

# Gross Morphology Embryo E18.5 IMPC\_GEP\_001

## Purpose

To assess visible morphological defects in E18.5 embryos from lethal or sub-viable strains

## Experimental Design

- Set up timed matings with heterozygous mice
- Day 0 is defined as the midpoint of the prior dark cycle following the identification of a copulation plug.
- **Minimum number of animals** : 1 mutant of any sex
- **Age at test**: E18.5 and Older
- Capture gross images (**optional**)
- Collect tissue and genotype embryos.

## Procedure

1. **Set up timed mating with heterozygous animals. Dissect at a consistent time and collect  $\geq 2$  homozygote embryos. Coordination with viability screen is at the centres discretion.**
2. **Score embryos as live or dead if possible.**
3. **Assess embryos according to Gross Morphology parameters.**
4. **Generate gross images of embryos (optional) with scored defects and control embryos.**
5. **Collect tissue for genotyping**
6. **Process embryos for Histopathology, or other imaging (OPTIONAL - depending on center pipeline)**
7. **Scores will be shown per embryo and split by zygosity.**

If capturing images please attempt to capture left, right, front, and back views of the embryo but if this is not possible left, right is sufficient. Feel free to take higher magnification views to show morphologies of interest.

## Notes

All genotypes should be collected using validated assays.

Y chromosome assay required for X-linked lethal strains.

Embryos may be processed for Histopathology or 3D Imaging

## Parameters and Metadata

### **Alive** IMPC\_GEP\_001\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Description: alive

Options: yes, no,

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### **Scored** IMPC\_GEP\_002\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Description: scored

Options: yes, no,

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### **Behavior/neurological** IMPC\_GEP\_003\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

**Description:** behavior\_neurological

**Options:** normal, abnormal, unobservable,

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## **No spontaneous movement** IMPC\_GEP\_004\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** no\_spontaneous\_movement

**Options:** normal, abnormal, unobservable,

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## **Unresponsive to tactile stimuli** IMPC\_GEP\_005\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** unresponsive\_to\_tactile\_stimuli

**Options:** normal, abnormal, unobservable,

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## **Cardiovascular System** IMPC\_GEP\_006\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** cardiovascular\_system

**Options:** normal, abnormal, unobservable,

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## **Cardiovascular Development** IMPC\_GEP\_007\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** cardiovascular\_development

**Options:** normal, abnormal, unobservable,

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## **Heart Development** IMPC\_GEP\_008\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** heart\_development

**Options:** normal, abnormal, unobservable,

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## **Outflow tract development** IMPC\_GEP\_009\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** outflow\_tract\_development

**Options:** normal, abnormal, unobservable,

---

## **Heart Morphology** IMPC\_GEP\_010\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** heart\_morphology

**Options:** normal, abnormal, unobservable,

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## **Hemorrhage** IMPC\_GEP\_011\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** hemorrhage

**Options:** normal, abnormal, unobservable,

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## **Skin Hemorrhage** IMPC\_GEP\_012\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** skin\_hemorrhage

**Options:** normal, abnormal, unobservable,

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## **Blood Vessel Morphology** IMPC\_GEP\_013\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** blood\_vessel\_morphology

**Options:** normal, abnormal, unobservable,

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## **Craniofacial** IMPC\_GEP\_014\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** craniofacial

**Options:** normal, abnormal, unobservable,

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## **Head shape** IMPC\_GEP\_015\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** head\_shape

**Options:** normal, abnormal, unobservable,

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## Head size IMPC\_GEP\_016\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** head\_size

**Options:** normal, abnormal, unobservable,

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## Facial Morphology IMPC\_GEP\_017\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** facial\_morphology

**Options:** normal, abnormal, unobservable,

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## Facial Cleft IMPC\_GEP\_018\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: facial\_cleft

Options: normal, abnormal, unobservable,

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## Cleft Palate IMPC\_GEP\_019\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: cleft\_palate

Options: normal, abnormal, unobservable,

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## Digestive/alimentary IMPC\_GEP\_020\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: digestive\_alimentary

Options: normal, abnormal, unobservable,

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## Digestive System Morphology IMPC\_GEP\_021\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: digestive\_system\_morphology

Options: normal, abnormal, unobservable,

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## Embryo Size IMPC\_GEP\_022\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: embryo\_size

Options: normal, abnormal, unobservable,

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## Embryo weight IMPC\_GEP\_023\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: embryo\_weight

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## Body wall morphology IMPC\_GEP\_024\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: body\_wall\_morphology

Options: normal, abnormal, unobservable,

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## Hearing/Vestibular/Ear IMPC\_GEP\_025\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: hearing\_vestibular\_ear

Options: normal, abnormal, unobservable,

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## Outer ear morpholgy IMPC\_GEP\_026\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: outer\_ear\_morpholgy

Options: normal, abnormal, unobservable,

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## Ear Development IMPC\_GEP\_027\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** ear\_development

**Options:** normal, abnormal, unobservable,

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## Homeostasis/metabolism IMPC\_GEP\_028\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** homeostasis\_metabolism

**Options:** normal, abnormal, unobservable,

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## Cyanosis IMPC\_GEP\_029\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** cyanosis

**Options:** normal, abnormal, unobservable,

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## Edema IMPC\_GEP\_030\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: edema

Options: normal, abnormal, unobservable,

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## Hydrops fetalis (fetal adema) IMPC\_GEP\_031\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: hydrops\_fetalis\_fetal\_adema

