

Behaviour: Radio Frequency Identification system (RFID) implantation

1. Purpose

The aim of RFID implantation is to provide a fast and accurate method for identifying mice used during behavioural experimentation. The unique AVID identification number can also be used to track supplementary samples through the pipeline.

2. Procedure

The cage containing the animal(s) to be microchipped should be removed from the Individual Vented Caging (IVC) rack they are routinely stored in and transferred to a "Safe Change Station" that has been turned on and is successfully performing filtered air extraction.

Once inside the change station the individual animal to be microchipped should be identified using its ear markings that can be found on the front of the cage card (e.g. "1L" equates to one section of the left ear being removed, "2L" would be two sections of the left ear, "1R1L" would be one section from each ear and so on, in some cases the cage card may read "NM" this means that the animal does not have an ear marking – No Mark).

Having identified the correct animal to be microchipped, and isolated it from any other animals in the cage, one of the sterile single-use disposable syringes can be removed from its protective outer casing. The outer casing contains a strip of four adhesive labels that are kept for use in the completion of the microchip record and cage card.

The injection itself is sub-cutaneous with the insertion point at the scruff of the neck of the animal. It must be carried out on the stainless steel cage grid (with food and water bottle removed) by someone who has received training in this procedure by a trained specialist. This is a non-licensed procedure, as it is used as husbandry animal identification.

All of the information relating to the animal to be microchipped (i.e. Date, Strain, Mouse ID, Sex and Date of birth) can be found on the cage card attached to the front of the cage. This information should be entered into the microchip record under the relevant headings along with the behavioural study batch number in the format XX-XX e.g. 08-05.

Following microchipping, one of the four AVID identification tags should be stuck in the microchip record alongside the animal's other information (under the heading "Microchip NO").

The behavioural study batch number and the date of microchipping should be written in the box in the bottom right hand corner of the cage card along with the date the animal(s) was microchipped.

A circular orange sticker with the letter "C" written inside should also be stuck in the bottom right hand corner of the cage card to signify that the animals in that cage have been microchipped.

The second AVID identification tag should be stuck on the reverse side of the cage card (the side with no information on) in the same row that the animal's information is written on the other side.

The third AVID identification tag should be stuck to an Eppendorf tube (ensuring that the full 9 digit number can be read) and placed inside a small clear plastic bag to be used for tail sampling and genotyping; the third AVID identification tag can also be placed in this bag.

Both the cage card and the bag containing the Eppendorf tube can then be attached to the front of the cage (with the AVID identification tag facing inwards) and the cage returned to the IVC rack ensuring that it is securely in position and the water bottle is accessible to the animals inside.

3. Materials

- Box of AVID Sterile Single Use Disposable Syringes (SUDS)
- Battery operated AVID scanning “wedge”, with 9V battery
- Empty cage with metal water and food grid (water and food grid acts as a stable surface to carry out the procedure)
- A specialised “sharps” bin

All equipment should be transferred to a “Safe Change Station” before starting the procedure.

4. Quality Control

Before undertaking microchipping it is important to ensure that the correct cages and then the animals within those cages have been selected for the procedure. This is determined by the earmark information found on the front of the cage card.

The syringe containing the microchip should be scanned pre-injection using a battery operated AVID scanning wedge to ensure that the number contained in the microchip matches that on the identification tags. If the numbers do not match, the syringe, microchip and tags should all be disposed.

The microchip should again be scanned and compared to the identification tags post-injection to ensure that insertion of the microchip was successful.

Finally the animal's earmarks should be compared to the information on the cage card (including AVID ID) to ensure that the correct animal has been chipped. Only following these checks can the animal be returned to its cage and the cage returned to the IVC rack.

5. Example Data

Please refer to Table 1.

Table 1 is a sample row of data, an explanation of each column heading can be found below:

DOC	Date of microchipping.
g2c MID	g2c db mouse identification number.
MIG colony name	Mouse information group colony name.
Strain	Genetic strain of transgenic mouse.
Background Strain	Strain on which the animals are backcrossed
Generation	Breeding strategy i.e. intercross (IX) or backcross (BX)
Animal Number	Unique letter and number code referring to individual mouse.
Mouse ID	ear marks used to identify mouse before microchipping.
DOB	Date of Birth.
Genotype	Mouse genotype i.e. Homozygote Knockout (HOMO), Heterozygote Knockout (HET) or Wild type (WT).
Sex	Sex of the animal.
Batch	Experimental behaviour batch number mouse belongs to
AVID ID	unique identification number for individual mouse as determined by its inserted microchip.
Battery Style	Refers to overall behavioural protocol mouse has been run through e.g. 5 days, 5 different experiments
Start date	First day mouse ran behavioural experiments
End date	Last day mouse ran behavioural experiments
Count	Used to calculate total number of mice run. IF the animal is successfully run, then it will be 1, if something happens to the mouse prior to, or during testing, it will be 0

Table 1:

DOC	g2c MID	MIG colony name	Strain	Background Strain	Generation	Animal Number	Mouse ID	
22.6.07	M00000030	GAA	MUPP1	C57BL/6J	IX	TM2.2d	NM-CREAM	
DOB	Genotype	Sex	Batch	AVID ID	Battery Style	Start date	End date	count
2.2.07	HET	F	07-13	089010623	AAAA	2.07.07	08.07.07	1

6. Supporting information: none

7. Document History:

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