

Suprelorin to Control Reproduction in Mice

A solution for single housing



Dr Lucie Nedved

Garvan Institute of Medical Research, 384 Victoria Street, Darlinghurst, NSW

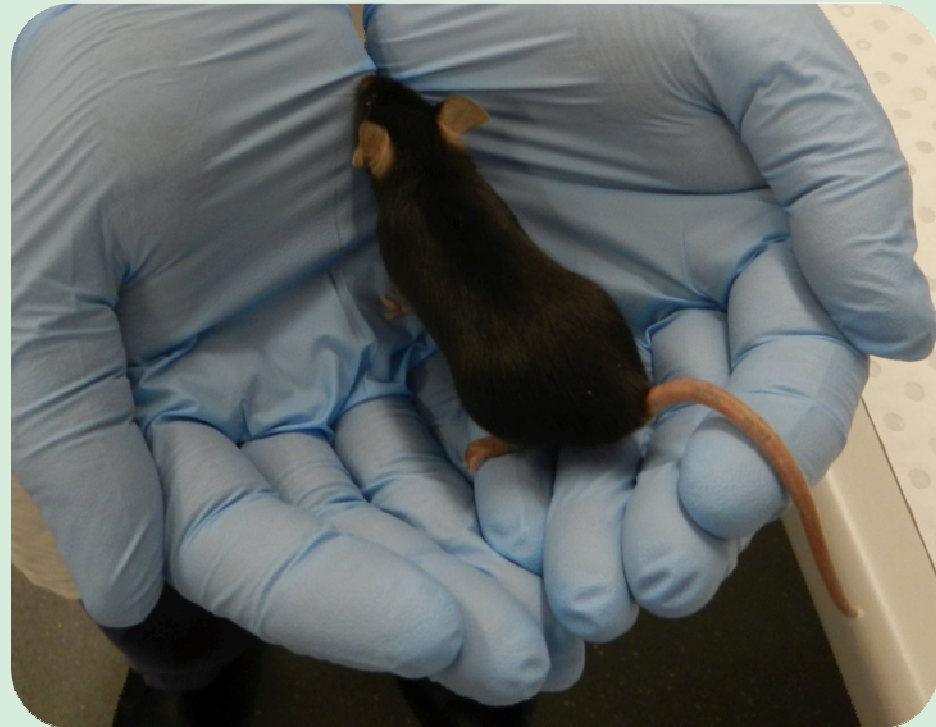




The Problem



- Social species
- Social isolation increases anxiety in mice, aggression and impact on behavioural studies
- Altering male groups post puberty often results in fighting
- Experimental usage often creates single housing of males

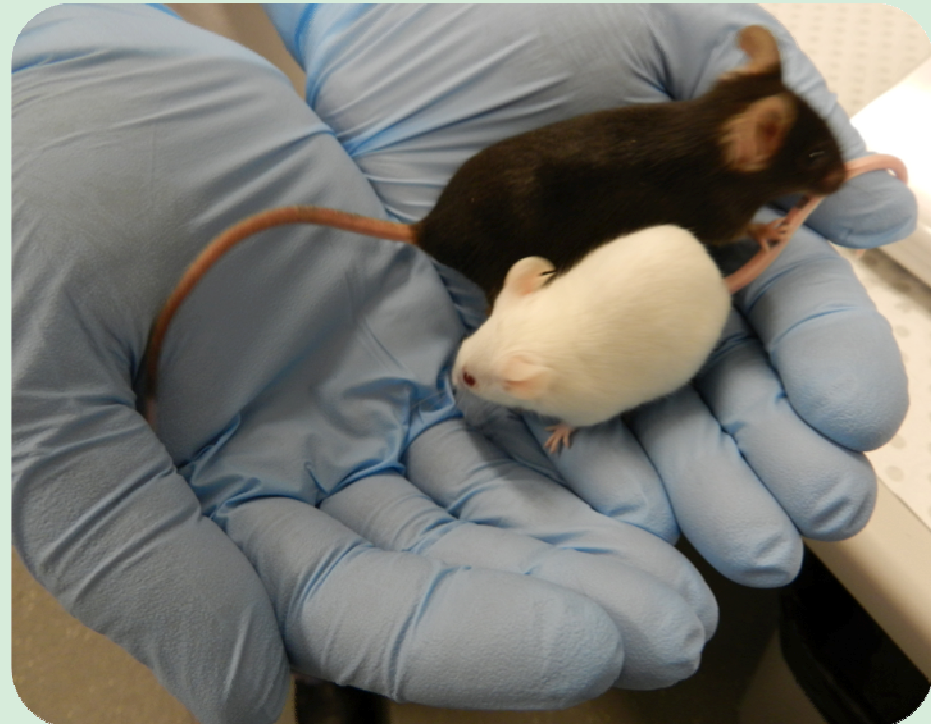




The Refinement



- Group house & separate if fighting
- Provide a sexually inactive companion (preferably a female)



