National Centre
for the Replacement
Refinement & Reduction
of Animals in Research

NC3Rs gateway – Guidance for preparing a Stage 1 Registered Report Study Protocol

The aim of this document is to guide NC3Rs-funded researchers through the process of preparing a Stage 1 Registered Report for the gateway. This document should be read in conjunction with the guidance for authors provided by F1000Research on 'Preparing a Registered Report' and 'Preparing a Study Protocol'.

Scope

Stage 1 Registered Reports should describe the Study Protocols which will be used in the characterisation or validation of a 3Rs model/ tool/ technology. They can only be submitted before data collection begins.

Registered Reports can include studies to demonstrate the utility of the 3Rs approach and to encourage adoption by the target end-users and wider scientific community, or comparison(s) against the current gold standard or commonly used animal models. Articles should be written with a target audience in mind, typically mammalian/ vertebrate model users. The 3Rs relevance and impact of the model/ tool/ technology should be embedded throughout the article, and where appropriate, be supported by metrics.

Format

For most Study Protocols, the following standard format will be the most appropriate:

- Abstract
- Introduction
- Methods
- Research highlights (this will be a stand-alone box)

Important details to include

Abstract:

Abstracts should be up to 300 words long and provide a succinct summary of the article. In addition, the abstract should also summarise 1) who the target end-user(s) are, and 2) why they should adopt your 3Rs approach both from a scientific and a 3Rs perspective.

Introduction:

Describe the background and rationale for the study

Clearly describe the 3Rs relevance of your approach, and how it fits in with the current state of affairs.

Clearly define who the potential end-users of your 3Rs approach are.

Where appropriate, include metrics that support the need for 3Rs research in this area. Consider the following questions:

1. How many animals are used locally for this work, and how many would be affected/ no longer used should the approach be adopted?
2. How many groups in the UK or overseas use the animal model and could benefit from the approach?
3. How many papers published annually use this model, and how many animals are used in a typical publication.

4. What is the severity classification of the procedure as defined under the EU Directive (2010/63/EU); non-recovery, mild, moderate or severe?

Methods:

Provide step-by-step protocol(s).

Include supporting images and videos, where appropriate.

Provide details of equipment used in the Protocol(s).

Consider including a 'Notes' section to supplement the protocol(s) with practical considerations or tips for implementation.

Include a detailed description of the experimental design, including:

- Allowances made (if any) for controlling bias or unwanted sources of variability.
- The number of experimental and control groups, and sample size per group.
- How the sample size was calculated; showing power calculations and including justification of effect size.
- Primary outcomes to be measured, as well as a list of secondary outcomes.
- Data analysis and statistical plan

Where applicable, we also encourage authors to deposit a step-by-step description of their protocols on protocols.io, where they obtain a persistent digital object identifier (DOI) which can be included in the Methods section of the article, using https://doi.org/10.17504/protocols.io.[PROTOCOL DOI] as the format (e.g. https://doi.org/10.17504/protocols.io.hrkb54w). Authors should note that the protocol is only made public once they select "Publish" on protocols.io.

For articles that describe the use of animal models, including invertebrate models (such as *Drosophila* or *C. elegans*) or non-protected immature forms of vertebrates (such as embryonic or foetal forms), the article must comply with the 'Introduction' and 'Methods' sections of the ARRIVE guidelines.

For articles that describe the use of animal tissues following a schedule 1 procedure, the article must comply with the 'Housing and husbandry' segment of the ARRIVE checklist.

Abbreviations, if needed, should be written fully in the first instance.

Add Research Resource Identifiers (RRIDs), where available, to unambiguously identify the following types of resources: antibodies, genetically modified organisms, software tools, data, databases and services. More information on this project is available from the Resource Identification Initiative and RRIDs can be obtained from the portal.

Research highlights (stand-alone box):

In the manuscript, include a separate section called 'Research highlights'. This feature will provide the reader with a quick, structured overview of the approach described in your article both from a scientific and a 3Rs perspective.

Provide concise bullet-point responses to the following questions (multiple bullet-points can be listed for each question, and if some questions are not applicable to your article they may be omitted):

- What are the scientific benefits?
- What are the 3Rs benefits?
- Are there any practical benefits? For example; cost effective, time, difficulty/ complexity, etc.
- What can the approach be applied to currently?
- What are the potential future applications of the approach?

Box template:

Research highlights	
Scientific benefit(s):	
3Rs benefit(s):	
Practical benefit(s):	
Current applications:	
Potential applications:	