# MICROELECTRONIC ANIMAL IDENTIFICATION

## CROSS-REFERENCES TO RELATED APPLICATIONS

[0001] The present application claims benefit of U.S. Provisional Patent Application No. 61/798,316, filed March 15, 2013, which application is incorporated herein by reference.

## FIELD OF THE INVENTION

[0002] The present disclosure relates to systems and methods for providing microelectronic animal identification

## BACKGROUND

[0003] Animals are marked for identification in a variety of applications by a variety of methods. The ability to accurately identify and track individual animals is necessary in research environments where animals are exposed to different experimental conditions, in the management of colonies of genetically modified animals for which multiple genotypes are present, and in breeding stocks where it is useful to track which animals possess certain desirable and undesirable traits.

## SUMMARY OF DISCLOSURE

**[**0004] The present disclosure is directed to microelectronic animal identification. According to an aspect of the present invention, there is provided an animal marking system comprising:

a microelectronic animal identification device comprising an inserter coupled to an inserter cartridge and configured to releasably hold a microelectronic chip at a distal end of the inserter, and an actuator configured to release the microelectronic chip from the inserter when the distal end of the inserter is inserted into a substrate of an animal body part;

at least one restraining device operatively associated with the identification device, wherein the restraining device is sized and configured for restraining an animal or animal body part thereof and oriented such that the identification device can deposit a microelectronic chip into the substrate of the animal body part;

wherein the animal is a mouse, a rat, or a rodent, the body part is a tail, and the

substrate is dermis.

[0004a] According to one aspect of the present disclosure, a microelectronic animal identification device comprises an inserter configured to releasably hold a microelectronic chip at a distal end of the inserter, and an actuator configured to release the microelectronic chip from the inserter when the distal end of the inserter is inserted into a substrate of an animal body part. The animal is a mouse, a rat, or a rodent; the body part is a tail; and the substrate is dermis.

[0005] In some embodiments, the identification device further comprises a controller configured to control position of the inserter and to actuate the actuator to implant the microelectronic chip into the substrate of the animal body part.

[0006] In some embodiments, the actuator is manually operated.

[0007] In some embodiments, the inserter terminates into a sharp tip capable of piercing into the substrate of the animal body parts.

[0008] In some embodiments, the inserter is configured to retain the microelectronic chip in proximity of the sharp tip.

[0009] In some embodiments, the inserter comprises a tubular body defining a lumen configured to securely retain the microelectronic chip at a distal end of the lumen.

[0010] In some embodiments, the lumen is dimensioned to limit the movement of microelectronic chip at the distal end of the lumen.

## CLAIMS

What is claimed is:

1. An animal marking system comprising:

a microelectronic animal identification device comprising an inserter coupled to an inserter cartridge and configured to releasably hold a microelectronic chip at a distal end of the inserter, and an actuator configured to release the microelectronic chip from the inserter when the distal end of the inserter is inserted into a substrate of an animal body part;

at least one restraining device operatively associated with the identification device, wherein the restraining device is sized and configured for restraining an animal or animal body part thereof and oriented such that the identification device can deposit a microelectronic chip into the substrate of the animal body part;

wherein the animal is a mouse, a rat, or a rodent, the body part is a tail, and the substrate is dermis.

2. The marking system of claim 1, wherein the marking system is configured to position the inserter and the restraining device is configured based on the size of the marking substrate.

3. The marking system of claim 2, further comprising a measuring device configured to measure the size of the substrate of the animal body part by using a laser-generating device emitting a light curtain beam and a receiver that is incorporated into the measuring device.

4. The marking system of claim 1, further comprising a marking device for depositing a pigment composition into the substrate of the animal body part wherein the marking device optionally comprises a marking needle of fixed length comprising one or a plurality of needle tips, wherein the needle tips are optionally configured to penetrate the epidermis of the marking substrate and transfer a pigment into the dermis of the marking substrate.

5. The marking system of claim 4, further comprising a media transfer assembly containing the pigment, wherein the marking device is configured to make a mark by contacting the pigment prior to the marking substrate.