Approaches with Potential for Nearer-term Impact

CALCIUM CHLORIDE INJECTION
for male cats and dogs

Elaine Lissner
Parsemus Foundation
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Mode of Action

Testicular atrophy

How It’s Different from Zinc Gluconate

• Reduces testosterone substantially, enough to impact behavior: YES
• FDA approved: NO
• Available now: YES

Why Calcium Chloride Has Current or Near-Term Potential

• Known to work
• Cheap
• Substantial published safety data
• Readily available,
**Target Market(s)**

- Owned, community, or street dogs
  - Permanent sterilization wanted
  - Zeuterin/Esterils not available
  - Behavior change (roaming, fighting, packing, humping) desired

- Owned, community, or feral cats
  - Permanent sterilization wanted
  - Behavior change (spraying, yowling, fighting) required

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**Brief History**

- 1977-1978: Pilot studies done at Washington State University, USA
- 1978-1998: Calcium chloride publications from India
- 1998: Parsemus foundation learns about calcium chloride
- 2009-2010: Parsemus foundation funds independent confirmatory trials, Italy
- 2010-2012: Trials confirm effect and find best formulation, Italy
- 2010: Calcium chloride presented at international dog population management conference, England
  - Additional pilot and field studies, USA and international

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**Diagram:**

- Vas deferens/sperm duct
- Penis
- Scrotal sac
- Eiloididymis

- Nerves in the capsule of testes

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Research 1977 to Present

<table>
<thead>
<tr>
<th>Year</th>
<th>Researcher</th>
<th>Species</th>
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<td>Koger - USA</td>
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<tr>
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Key Published Research

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Studies in black – published
Studies in gray – unpublished
Research Underway or In Publication

**In press**
- Leoci et al., 80 dogs, Italy
  
  **KEY RESULT: ALCOHOL IS MORE EFFECTIVE BASE THAN LIDOCAINE OR SALINE**

**Under way**
- Field trial, ~40 dogs, Pakistan
  
  Data being gathered: testosterone levels and testicular photos, before and after
- Dose determination study, kittens, India

**Planned**
- FDA-oriented safety studies in cats, USA

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Commercialization/Availability Status

**Current**

**Anticipated**

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**Regulatory Status**

- **Countries without strong veterinary regulatory structure**
  - “it depends”
  
  “Greatest good” standard
  For animal and community

- **Countries with strong veterinary regulatory structure**
  - Italy, France, Canada, Sweden, China, S. Africa, Brazil, Australia

  United States

**Challenges**

- Unawareness
- Squeamishness
- Fear of condemnation
- Financial

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Want to help?
Follow the effort on Facebook
we have to remember the stakes and the scale of the problem we're trying to solve ... the stress of transport for both dogs and cats ... and the logistics issues that make getting ahead of the problem with surgery so difficult.

Which is worse?

Challenges

• Unawareness
• Squeamishness
• Fear of condemnation
• Financial

Summary

• Similar concept to zinc gluconate, but not FDA approved
• Available now, easy to make, and known to work
• Substantial recent data provides new evidence of safety
• Fear of medical/legal/regulatory exposure is key obstacle to widespread use

Want more info? 1:30pm, Field Implementation track
Thank you to everyone involved!

These experts can answer questions:

**Research & Field Expertise**

- **Sanjay Jana**
  - Cat and dog studies in India

- **Raffaella Leoci**
  - Dog studies in Italy

- **Kevin Morris**
  - *-FDA program liaison
  - Community partners liaison
  *(pro bono to date)*

- **Linda Brent**
  - Grants manager, calcium chloride research

- **Douglass Oeller**
  - Douglass Oeller Consulting
  - Program manager, FDA submission

**Program Mgmt/Regulatory**

- **Shawna Davis**
  - FIV-eradication Team Community partners liaison
  - Trap-bait-release team