Ovariectomised Companion Mice



Advantages

- Ovariectomy is permanent

Disadvantages

- Invasive surgical procedure
- Surgical skills & time
- Longer anaesthetic and post operative care
- Specialized surgical equipment Weight gain

What About a Contraceptive?



Advantages

- Less invasive & easy to give as implant
- Shorter anaesthetic time
- Long lasting



Disadvantages

- Side effects?
- Temporary





Deslorelin Implant (Suprelorin[®])

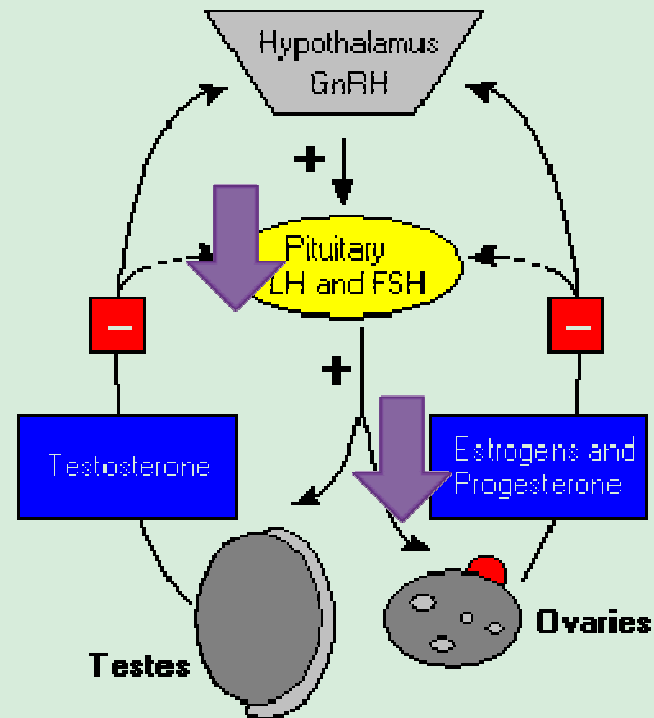
- Used in male dogs to suppress testosterone
- Used in various species including wildlife as a contraceptive (females)
- Data on doses for male mice

- Cylindrical s/c implant
- Sustained slow release of deslorelin
- SC implants 4.7mg & 9.4mg



Action of Deslorelin

- Gonadotrophin releasing hormone agonist
- Stimulates then down-regulates production of FSH, LH, oestradiol & progesterone





Garvan Suprelorin Study

- Mice anaesthetised with isoflurane
- Ketoprofen given SC 5mg/kg
- Surgical clip used to prevent loss of implant



- QS and FVB/n control placebo, 2.3mg pellet and 4.7mg pellet
- Pellets were donated by Peptech Animal Health Pty Ltd.

