This publication was archived on 20 October 2022

This publication is no longer current and is not being updated.

Key points
Standard GA mouse breeding protocols

The standard protocols for GA mouse breeding have been updated, using more refined approaches and formatted according to the current version of the paper PPL application form.

1. These protocols are intended to cover the needs of most users who create new lines of GAA and breed established lines. They are intended to be pasted into PPL applications as required.

   They provide for routine breeding and maintenance (B&M) of most strains of GA mice (and other species with modification) and should not be changed.

   Where non-standard procedures are required for specific strains or circumstances, use a bespoke protocol for that specific strain.

2. Breeding should always be carried under the lowest appropriate severity protocol, not under the highest severity of any strain that might be bred, ie most should be on a Mild protocol. An **additional** Moderate or rarely even Severe protocol may be needed to cover **specific** strains for some users.

   However, thought should be given to the appropriateness of maintaining animals showing moderate or severe effects on a breeding protocol. Preferably animals should be killed before suffering adverse effects if they are not going to be used, or they should be transferred to the protocol on which they will be used and for which the harmful phenotype is required.

   “Stock animals” suffering adverse effects is not justifiable.

   Do not use “just in case” higher severity protocols. If a moderate protocol is needed it should name the strains or groups of strains involved, and give specific end points for these strains appropriate to a breeding protocol, not experimental end points.
   The standard Mild protocol provides for unexpected adverse effects of scientific interest, while still requiring low severity to be maintained.

3. We have reinstated the “creation of founders” protocol, and this precludes the need for the “in vitro manipulation” step on the breeding protocol, which was confusing. We have also added a few comments on how these embryos and young animals move around, just for clarity. The estimated numbers should be based on the number of animals expected to be born, not the number of embryos manipulated. If you are not creating novel lines then you will not need this protocol and other protocols should be adjusted as necessary.

4. We have removed laparotomy from the vasectomy protocol, as we cannot think of any justification for using this compared to the more refined scrotal approach.

5. We have referred to non-regulated biopsy methods on the B&M protocol for clarity.

6. Removal of the tip of the tail for genotyping is not usually the most refined method. If it is required then a record should be kept of the scientific reason and made available to the Home Office on request.

7. We have added a max age of 12 months for maintenance of animals on a B&M protocol.

8. There are no additional steps on the B&M protocol (ie no imaging or other phenotyping techniques).

9. The breeding protocol is for breeding of genetically altered animals; it is understood that wild types may be produced on this protocol, though the aim is not the breeding of wild type mice.

10. Phenotyping should be carried out on a separate final use protocol. In the unusual situations where phenotyping has to be carried out prior to final use this should be on either a bespoke B&M protocol or included in the final use protocol. Do not cater for such unusual scenarios by adding steps to the standard B&M protocol; similarly for deliberate aging of animals.

11. We have removed induction of conditional gene expression from the B&M protocol for two reasons:
    i. It is very rarely used on B&M and virtually always forms part of the experiment, so should be on the final use protocol
    ii. The use of tamoxifen may be associated with adverse effects that are not compatible with mild protocols in many situations

    In the rare situations where GA lines are maintained on a gene induction agent (invariably doxycycline, not Tamoxifen) a bespoke protocol should be used.

12. Note that transport of live animals as sentinels to diagnostic laboratories has been removed. This practice is discouraged and tissues should be sent instead. If there is a specific scientific need for live GA sentinels then please ensure you follow the guidance provided in the Advice Note on re-homing and setting free.

13. We cannot provide a standard Moderate breeding protocol, as these should be tailored to the actual genetic alterations involved.
    A template for moderate (or severe) B&M is included.
    Note that end points should relate to a breeding and maintenance protocol, and are likely to be less severe than may be required on a final use protocol