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Anticoagulant Resistance Project

BACKGROUND & OBJECTIVE

The development of anticoagulant rodenticides in the early 1950s revolutionised rodent control. By the late 1950s, however, resistance to these compounds was found in some Norway rat and house mouse populations. Consequently, more potent second-generation anticoagulants (Difenacoum and Bromadiolone) were marketed and proved effective. However, within just a few years of their arrival, resistance was identified. Resistance for these compounds has been spreading ever since AND we are still trying to fill in the gaps where we have no resistance data!

Thanks to early genomic work we are able to identify resistant animals from a simple tissue sample (e.g. a tail cutting). To know the most effective anticoagulant product to use you must first know if your rat/mouse population carries resistance and what type of mutation they possess. The only way to know this for certain is to have part of your rodent population genetically screened.

The Rodenticide Resistance Action Committee (RRAC) are providing this service along with the help of the Vertebrate Pests Unit (VPU) team at Reading University, UK. With this information RRAC has created and will continue to update a freely accessible interactive mapping tool so that pest control operators can get information on what types of resistance are in their area and guidance on what anticoagulants will prove most effective (**http://guide.rrac.info/resistance-maps/united-kingdom).**

If you're unsure about resistance in your area, then you are encouraged to send in a rat/mouse tail cutting which will be screened for any resistance mutations.

This project aims to locate and map the resistance strains of Norway rats and house mice from the UK and the rest of Europe. This information will help pest controllers identify the most appropriate anticoagulants to use during their rodent control operations and will be similarly useful for all others undertaking rodent control.

Dr Colin Prescott (Associate Professor/ VPU Director)

Please see the Sample Collection Protocol (overleaf) for details about sending in a tail sample for resistance screening

SAMPLE COLLECTION PROTOCOL

Collecting tails

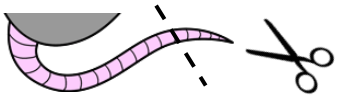
Email Emily Coan (e.e.coan@reading.ac.uk) with postcodes of the sites you want to collect tails from BEFORE you collect them. Emily will tell you whether you are already near an existing data point and will be happy to give you advise.

- Please collect 1-3 tails per site. If a tail fails testing you will be invited to send up to a maximum of 3 replacement tails.
- Collect from dead bodies or preferably trapped rodents (fresh, clean and intact bodies are needed for better results. If you suspect bodies are more than 3 days old and are not of good quality, don't use it)

THREE EASY STEPS

1 Cut

- A tail tip (2-3 cm) is required to provide DNA from each rodent. Each tail tip must be removed using a clean blade or sturdy scissors



2 Bag

- Tails should be stored in a sealable plastic bag (e.g. Zip-Lok)
- Please put each tail in a separate bag

Use our template as a guide for labelling your bagged tails:

Name: [your name]
Date: [date the tail was collected]
Species: [Brown rat / House mouse]
Site Postcode: [postcode of the site or GPS co-ordinates]
Email: [your personal or work email]

3 Post

- Once the tail sample has been placed in a bag, it should be sent to the University of Reading for DNA testing OR if you can't post it the same day put the tail in a freezer (within 12 hrs of collection) until it can be posted off
- An exact location must be provided with a sample (GPS co-ordinates OR a post code / Zip code) otherwise it cannot be processed. Please include your email address so we can contact you!
- The samples must be labelled correctly and packed in a way that samples cannot be touched by un-authorised people

Within 12 hours of a tail sample being collected it should be frozen or sent using NEXT DAY DELIVERY to -

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Harborne Building
School of Biological Sciences
University of Reading
Whiteknights
Reading RG6 6AS
UK

Tel: 0118 3788329

Email: e.e.coan@reading.ac.uk

If your samples are from a location within a **5km** radius of an existing data point then the samples cannot be analysed free of charge. If you would like to check whether you are near any resistance go to RRAC's online interactive questionnaire and map:

http://guide.rrac.info/resistance-maps/resistance-maps/