/memory performances.

Experimental Design

- **Minimum number of animals :** 7M + 7F
- **Age at test:** Week 11
- **Sex:** We would expect the results of this test to show sexual dimorphism

Equipment

- Fear conditioning chambers
- Arenas and components for cue and conditioning phases
- Computer with recording software
- Olfactory substance

Procedure

1. Day 1: Conditioning
    a. Transport animals to the testing area.
    b. Set up conditioning arenas in the chambers ensuring that shocker, tone delivery and camera / beam break system are working correctly. If using video tracking equipment, ensure camera lenses are free of dust.
    c. Remove the animals from their cages and place in the arenas. Animals are conditioned using the training protocol which consists of a baseline period, audible tone, a single foot shock that co-terminates with the tone, and a period with no stimuli at the end.
    d. Remove animals from arenas and place back in home cage. Clean arenas.
2. Day 2: Context
    a. To be performed 24 hours after conditioning.
    b. Transport animals to the testing area.
    c. Set up conditioning arenas in the chamber as on day 1 except for shocker and tone delivery system which are not used.
    d. Remove animals from their cages and place in the arena. No CS or US stimuli are presented.

    e. Remove animals from arenas and place back in home cage. Clean arenas.
3. Day 2: Cue
    a. To be performed performed from 2 - 24 hours after the context protocol.
    b. Set up cue arenas using different floors, walls, olfactory cues and / or lighting from the conditioning context. Ensure that tone delivery and camera / beam break system are working correctly.
    c. Remove animals from their cages and place in the arena. Animals are exposed to a baseline period without any stimulus followed by the presentation of the tone.
    d. Remove animals from arenas and place back in home cage. Clean arenas.
4. At the end of the cue protocol animals are placed back into their holding room and data is analyzed by collecting the number of freezing episodes and the total freezing /immobility time.

Parameters and Metadata

Conditioning Baseline Freeze Count IMPC_FEA_001_001 | v1.0

simpleParameter

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

Description: conditioning_baseline_freeze_count

Conditioning Baseline Freezing Time IMPC_FEA_002_001 | v1.0

simpleParameter

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

Unit Measured: s

Description: conditioning_baseline_freezing_time

Conditioning Baseline % Freezing Time IMPC_FEA_003_001 | v1.1

simpleParameter

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

Unit Measured: %

Description: conditioning_baseline_freezing_time

Derivation: mul(div('IMPC_FEA_002_001', 'IMPC_FEA_033_001'), 100)

Conditioning Baseline Average Motion Index IMPC_FEA_004_001 | v1.0

simpleParameter

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

Description: conditioning_baseline_average_motion_index

Conditioning Baseline Minimum Motion Index IMPC_FEA_005_001 | v1.0

simpleParameter

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

Description: conditioning_baseline_minimum_motion_index

Conditioning Baseline Maximum Motion Index IMPC_FEA_006_001 | v1.0

simpleParameter

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

Description: conditioning_baseline_maximum_motion_index

Context Freeze Count IMPC_FEA_007_001 | v1.0

simpleParameter

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

Description: context_freeze_count

Context Freezing Time IMPC_FEA_008_001 | v1.0

simpleParameter

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

Unit Measured: s

Description: context_freezing_time

Context % Freezing Time IMPC_FEA_009_001 | v1.1

simpleParameter

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

Unit Measured: %

Description: context_freezing_time

Derivation: mul(div('IMPC_FEA_008_001', 'IMPC_FEA_049_001'), 100)

Context Average Motion Index IMPC_FEA_010_001 | v1.0

simpleParameter

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

Description: context_average_motion_index

Context Minimum Motion Index IMPC_FEA_011_001 | v1.0

simpleParameter

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

Description: context_minimum_motion_index

Context Maximum Motion Index IMPC_FEA_012_001 | v1.0

simpleParameter

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

Description: context_maximum_motion_index

Cue Baseline Freeze Count IMPC_FEA_013_001 | v1.0

simpleParameter

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

Description: cue_baseline_freeze_count

Cue Baseline Freezing Time IMPC_FEA_014_001 | v1.0

simpleParameter

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

Unit Measured: s

Description: cue_baseline_freezing_time

Cue Baseline % Freezing Time IMPC_FEA_015_001 | v1.1

simpleParameter

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

Unit Measured: %

Description: cue_baseline_freezing_time

Derivation: mul(div('IMPC_FEA_014_001', 'IMPC_FEA_057_001'), 100)