Options: normal, abnormal, unobservable,

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## Integument IMPC\_GEP\_032\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: integument

Options: normal, abnormal, unobservable,

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## Vibrissa Morphology IMPC\_GEP\_033\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: vibrissa\_morphology

Options: normal, abnormal, unobservable,

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## Skin Appearance IMPC\_GEP\_034\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: skin\_appearance

Options: normal, abnormal, unobservable,

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## Pallor IMPC\_GEP\_035\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: pallor

Options: normal, abnormal, unobservable,

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## Skin Coloration IMPC\_GEP\_036\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: skin\_coloration

Options: normal, abnormal, unobservable,

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## Limb Morphology IMPC\_GEP\_037\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: limb\_morphology

Options: normal, abnormal, unobservable,

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## Tail Morphology IMPC\_GEP\_038\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: tail\_morphology

Options: normal, abnormal, unobservable,

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## **Polydactyly** IMPC\_GEP\_039\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** polydactyly

**Options:** normal, abnormal, unobservable,

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## **Liver/Biliary** IMPC\_GEP\_040\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** liver\_biliary

**Options:** normal, abnormal, unobservable,

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## **Liver Morphology** IMPC\_GEP\_041\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** liver\_morphology

**Options:** normal, abnormal, unobservable,

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## Liver Size IMPC\_GEP\_042\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** liver\_size

**Options:** normal, abnormal, unobservable,

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## Muscle IMPC\_GEP\_043\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** muscle

**Options:** normal, abnormal, unobservable,

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## Diaphragm Morphology IMPC\_GEP\_044\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** diaphragm\_morphology

**Options:** normal, abnormal, unobservable,

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## **Nervous System** IMPC\_GEP\_045\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** nervous\_system

**Options:** normal, abnormal, unobservable,

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## **Brain Development** IMPC\_GEP\_046\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** brain\_development

**Options:** normal, abnormal, unobservable,

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## **Exencephaly** IMPC\_GEP\_047\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** exencephaly

**Options:** normal, abnormal, unobservable,

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## Holoprosencephaly IMPC\_GEP\_048\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** holoprosencephaly

**Options:** normal, abnormal, unobservable,

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## spina bifida IMPC\_GEP\_049\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** spina\_bifida

**Options:** normal, abnormal, unobservable,

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## Renal/Urinary IMPC\_GEP\_050\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** renal\_urinary

**Options:** normal, abnormal, unobservable,

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## **Kidney** IMPC\_GEP\_051\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** kidney

**Options:** normal, abnormal, unobservable,

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## **Respiratory System** IMPC\_GEP\_052\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** respiratory\_system

**Options:** normal, abnormal, unobservable,

---

## **Lung Morphology** IMPC\_GEP\_053\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** lung\_morphology

**Options:** normal, abnormal, unobservable,

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## Lung Development IMPC\_GEP\_054\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** lung\_development

**Options:** normal, abnormal, unobservable,

---

## Respiratory Failure IMPC\_GEP\_055\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** respiratory\_failure

**Options:** normal, abnormal, unobservable,

---

## Vision/Eye IMPC\_GEP\_056\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** vision\_eye

**Options:** normal, abnormal, unobservable,

---

## **Eye Morphology** IMPC\_GEP\_057\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** eye\_morphology

**Options:** normal, abnormal, unobservable,

---

## **Eye Size** IMPC\_GEP\_058\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** eye\_size

**Options:** normal, abnormal, unobservable,

---

## **Microphthalmia** IMPC\_GEP\_059\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** microphthalmia

**Options:** normal, abnormal, unobservable,

---

## **Anophthalmia** IMPC\_GEP\_060\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** anophthalmia

**Options:** normal, abnormal, unobservable,

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## **Failure of Eyelid Fusion** IMPC\_GEP\_061\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** failure\_of\_eyelid\_fusion

**Options:** normal, abnormal, unobservable,

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## **Number of cervical vertebrae** IMPC\_GEP\_062\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** number\_of\_cervical\_verebrae

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## **Comment on image** IMPC\_GEP\_063\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** false

**Description:** comment\_on\_image

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## **Images** IMPC\_GEP\_064\_001 | v1.0

seriesMediaParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** false

**Description:** images

**Increments:** Minimum 1

---

## **Experimenter ID** IMPC\_GEP\_065\_001 | v1.0

procedureMetadata

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** false

**Description:** experimenter\_id

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## Equipment ID IMPC\_GEP\_066\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Description: equipment\_id

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## Equipment Manufacturer IMPC\_GEP\_067\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Description: equipment\_manufacturer

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## Equipment Model IMPC\_GEP\_068\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Description: equipment\_model

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## Fixative IMPC\_GEP\_069\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Description: fixative

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## Time of Dissection IMPC\_GEP\_070\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Description: time\_of\_dissection

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## Somite Stage IMPC\_GEP\_071\_001 | v1.1

procedureMetadata

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Description: somite\_stage

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## Time of dark cycle start IMPC\_GEP\_072\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

**Description:** time\_of\_dark\_cycle\_start

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## **Time of dark cycle end** IMPC\_GEP\_073\_001 | v1.0

procedureMetadata

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** false

**Description:** time\_of\_dark\_cycle\_end

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## **Date equipment last calibrated** IMPC\_GEP\_074\_001 | v1.1

procedureMetadata

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** false

**Description:** date\_equipment\_last\_calibrated

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