

<b>STANDARD OPERATING PROCEDURE</b>			
<b>SOP No:</b>	<b>Effective Date: TBD</b>	<b>Rev. No: X</b>	<b>Supercedes:</b>
<b>Title: Subcutaneous Implantation of Somark Digitail Identification tags using the Injector handheld injector.</b>			

**AUTHOR: Eric Arlund**

**July 16, 2018**

**Signature**

**Date**

**APPROVED BY:**

**Signature**

**Date**

## **1. PURPOSE**

- 1.1 This SOP describes implanting the Somark Digitail™ tag into laboratory rodents using the SensaLab™ Injector handheld injector.

## **2 SCOPE**

- 2.1 This SOP can be enacted on all rats and mice of appropriate size, approximately 14 days of age to adult, without anesthesia.
- 2.2 The required placement of the Digitail tag is subcutaneous in the tail. Optimum location is longitudinally at the proximal end near the hairline and rotationally midway between the dorsal midline and the either lateral tail vein.

## **3 RESPONSIBILITY**

## **4 DEFINITIONS**

- 4.1 Digitail tag. An Ultrahigh frequency RFID tag for the identification of laboratory mice and rats by subcutaneous placement in the tail.
- 4.2 SensaLab Injector. The device that holds and then activates a needle cartridge to deposit the Digitail tag.
- 4.3 Needle cartridge. A 21 Gauge needle with internal trochar rod and Digitail tag loaded in the bevel.
- 4.4 Depth indicator. A mark on the needle 9 mm from the bevel tip that indicates how far the needle should be inserted under the skin for proper deposition. Indicator may be a red dot or other appearance.
- 4.5 SensaLab Reader. Reads Tag ID of tagged animals. The device is optimized to read UHF tags only.

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## 5 PROCEDURE

### Loading Cartridges onto the Inject

- 5.1 Remove a needle cartridge from the outer packaging. Note that the base of the cartridge has two locking tabs. One tab is closer to the edge.
- 5.2 Prime the Injector by depressing the end cap. A metal rod will protrude 2cm.
- 5.3 Align the closer cartridge tab with the bevel on the Injector. Insert the cartridge fully onto the Injector rod so that the base of the hub is flush with the Injector. Rotate the Injector  $\frac{1}{4}$  turn clockwise to lock the cartridge in place.

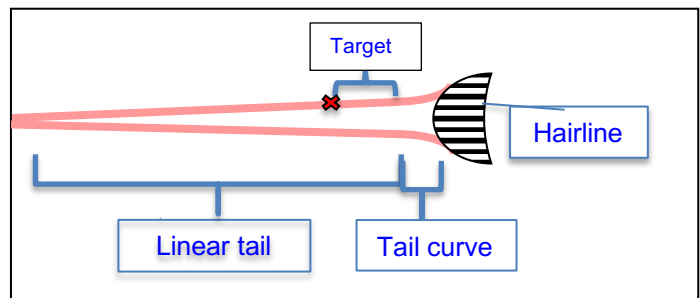
NOTE: Do not force the cartridge onto the Injector, as this can damage both the Cartridge and the Injector. When properly aligned, the cartridge should slide all the way onto the Injector until flush. Subtle wiggling is all that is needed. Then a gentle twist to lock it in place.

- 5.4 Observe that the cartridge is linear with the Injector and flushly mounted.

### Restraint of Mouse and Injection of Tag

- 5.5 Restrain the animal in a suitable restrainer to gain maximum access to the tail. The Somark restraint (red dome) works well for mice. Restraints designed for tail vein injection may be used as well.
- 5.6 Target placement of the tag is within 1cm of the base of the tail (hairline.) The needle has a depth indicator 9mm from the tip, this can be used to locate the entry point. Align the needle tip 2-3 mm distal to the hairline. The depth indicator now shows where the tip should be inserted.

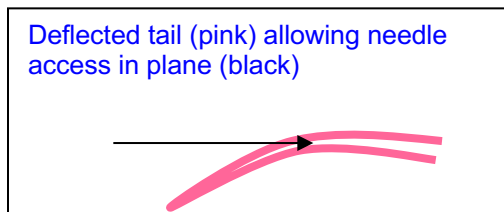
See Tail Diagram. For placement in the proximal end of the linear tail, align the needle tip at the far end of the target area, the depth indicator on the needle will show where to insert (red X)



- 5.7 Assure there is no debris, scarring or wound in the target area.
- 5.8 Optionally, prep the skin with an alcohol wipe.

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5.9 Grasp the exposed tail distal of the target site, extend it, and deflect it downward such that the tail extends straight back from the body 2-4cm, then bends downward.



5.10 Optimal placement is between the dorsal midline and the lateral tail vein on either side of the tail. The blood vessels can be visualized (easier in albino animals) and the collagen fibers between these vessels may appear as a white stripe. This is the target for injection.

5.11 Advance the needle towards the body, bevel facing up, to make a shallow subcutaneous entry. Insert the needle to the mark (approx. 9mm inserted)

5.12 Activate the button on the Injector. This will retract the needle leaving the tag behind under the skin. (Tag may be visible through the skin of lightly or non-pigmented mouse tails.)

5.13 Observe that the tag is fully under the skin(not protruding).

5.14 There should be no bleeding from the insertion site. Blot with sterile cotton to control any bleeding. Anything more than 1-2 drops of blood may be indicative of damage to the tail vein.

5.15 Remove the cartridge from the Injector by rotating it ¼ turn counter clockwise and dispose appropriately. Follow disposal guidelines for needles per facility.

5.16 Scan the animal using a Somark Reader to confirm readability. This step can be done while the mouse is still in the red dome restrainer by holding the restraint near the reader such that the tail sticks out over the reader. Tagged animals may also be associated to study mice at this time.

#### Recording and Quality Control of tagged animals

5.17 For each lot of animals, the lot number of tags and technician performing the work should be recorded.

5.18 For albino mice, tag can often be observed through the skin to confirm placement.

5.19 Pigmented mice can have their tags confirmed by shining a concentrated light through the tail (small flashlight). This will allow visualization of the tag as a dark shadow in the illuminated tail tissue.

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- 5.20 Optimum confirmation of tag placement uses a Somark Reader to confirm tag readability. A reader and the Somark LinkTo app will confirm readability to a computer display. This app can also be used to copy and store the Tag ID codes, if required.
  - 5.20.1 Users of early model Somark readers (white box enclosure, serial #C-xxxxx) Download the “SensaLab LinkTo” app here: <https://somarksoftware.blob.core.windows.net/ai-link-to/Releases/Setup.exe>
  - 5.20.2 Users of current model Somark readers (black and aluminum enclosure, serial # D-xxxx,) Download “Somark LinkTo” here: [https://install.appcenter.ms/orgs/somark/apps/linkto/distribution\\_groups/production](https://install.appcenter.ms/orgs/somark/apps/linkto/distribution_groups/production)

**6 HISTORICAL REVISION**

- 6.1.1 Revised to include steps on loading a cartridge onto the Injector, and with added descriptions to aid proper tag placement.
- 6.1.2 Document and title updated with current product terms and minor edits. April 30, 2019.
- 6.1.3 Minor edits and updating of Somark product names. Inclusion of a QC section. Feb 1, 2020
- 6.1.4 Addition of LinkTo download locations (5.20.1 and 5.20.2) January 25, 2024.