Cue Baseline Average Motion Index IMPC_FEA_016_001 | v1.0

simpleParameter

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

Description: cue_baseline_average_motion_index

Cue Baseline Minimum Motion Index IMPC_FEA_017_001 | v1.0

simpleParameter

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

Description: cue_baseline_minimum_motion_index

Cue Baseline Maximum Motion Index IMPC_FEA_018_001 | v1.0

simpleParameter

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

Description: cue_baseline_maximum_motion_index

Cue Tone Freeze Count IMPC_FEA_019_001 | v1.0

seriesParameter

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

Description: cue_tone_freeze_count

Increments: Minimum 1

Cue Tone Freezing Time IMPC_FEA_020_001 | v1.0

seriesParameter

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

Unit Measured: s

Description: cue_tone_freezing_time

Increments: Minimum 1

Cue Tone % Freezing Time IMPC_FEA_021_001 | v1.1

simpleParameter

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

Unit Measured: %

Description: cue_tone_freezing_time

Derivation:
mul(div(sumOfIncrements('IMPC_FEA_020_001',1), 'IMPC_FEA_060_001'), 100)

Cue Tone Average Motion Index IMPC_FEA_022_001 | v1.0

seriesParameter

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

Description: cue_tone_average_motion_index

Increments: Minimum 1

Cue Tone Minimum Motion Index IMPC_FEA_023_001 | v1.0

seriesParameter

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

Description: cue_tone_minimum_motion_index

Increments: Minimum 1

Cue Tone Maximum Motion Index IMPC_FEA_024_001 | v1.0

seriesParameter

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

Description: cue_tone_maximum_motion_index

Increments: Minimum 1

Conditioning: Date and time IMPC_FEA_025_001 | v1.0

procedureMetadata

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

Description: conditioning_date_and_time

Conditioning: Room acclimation time IMPC_FEA_026_001 | v1.0

procedureMetadata

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

Unit Measured: min

Description: conditioning_room_acclimation_time

Options: 30, 60,

Conditioning: White house light level in arena IMPC_FEA_027_001 | v1.0

procedureMetadata

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

Unit Measured: Lux

Description: conditioning_white_house_light_level_in_arena

Options: 26, 100, 200, 40,

Conditioning: Olfactory cue IMPC_FEA_028_001 | v1.0

procedureMetadata

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

Description: conditioning_olfactory_cue

Options: Alcohol, None,

Conditioning: Mouse arena shape IMPC_FEA_029_001 | v1.0

procedureMetadata

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

Description: conditioning_mouse_arena_shape

Options: Rectangle, Square,

Conditioning: Mouse arena dimension IMPC_FEA_030_001 | v1.0

procedureMetadata

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

Unit Measured: cm

Description: conditioning_mouse_arena_dimension

Options: 30.5 L X 24.1 W X 24.5 H cm, 16.6 L X 17 W X 25 H cm, 25 L x 21 W x 19 H cm, 25 x 25 x 19 cm, 17 x 17 x 25 cm, 30.5 cm L X 24.1 cm W X 21 cm H, 16 x 14 x 12 cm,

