
Overview

This standard covers the use of Genetically Altered (GA) animals in scientific research and includes the competencies required to support the production of breeding colonies of GA animals.

You will be familiar with the background reasons and ethical considerations for using GA animals in scientific research, and have an understanding of aspects of breeding, maintenance, genetic monitoring and cryopreservation of laboratory colonies.

It is essential that you work strictly within the limits of both your personal licence and the relevant project licence.

You are expected to comply with the relevant health and safety regulations and guidelines at all times.

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Support the production of Genetically Altered (GA) animals in a Home Office designated establishment

Performance criteria

You must be able to:

- P1 use safe practices and appropriate personal protective equipment when carrying out scientific or technical activities
- P2 maintain appropriate levels of hygiene and bio-security
- P3 establish and maintain a line of GA animals from founder stock or first generation animals
- P4 take samples for DNA analysis using the least invasive method appropriate for scientific analysis
- P5 check the physical condition of the animals, their readiness for breeding, and prepare the animals in the appropriate manner
- P6 breed and maintain a colony of GA animals to meet the scientific requirements of a research project focusing on reduction in animal wastage
- P7 maintain the health and condition of GA animals throughout their reproductive cycle
- P8 maintain the health and welfare of animals by providing special care, vet prescribed treatments and any special dietary requirements as appropriate
- P9 maintain complete, accurate and legible breeding records
- P10 maintain complete, accurate Home Office and safety records
- P11 work in ways which promote health and safety and are consistent with relevant legislation and codes of practice
- P12 transport animals safely and securely to another location within establishment or externally and complete the relevant documentation when sending animals to scientists
- P13 record and monitor environmental conditions suitable for species and report problems to the relevant person

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Knowledge and understanding

You need to know and understand:

- K1 the importance of maintaining appropriate levels of hygiene and bio-security and how this can be achieved
- K2 the importance and correct use of personal protective equipment for scientific or technical activities
- K3 definitions of chromosome, gene, DNA, genotype, phenotype, homozygous, heterozygous, transgenic, wild type and founder stock
- K4 the methods used to take samples for DNA analysis for the animals you are working with
- K5 how to check animals and prepare animals prior to breeding
- K6 the justification for using GA animals and the role of the Ethical Review Process (ERP) in cost benefit analysis
- K7 principles of the 3Rs in relation to the production and maintenance of GA animals
- K8 why it is necessary to genotype progeny and how to evaluate results
- K9 possible reasons why genotyping results may not conform to expected mendelian ratios
- K10 breeding animals to include selection of FBS from genotyping results
- K11 the environmental and husbandry conditions required for breeding animals
- K12 the importance of effective communication with scientists (internal and external) and colleagues when breeding and/or transporting animals
- K13 the identification of any environmental concerns and reporting structure
- K14 additional welfare considerations that may be required in breeding and maintaining GA lines
- K15 reasons for cryopreservation and re-derivation in GA lines
- K16 how to identify problems when managing a colony of GA animals, and what action must be taken
- K17 legislation for transporting and packing animals and the use of relevant documentation,
- K18 the requirements of the Animals (Scientific Procedures) Act 1986 in producing GA animals, relevant licences, codes of practice, humane end-points, severity limits, welfare score sheets
- K19 the requirements under current health and safety legislation for maintaining and disposal of GMO animals, Genetically Modified Organisms (contained uses) Regulations 2000 and Environmental Protection Act 1990, including the use of risk assessments

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