X-ray JAXLA_XRY_001

Purpose

Construct and analyse digital X-ray images in immobilised mice using a Faxitron X-Ray system or NTB digital X-ray scanner.

Experimental Design

- **Minimum number of animals :** 4M + 4F
- **Age at test:** Week 75

Procedure

Perform steps 3.1 and 3.2 unless the mouse is coming from DEXA analysis

3.1 Anesthetize the mice.

3.2 Monitor the animal carefully until unconsciousness by ensuring the mouse is adequately sedated.

3.3 Mount the anesthetized mouse onto an X-ray permeable plate. Curve the tail along the left side of the mouse. (Note: this will enable identification of the X-ray as a dorsal or ventral image.)

Faxitron X-ray system

3.3.1 Insert the plate into the Faxitron X-ray system.

3.3.2 Take an image using the software that is supplied by the X-ray scanner.

3.3.3 Set the machine to a voltage of 25kV with an integration time of 40ms.

3.3.4 Take an image using the iX-Pect software that is supplied by the X-ray scanner.

NTB digital X-ray scanner

3.4 Remove the mouse once the image is captured. Place the mouse on a heated mat, set at 37°C, in a cage and monitor closely until consciousness is fully regained.

3.5 Analyze the image.

3.6 Or continue with ABR.

Notes

The protocol described herein employs anaesthesia using intraperitoneal (IP) administration; however, anaesthesia using isoflurane is also suitable.

Digit integrity IMPC_XRY_031_001 *Definition:* **The state of being whole and undivided.**

Parameters and Metadata

Scanner equipment model JAXLA_XRY_046_001 | v1.1

procedureMetadata

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

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Number of thoracic vertebrae JAXLA_XRY_014_001 | v1.0

simpleParameter

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

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Free Ontology JAXLA_XRY_054_001 | v1.0

simpleParameter

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

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Humerus JAXLA_XRY_021_001 | v1.0

simpleParameter

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Options: abnormal, imageOnly, normal, unobservable,

XRay Images Skull Dorso Ventral Orientation JAXLA_XRY_051_001 | v1.2

seriesMediaParameter

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

Increments: Minimum 1

Maxilla/Pre-maxilla JAXLA_XRY_003_001 | v1.1

simpleParameter

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

Options: abnormal, normal, unobservable, imageOnly,

Joints JAXLA_XRY_027_001 | v1.0

simpleParameter

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

Options: imageOnly, abnormal, unobservable, normal,

Skull shape JAXLA_XRY_001_001 | v1.0

simpleParameter

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

Options: normal, imageOnly, abnormal, unobservable,

Processes on vertebrae JAXLA_XRY_020_001 | v1.0

simpleParameter

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

Options: imageOnly, unobservable, normal, abnormal,

Number of digits JAXLA_XRY_028_001 | v1.0

simpleParameter

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

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Transitional vertebrae JAXLA_XRY_060_001 | v1.1

simpleParameter

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Options: imageOnly, yes, unobservable, no,

Shape of ribcage JAXLA_XRY_059_001 | v1.1

simpleParameter

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Options: imageOnly, normal, unobservable, abnormal,

Date Xray equipment last calibrated JAXLA_XRY_047_001 | v1.3

procedureMetadata

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Polysyndactylism JAXLA_XRY_062_001 | v1.1

simpleParameter

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Options: imageOnly, unobservable, yes, no,

Caudal vertebrae morphology JAXLA_XRY_074_001 | v1.0

simpleParameter

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Options: normal, imageOnly, abnormal, unobservable,

XRay Images Whole Body Lateral Orientation JAXLA_XRY_048_001 | v1.2

seriesMediaParameter

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Increments: Minimum 1

Scapulae JAXLA_XRY_006_001 | v1.0

simpleParameter

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Options: imageOnly, normal, unobservable, abnormal,

Sacral processes JAXLA_XRY_066_001 | v1.0

simpleParameter

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Options: unobservable, imageOnly, abnormal, normal,

Number of ribs right JAXLA_XRY_008_001 | v1.0

simpleParameter

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Fibula JAXLA_XRY_026_001 | v1.0

simpleParameter

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Options: normal, imageOnly, unobservable, abnormal,

Scanner equipment ID JAXLA_XRY_044_001 | v1.1

procedureMetadata

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Date Scanner equipment last calibrated JAXLA_XRY_053_001 | v1.1

procedureMetadata

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Femur JAXLA_XRY_024_001 | v1.0

simpleParameter

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Options: imageOnly, unobservable, abnormal, normal,

Fusion of ribs JAXLA_XRY_011_001 | v1.0

simpleParameter

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Options: imageOnly, unobservable, fused, not fused,

Pelvis JAXLA_XRY_012_001 | v1.0

simpleParameter

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Options: abnormal, unobservable, imageOnly, normal,

Kyphosis JAXLA_XRY_057_001 | v1.1

simpleParameter

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Options: no, imageOnly, yes, unobservable,

Number of cervical vertebrae JAXLA_XRY_013_001 | v1.0

simpleParameter

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Tibia length JAXLA_XRY_033_001 | v1.1

simpleParameter

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Unit Measured: mm

Scanner equipment manufacturer JAXLA_XRY_045_001 | v1.1

procedureMetadata

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Tibia JAXLA_XRY_025_001 | v1.0

simpleParameter

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Options: normal, imageOnly, abnormal, unobservable,