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Conditioning: Mouse arena colour IMPC_FEA_031_001 | v1.0

procedureMetadata

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

Description: conditioning_mouse_arena_colour

Options: Metallic, White and Clear, Clear, White, Metallic, clear,

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Conditioning: Mouse arena floor IMPC_FEA_032_001 | v1.0

procedureMetadata

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

Description: conditioning_mouse_arena_floor

Options: Metal grill, Clean saw dust, Steel rods,

Conditioning: Length of time baseline IMPC_FEA_033_001 | v1.0

procedureMetadata

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

Unit Measured: s

Description: conditioning_length_of_time_baseline

Options: 240, 150, 120,

Conditioning: Tone stimulus intensity (dB; conditioned stimulus) IMPC_FEA_034_001 | v1.0

procedureMetadata

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

Unit Measured: dB

Description: conditioning_tone_stimulus_intensity_db_conditioned_stimulus

Options: 85, 80, 75, 77, 70,

Conditioning: Tone stimulus frequency (Hz; conditioned stimulus) IMPC_FEA_035_001 | v1.0

procedureMetadata

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

Unit Measured: kHz

Description: conditioning_tone_stimulus_frequency_hz_conditioned_stimulus

Options: 10, 2.8, 4, 2,

Conditioning: Length of time tone stimulus IMPC_FEA_036_001 | v1.0

procedureMetadata

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

Unit Measured: s

Description: conditioning_length_of_time_tone_stimulus

Options: 20, 30,

Conditioning: Shock stimulus intensity (unconditioned stimulus) IMPC_FEA_037_001 | v1.1

procedureMetadata

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

Unit Measured: mA

Description: conditioning_shock_stimulus_intensity_unconditioned_stimulus

Options: 0.4, 0.5, 0.75,

Conditioning: Length of time shock stimulus IMPC_FEA_038_001 | v1.0

procedureMetadata

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

Unit Measured: s

Description: conditioning_length_of_time_shock_stimulus

Options: 0.5, 1, 2,

Conditioning: Length of time no stimulus IMPC_FEA_039_001 | v1.0

procedureMetadata

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

Unit Measured: s

Description: conditioning_length_of_time_no_stimulus

Options: 120, 150,

Conditioning: Total time IMPC_FEA_040_001 | v1.0

procedureMetadata

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

Unit Measured: s

Description: conditioning_total_time

Options: 380, 300,

Context: Date and time IMPC_FEA_041_001 | v1.0

procedureMetadata

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

Description: context_date_and_time

Options: Conditioning +24h,

Context: Room acclimation time IMPC_FEA_042_001 | v1.0

procedureMetadata

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

Unit Measured: min

Description: context_room_acclimation_time

Options: 30, 60,

Context: White house light level in arena IMPC_FEA_043_001 | v1.2

procedureMetadata

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

Unit Measured: Lux

Description: context_white_house_light_level_in_arena

Options: 26, 100, 200, 40,

Context: Olfactory cue IMPC_FEA_044_001 | v1.0

procedureMetadata

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

Description: context_olfactory_cue

Options: Alcohol, None,

Context: Mouse arena shape IMPC_FEA_045_001 | v1.0

procedureMetadata

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

Description: context_mouse_arena_shape

Options: Rectangle, Square,

Context: Mouse arena dimension IMPC_FEA_046_001 | v1.0

procedureMetadata

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

Unit Measured: cm

Description: context_mouse_arena_dimension

Options: 30.5 cm L X 24.1 cm W X 24.5 cm H, 16.6 cm L X 17 cm W X 25 cm H,
25 L x 21 W x 19 H cm, 25 x 25 x 19 cm, 17 x 17 x 25 cm,
30.5 cm L X 24.1 cm W X 21 cm H, 16 x 14 x 12 cm,

