

Investigation into preputial gland ablation as a method to modify murine pheromones to control aggression in group housed male mice

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Background/aim:

A common problem in group housing of male mice in the laboratory animal industry is that of fighting which can be so serious as to necessitate single housing of animals. Previous work by Dr Vaughan has shown (as might be expected) that castration of mice reduces this problem significantly and can therefore be used as a management tool. However, in a research animal setting the effect that this has on endocrinological parameters, and therefore interpretation of research data, is significant. The castration effect is likely to work by elimination of male pheromones which indicate social status in the group. The aim of this project is to determine whether another method of reducing pheromone cues, preputial gland ablation, will reduce agonistic encounters. Lack of hormone production by this gland, ensures that research parameters are not unduly affected. A successful outcome will provide a simple solution to colony management of laboratory mice.

Methods:

Subject to approval from both the TAFESA and University of Adelaide Animal Ethics Committees, the project will involve groups of control and surgically treated animals (preputial ablation). The project will take place at Gilles Plains TAFE using their teaching animal facility. Behavioural parameters of aggression obtained using a scan sampling methodology will be compared between the groups. An aggression scoring method has already been developed but there is potential to refine and further develop this system should the student wish. This project will be integrated into the teaching programme for the TAFE students. The honours student will assist with surgical preparation of animals and behavioural data collection, and will contribute to project management as a member of a team and in liaison with other participants.

Techniques/skills involved:

- Anaesthesia and surgery of mice
- Behavioural study experimental design and literature review
- Behavioural data collection and statistical analysis
- Project management

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