Comment on XRay image JAXLA_XRY_032_001 | v1.1

simpleParameter

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

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XRay Images Hind Leg and Hip JAXLA_XRY_052_001 | v1.1

seriesMediaParameter

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Increments: Minimum 1

Number of ribs left JAXLA_XRY_009_001 | v1.0

simpleParameter

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

Teeth JAXLA_XRY_005_001 | v1.0

simpleParameter

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

Options: abnormal, imageOnly, normal, unobservable,

Mandibles JAXLA_XRY_004_001 | v1.0

simpleParameter

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

Options: abnormal, imageOnly, unobservable, normal,

Fusion of processes JAXLA_XRY_061_001 | v1.1

simpleParameter

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

Options: unobservable, no, yes, imageOnly,

XRay Images Whole Body Dorso Ventral JAXLA_XRY_034_001 | v1.3

seriesMediaParameter

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Increments: Minimum 1

XRay Images Forepaw JAXLA_XRY_049_001 | v1.1

seriesMediaParameter

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Increments: Minimum 1

Thoracic processes JAXLA_XRY_064_001 | v1.1

simpleParameter

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

Options: abnormal, imageOnly, normal, unobservable,

Lumbar processes JAXLA_XRY_065_001 | v1.1

simpleParameter

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

Options: unobservable, normal, imageOnly, abnormal,

Ulna JAXLA_XRY_023_001 | v1.0

simpleParameter

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Options: abnormal, unobservable, normal, imageOnly,

XRay Images Skull Lateral Orientation JAXLA_XRY_050_001 | v1.2

seriesMediaParameter

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Increments: Minimum 1

Missing cranial rib JAXLA_XRY_068_001 | v1.0

simpleParameter

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

Options: Yes, No,

Voltage settings JAXLA_XRY_043_001 | v1.1

procedureMetadata

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Number of lumbar vertebrae JAXLA_XRY_015_001 | v1.0

simpleParameter

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Radius JAXLA_XRY_022_001 | v1.0

simpleParameter

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

Options: normal, unobservable, abnormal, imageOnly,

Shape of vertebrae JAXLA_XRY_018_001 | v1.0

simpleParameter

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

Options: unobservable, normal, imageOnly, abnormal,

Shape of ribs JAXLA_XRY_010_001 | v1.0

simpleParameter

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

Options: abnormal, normal, unobservable, imageOnly,

Shape of spine JAXLA_XRY_055_001 | v1.1

simpleParameter

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

Options: unobservable, imageOnly, normal, abnormal,

Settings time of exposure JAXLA_XRY_039_001 | v1.1

procedureMetadata

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

Unit Measured: s

Cervical processes JAXLA_XRY_063_001 | v1.1

simpleParameter

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

Options: unobservable, normal, imageOnly, abnormal,

Settings level JAXLA_XRY_040_001 | v1.1

procedureMetadata

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

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Pelvic vertebrae morphology JAXLA_XRY_073_001 | v1.0

simpleParameter

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

Options: unobservable, imageOnly, abnormal, normal,

Lordosis JAXLA_XRY_058_001 | v1.1

simpleParameter

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

Options: yes, no, unobservable, imageOnly,

Caudal processes JAXLA_XRY_067_001 | v1.0

simpleParameter

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

Options: abnormal, unobservable, imageOnly, normal,

Experimenter ID (scan) JAXLA_XRY_041_001 | v1.1

procedureMetadata

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

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Digit integrity JAXLA_XRY_031_001 | v1.0

simpleParameter

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

Options: yes, no, unobservable, imageOnly,

Zygomatic bone JAXLA_XRY_002_001 | v1.0

simpleParameter

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

Options: abnormal, imageOnly, normal, unobservable,

Thoracic vertebrae morphology JAXLA_XRY_071_001 | v1.0

simpleParameter

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

Options: normal, abnormal, unobservable, imageOnly,

Xray equipment model JAXLA_XRY_038_001 | v1.4

procedureMetadata

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

Options: UltraFocus 100, MS-FX Pro, R_mCT (Micro-CT), UltraFocus DXA, MX-20-DC4, MX-20, MX-20-DC12,

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Brachydactyly JAXLA_XRY_030_001 | v1.1

simpleParameter

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

Options: no, imageOnly, unobservable, yes,

Clavicle JAXLA_XRY_007_001 | v1.0

simpleParameter

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

Options: abnormal, unobservable, normal, imageOnly,

Number of caudal vertebrae JAXLA_XRY_017_001 | v1.1

simpleParameter

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

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Rib morphology JAXLA_XRY_069_001 | v1.0

simpleParameter

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

Options: unobservable, normal, abnormal, imageOnly,

Xray equipment manufacturer JAXLA_XRY_037_001 | v1.4

procedureMetadata

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

Options: Faxitron Bioptics LLC, Bruker, Faxitron X-Ray Corporation, Rigaku Corporation (Micro-CT),

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Fusion of vertebrae JAXLA_XRY_019_001 | v1.0

simpleParameter

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

Options: no, imageOnly, unobservable, yes,

Number of pelvic vertebrae JAXLA_XRY_016_001 | v1.0

simpleParameter

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

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Syndactylism JAXLA_XRY_029_001 | v1.0

simpleParameter

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

Options: unobservable, imageOnly, Syndactylism, no syndactylism,

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Lumbar vertebrae morphology JAXLA_XRY_072_001 | v1.0

simpleParameter

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

Options: normal, unobservable, imageOnly, abnormal,

Experimenter ID (analysis) JAXLA_XRY_042_001 | v1.1

procedureMetadata

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

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Alive JAXLA_XRY_035_001 | v1.0

simpleParameter

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

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Cervical vertebrae morphology JAXLA_XRY_070_001 | v1.0

simpleParameter

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

Options: abnormal, unobservable, normal, imageOnly,

Scoliosis JAXLA_XRY_056_001 | v1.2

simpleParameter

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

Options: yes, imageOnly, unobservable, no,

Xray equipment ID JAXLA_XRY_036_001 | v1.1

procedureMetadata

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

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