Context: Mouse arena colour IMPC_FEA_047_001 | v1.0

procedureMetadata

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

Description: context_mouse_arena_colour

Options: Metallic, White and Clear, Clear, White, Metallic, clear,

Context: Mouse arena floor IMPC_FEA_048_001 | v1.0

procedureMetadata

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

Description: context_mouse_arena_floor

Options: Metal grill, Steel rods,

Context: Total time IMPC_FEA_049_001 | v1.0

procedureMetadata

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

Unit Measured: s

Description: context_total_time

Options: 360, 300,

Cue: Date and time IMPC_FEA_050_001 | v1.0

procedureMetadata

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

Description: cue_date_and_time

Options: Context + 2-4h, Context + 4h, Context + 24h,

Cue: White house light level in arena IMPC_FEA_051_001 | v1.1

procedureMetadata

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

Unit Measured: Lux

Description: cue_white_house_light_level_in_arena

Options: 0, 16, 14-18,

Cue: Olfactory cue IMPC_FEA_052_001 | v1.0

procedureMetadata

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

Description: cue_olfactory_cue

Options: 5% acetic acid, Vanillin, Cinnamon, None,

Cue: Mouse arena shape IMPC_FEA_053_001 | v1.0

procedureMetadata

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

Description: cue_mouse_arena_shape

Options: A frame ceiling, Cylinder, Rectangle,

Cue: Mouse arena dimension IMPC_FEA_054_001 | v1.0

procedureMetadata

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

Unit Measured: cm

Description: cue_mouse_arena_dimension

Options: 30.5 cm L X 24.1 cm W X 24.5cm H, 20 cm dia X 30 cm H, 25 L x 21 W x 19 H cm, 25 x 25 x 19 cm, 17 x 17 x 25 cm, 30.5 cm L X 24.1 cm W X 21 cm H, 17 x 10 x 10 cm,

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Cue: Mouse arena colour IMPC_FEA_055_001 | v1.0

procedureMetadata

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

Description: cue_mouse_arena_colour

Options: Black and white, Red, Clear, Beige, black and white, Milky white,

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Cue: Mouse arena floor IMPC_FEA_056_001 | v1.0

procedureMetadata

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

Description: cue_mouse_arena_floor

Options: PVC, Plexi glass, Polyethylene, Perspex,

Cue: Length of time baseline IMPC_FEA_057_001 | v1.0

procedureMetadata

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

Unit Measured: s

Description: cue_length_of_time_baseline

Options: 120,

Cue: Tone stimulus intensity (conditioned stimulus) IMPC_FEA_058_001 | v1.1

procedureMetadata

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

Unit Measured: dB

Description: cue_tone_stimulus_intensity_conditioned_stimulus

Options: 85, 80, 75, 77, 70,

Cue: Tone stimulus frequency (Hz; conditioned stimulus) I

MPC_FEA_059_001 | v1.0

procedureMetadata

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

Unit Measured: kHz

Description: cue_tone_stimulus_frequency_hz_conditioned_stimulus

Options: 10, 2.8, 4, 2,

Cue: tone response measurement time IMPC_FEA_060_001 | v1.0

procedureMetadata

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

Unit Measured: s

Options: 120, 180,

Cue: Length of time no stimulus IMPC_FEA_061_001 | v1.0

procedureMetadata

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

Unit Measured: s

Description: cue_length_of_time_no_stimulus

Options: 120, 0, 220,

Cue: Total time IMPC_FEA_062_001 | v1.0

procedureMetadata

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

Unit Measured: s

Description: cue_total_time

Options: 480, 300, 420, 240,

Mouse arenaID IMPC_FEA_063_001 | v1.0

procedureMetadata

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

Description: mouse_arenaid

Options: Arena 1, Arena 2, Arena 3, Arena 4, Arena 5, Arena 6, Arena 7, Arena 8,

---

Equipment ID IMPC_FEA_064_001 | v1.0

procedureMetadata

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

Description: equipment_id

Options: Machine A, Machine B, Machine 1, Machine 2,

Equipment Manufacturer IMPC_FEA_065_001 | v1.0

procedureMetadata

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

Description: equipment_manufacturer

Options: Med Assoicates, Ugo Basile, San Diego Instruments, O'hara CO Ltd.,

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Equipment Model IMPC_FEA_066_001 | v1.0

procedureMetadata

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

Description: equipment_model

Options: MED-FVC-SCT-M, Freeze monitor, FearCS Mouse-46152, MED-VFC2-SCT-M, 46000, TimeFZ1, MED-VFC-NIR-M SOP #1, MED-VFC-NIR-M SOP #2, MED-VFC-NIR-M SOP #3,