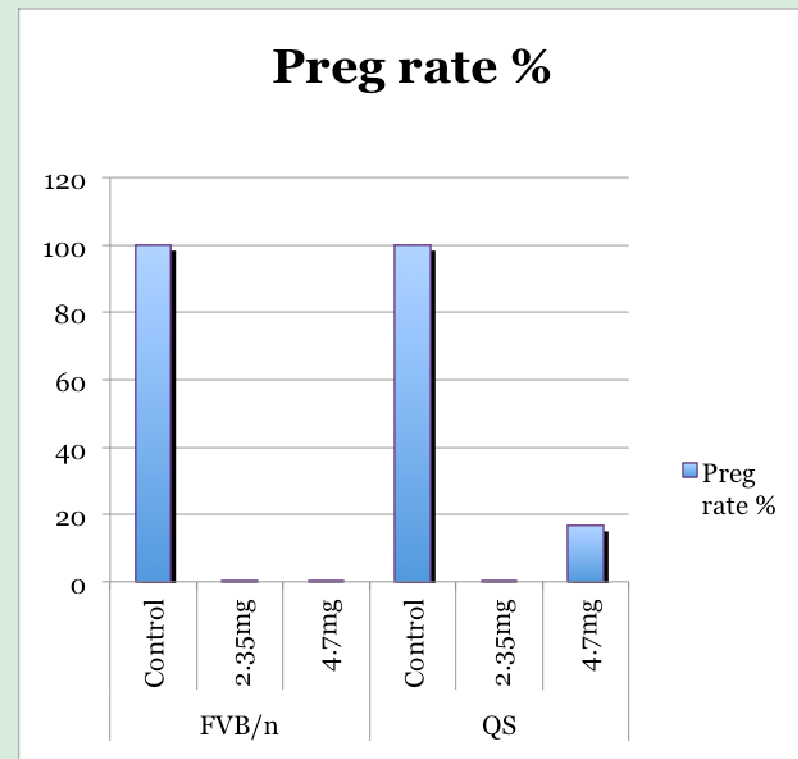
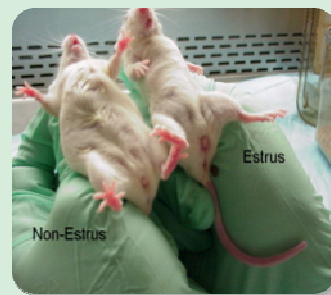
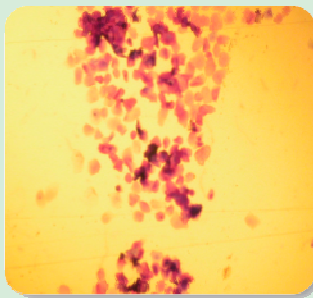
Monitoring – First Month



- Vaginal cytology before mating:
 - ✦ treated mice stopped regular oestrus cycles in 2 wks
- Mice mated 3 weeks post implantation:
 - ✦ No treated mice plugged positive after mating

Monitoring – Long Term

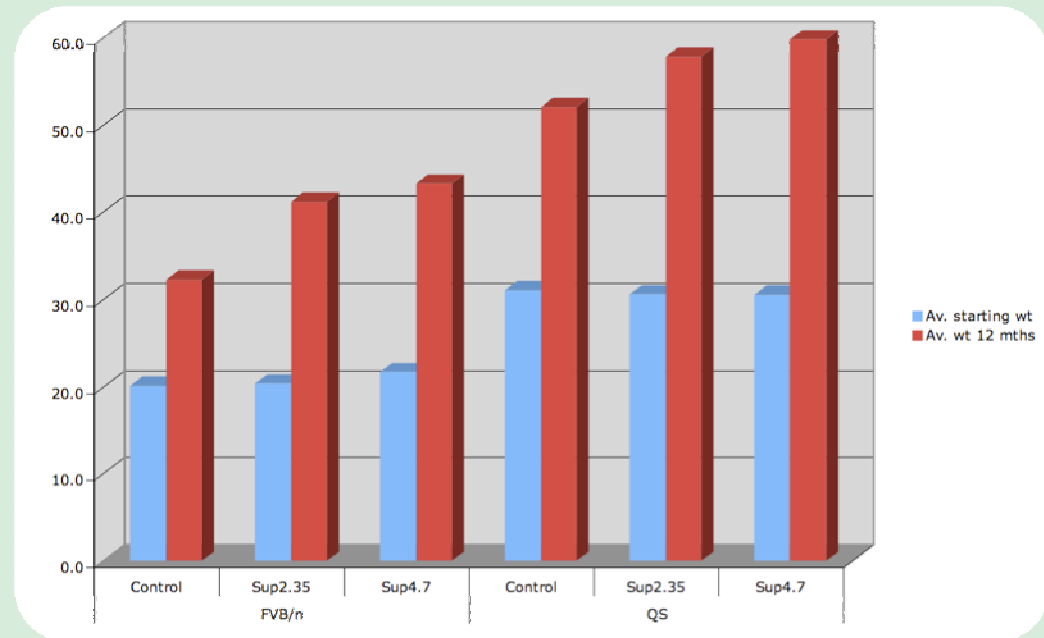
- Pregnancies recorded:
 - ✦ 1/12 treated QS mice had a litter 7 months post implantation
- Vaginal cytology 1-2 /month:
 - ✦ 1 QS showed oestrus 10 mths PI and 1 pregnancy at 7 mths
 - ✦ FVB/n 7/12 females between 6-7 mths
- Histopathology – no tissue reaction to pellets





Side Effects – Weight Gain

- Significant difference in 12 mth weight between controls & treated $P < 0.05$
- No significant difference in 12 mth weight between 2.35 & 4.7mg dose within strains



