Questions and answers from the CRACK IT Challenge 47 aTRACKtive launch webinar

Questions related to eligibility and the application process are covered in the Single Phase Challenges [Guide for Participants](#).

1. Are you interested in just the pups or the mother and father as well?

The aim of this Challenge is to develop a system that can identify individual mice from birth and so the focus is on the pups. We would potentially look at the mother and father too (though we do not always keep the fathers in the cage with the litter), but due to their size, they are easier to identify, and we have alternative methods to track them.

2. How soon after birth do you want to identify and track the pups?

The approach must be able to identify individual pups from shortly after birth, and ideally as soon as they are born.

3. How many animals would need to be identified in a cage at any one time?

The approach must be able to detect up to four pups individually in one cage.

4. Will the proposed system be tested at the MRC Harwell Mary Lyon Centre alone or can preliminary testing take place elsewhere?

It could take place elsewhere if applicants have the capacity and necessary licences in place to carry out animal experiments. Applicants should take into consideration that CRACK IT is highly collaborative and Sponsor in-house testing is an in-kind contribution available to applicants.

Any animal work requested must be fully justified with robust experiment plans, and should comply with the principles set out in [Responsibility in the use of animals in bioscience research](#). Further guidance can be found in section 3.3 of the Single Phase Challenges [Guide for participants](#).

5. You mentioned that traditional tattooing is out of scope, but are alternative non-invasive means for marking the skin allowed?

Approaches using marking of the skin are likely to be challenging. As outlined in the key deliverables, the approach developed must be compatible with both nude pups and pups with fur of different colours, and allowing for growth of the animals (i.e. compatible with the changing physical state of the mouse as it ages). For example, as pups age they develop fur so any markings could be covered or disappear over time.

It is encouraged that applicants discuss their proposed approach with the Challenge Sponsors. If you would like to be introduced to the Sponsors to discuss your proposed approach before the submission deadline, please contact the CRACK IT team at crackitenquiries@nc3rs.org.uk

6. Individually identifying mice without radio-frequency identification (RFID) could be very challenging. Instead of individually identifying the mice, would it be enough to identify if anyone of the pups is deviating from the other pups/baseline?

The aim of the challenge is to develop a system to identify individual mice from birth as outlined in the Challenge brief. We do not know enough about what is typical for a particular genetic line or for wild type mice to know what the deviation would be, which is why the focus is on individual identification.

7. Would you like the system to integrate with standard laboratory and computing infrastructure?

Yes, the system developed should be compatible and integrate with standard laboratory and computing infrastructure.

8. How many cages do you want to monitor simultaneously?

For proof of concept, we would start at small scale assessing up to four cages at a time to check the performance of the approach including any batch variability before scaling up to larger numbers of cages.