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Tracking Method IMPC_FEA_067_001 | v1.0

procedureMetadata

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

Description: tracking_method

Options: Video tracking, Beam break,

Software IMPC_FEA_068_001 | v1.0

procedureMetadata

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

Description: software

Options: Med Associates Video Freeze, Anymaze, Freeze Monitor, TimeFZ1,

---

Sound generator manufacturer IMPC_FEA_069_001 | v1.0

procedureMetadata

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

Description: sound_generator_manufacturer

Options: Med Associates, Ugo Basile, San Diego Instruments, O'hara CO Ltd.,

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Sound generator model IMPC_FEA_070_001 | v1.0

procedureMetadata

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

Description: sound_generator_model

Options: VFC-100, other, 46000-165, CL-1010B,

Sound-proof box dimension IMPC_FEA_071_001 | v1.0

procedureMetadata

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

Description: sound_proof_box_dimension

Options: 71 cm L X 63.5 cm W X 35.5 cm H, 71 cm L X 59.7 cm W X 31.7 cm H, other, 47 cm L X 35 cm W X 49 cm H, 40 cm L X 53 cm W X 58 cm H,

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Experimenter ID IMPC_FEA_072_001 | v1.0

procedureMetadata

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

Description: experimenter_id

Experimenter ID day 2 IMPC_FEA_073_001 | v1.0

procedureMetadata

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

Description: experimenter_id_day_2

Experimenter ID day 2 cue IMPC_FEA_074_001 | v1.0

procedureMetadata

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

Description: experimenter_id_day_2_cue

Date equipment last calibrated (shock) IMPC_FEA_075_001 | v1.0

procedureMetadata

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

Description: date_equipment_last_calibrated_shock

Date equipment last calibrated (tone) IMPC_FEA_076_001 | v1.0

procedureMetadata

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

Description: date_equipment_last_calibrated_tone

Freeze definition IMPC_FEA_077_001 | v1.1

procedureMetadata

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

Unit Measured: s

Description: freeze_definition

Options: 1, 2, 0.25,

Conditioning: Near infra red light arena IMPC_FEA_078_001 | v1.0

procedureMetadata

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

Description: conditioning_near_infra_red_light_arena

Options: On,

Context: Near infra red light arena IMPC_FEA_079_001 | v1.0

procedureMetadata

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

Description: context_near_infra_red_light_arena

Options: On,

Cue: Near infra red light arena IMPC_FEA_080_001 | v1.0

procedureMetadata

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

Description: cue_near_infra_red_light_arena

Options: On,

Conditioning: Start time of baseline IMPC_FEA_081_001 | v1.0

procedureMetadata

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

Unit Measured: s

Description: conditioning_start_time_of_baseline

Conditioning: Start time of each tone stimulus IMPC_FEA_082_001 | v1.0

procedureMetadata

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

Unit Measured: s

Description: conditioning_start_time_of_each_tone_stimulus

Conditioning: Start time of each shock stimulus IMPC_FEA_083_001 | v1.0

procedureMetadata

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

Unit Measured: s

Description: conditioning_start_time_of_each_shock_stimulus

Conditioning: Start time of no stimulus IMPC_FEA_084_001 | v1.0

procedureMetadata

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

Unit Measured: s

Description: conditioning_start_time_of_no_stimulus

Cue: Start time of baseline IMPC_FEA_085_001 | v1.0

procedureMetadata

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

Unit Measured: s

Description: cue_start_time_of_baseline

Cue: Start time of each tone stimulus IMPC_FEA_086_001 | v1.0

procedureMetadata

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

Unit Measured: s

Description: cue_start_time_of_each_tone_stimulus

Cue: Start time of no stimulus IMPC_FEA_087_001 | v1.0

procedureMetadata

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

Unit Measured: s

Description: cue_start_time_of_no_stimulus

Cue: arena rotation IMPC_FEA_088_001 | v1.0

procedureMetadata

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

Description: cue_arena_rotation

Options: 90 degrees, None,

Conditioning Tone Freeze Count IMPC_FEA_089_001 | v1.0

simpleParameter

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

Description: conditioning_tone_freeze_count

Conditioning Tone Freezing Time IMPC_FEA_090_001 | v1.0

simpleParameter

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

Unit Measured: s

Description: conditioning_tone_freezing_time

Conditioning Tone % Freezing Time IMPC_FEA_091_001 | v1.1

simpleParameter

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

Unit Measured: %

Description: conditioning_tone_freezing_time

Derivation: mul(div('IMPC_FEA_090_001', 'IMPC_FEA_036_001'), 100)

