

Dec 09, 2024

Rodent ear punch assay

DOI

<https://dx.doi.org/10.17504/protocols.io.bp2l6dx65vqe/v1>

Ashley Seifert¹

¹University of Kentucky



Ashley Seifert

University of Kentucky

Create & collaborate more with a free account

Edit and publish protocols, collaborate in communities, share insights through comments, and track progress with run records.

Create free account

OPEN  ACCESS



DOI: <https://dx.doi.org/10.17504/protocols.io.bp2l6dx65vqe/v1>

Protocol Citation: Ashley Seifert 2024. Rodent ear punch assay. **protocols.io**

<https://dx.doi.org/10.17504/protocols.io.bp2l6dx65vqe/v1>

Manuscript citation:

Gawriluk, T., Simkin, J., Thompson, K. *et al.* Comparative analysis of ear-hole closure identifies epimorphic regeneration as a discrete trait in mammals. *Nat Commun* **7**, 11164 (2016). <https://doi.org/10.1038/ncomms11164>

License: This is an open access protocol distributed under the terms of the **[Creative Commons Attribution License](#)**, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited



Protocol status: Working

We use this protocol and it's working

Created: December 06, 2024

Last Modified: December 09, 2024

Protocol Integer ID: 114524

Keywords: ASAPCRN, tissue regeneration, acomys spiny mice, seifert lab, assay, mice, spiny mice, rodent, involving animal

Abstract

This protocol describes the procedure used by the Seifert Lab to assay tissue regeneration following a 4mm ear punch in rodents, including *Acomys* spiny mice.

Note that any protocol involving animals should be reviewed and approved by your Institutional Animal Care and Use Committee (IACUC) before use.

Protocol materials

⊗ Isoflurane USP Henry Schein (Butler Schein) Catalog #017579

⊗ 4 mm biopsy punch Sklar Catalog #96-1146

⊗ 8 mm biopsy punch Sklar Catalog #96-1152



- 1 Anesthetize animal with **[M] 3 % (v/v)** vaporized **Isoflurane USP Henry Schein (Butler Schein) Catalog #017579** at **1 psi** oxygen flow rate
- 2 Create a **4 mm** through-and-through hole in the center of the ear pinna with a **4 mm biopsy punch Sklar Catalog #96-1146**
- 3 At desired time after injury, collect **8 mm** tissue surrounding the hole using an **8 mm biopsy punch Sklar Catalog #96-1152** for analysis

Note

If you are interested in assessing the timeline of wound closure, you can anesthetize the animal at desired intervals (e.g., every 5 days) and use calipers to measure the diameter of the ear hole in two dimensions: along the proximal-distal axis (D_{PD}) and along the anterior-posterior axis (D_{AP}). The area of the hole can then be calculated as an ellipse (to account for unevenness in closure between the two axes) by:

$$A = \pi(D_{PD} \times D_{AP})/4$$