Outcome of the Garvan Study



- Effective for 6 months in mice at doses of 4.7 mg and 2.35mg
- Quicker:
 - ✦ Time taken to implant including GA ~5 min
 - ✦ Time taken for ovariectomy ~30 min
- Less surgical and anaesthetic complications = improved welfare



Refinement of the Refinement





Quick Guide

Using Suprelorin for Companion Female Mice



- Halving 4.7mg implants to reduce costs (likely to get more uptake)
- Effective for 6 months in mice at doses of 2.35mg
- Optimal age to implant: 8 weeks
- Rest for 2 weeks before introducing to new companion
- Using for companions (>1 week of isolation)
- Check that they are compatible

Acknowledgements

Dr. Jenny Kingham

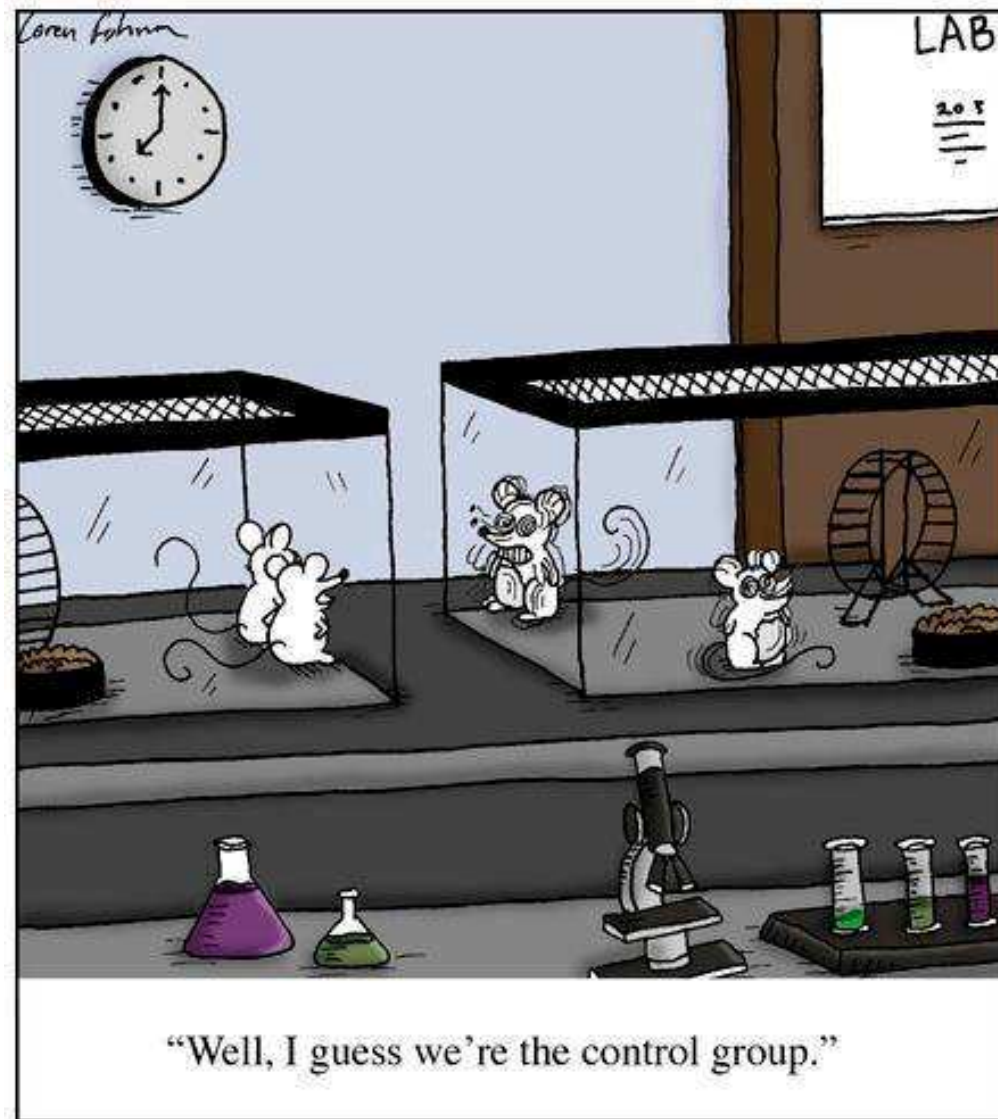
Michael Pickering

Carlie Crawford

Jessica Pettitt

Dr. Rayson Tan

Peptech Animal Health
Pty Ltd



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