Conditioning Tone Average Motion Index IMPC_FEA_092_001 | v1.0

simpleParameter

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

Description: conditioning_tone_average_motion_index

Conditioning Tone Minimum Motion Index IMPC_FEA_093_001 | v1.0

simpleParameter

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

Description: conditioning_tone_minimum_motion_index

Conditioning Tone Maximum Motion Index IMPC_FEA_094_001 | v1.0

simpleParameter

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

Description: conditioning_tone_maximum_motion_index

Conditioning Shock Average Motion Index IMPC_FEA_095_001 | v1.0

simpleParameter

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

Description: conditioning_shock_average_motion_index

Conditioning Shock Minimum Motion Index IMPC_FEA_096_001 | v1.0

simpleParameter

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

Description: conditioning_shock_minimum_motion_index

Conditioning Shock Maximum Motion Index IMPC_FEA_097_001 | v1.0

simpleParameter

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

Description: conditioning_shock_maximum_motion_index

Conditioning Post-shock Freeze Count IMPC_FEA_098_001 | v1.0

simpleParameter

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

Description: conditioning_post_shock_freeze_count

Conditioning Post-shock Freezing Time IMPC_FEA_099_001 | v1.0

simpleParameter

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

Unit Measured: s

Description: conditioning_post_shock_freezing_time

Conditioning Post-shock % Freezing Time IMPC_FEA_100_001 | v1.1

simpleParameter

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

Unit Measured: %

Description: conditioning_post_shock_freezing_time

Derivation: mul(div('IMPC_FEA_099_001', 'IMPC_FEA_039_001'), 100)

Conditioning Post-shock Average Motion Index IMPC_FEA_101_001 | v1.0

simpleParameter

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

Description: conditioning_post_shock_average_motion_index

Conditioning Post-shock Minimum Motion Index IMPC_FEA_102_001 | v1.0

simpleParameter

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

Description: conditioning_post_shock_minimum_motion_index

Conditioning Post-shock Maximum Motion Index IMPC_FEA_103_001 | v1.0

simpleParameter

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

Description: conditioning_post_shock_maximum_motion_index

Freeze definition (minimum motion index) IMPC_FEA_104_001 | v1.0

procedureMetadata

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

Description: freeze_definition_minimum_motion_index

Options: 18, 30, 20,

Difference in Context and Conditioning Baseline % Freezing IMPC_FEA_105_001 | v1.0

simpleParameter

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

Derivation:
sub(mul(div('IMPC_FEA_008_001', 'IMPC_FEA_049_001'), 100), mul(div ('IMPC_FEA_002_001', 'IMPC_FEA_033_001'), 100))

Difference in Cue Tone and Cue Baseline % Freezing IMPC_FEA_106_001 | v1.0

simpleParameter

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

Derivation:
sub(mul(div('IMPC_FEA_020_001', 'IMPC_FEA_060_001'), 100), mul(div ('IMPC_FEA_014_001', 'IMPC_FEA_057_001'), 100))

Difference in Conditioning Post-shock and Conditioning Baseline % Freezing IMPC_FEA_107_001 | v1.0

simpleParameter

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

Derivation:
sub(mul(div('IMPC_FEA_099_001', 'IMPC_FEA_039_001'), 100), mul(div ('IMPC_FEA_002_001', 'IMPC_FEA_033_001'), 100))

Cue: Length of time tone stimulus IMPC_FEA_108_001 | v1.0

procedureMetadata

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

Unit Measured: s

Options: 20, 120,
