Approaches with Potential for Nearer-Term Impact

Byron Maas, DVM
Master Trainer
June 22, 2013

Why Zeuterin™ Has Current or Near-Term Potential

In the U.S., about 35% of male dogs are intact – (12.25 million)*

- Safe and effective
- Permanent and irreversible
- Less recovery time
- Reduces testosterone and prostate size
- Client acceptability

*Provided by the ASPCA. These estimates are compiled from APPA and AVMA data.

Mode of Action

- Atrophy of Seminiferous tubules, Epididymis, Leydig cells
- Atrophy of prostate (52%)
- Scar tissue formation which prevents movement of sperm from the seminiferous tubules to the epididymis

Brief History

1980’s - Ark Sciences, Inc. creates Zeuterin™
1990’s - Ark Sciences, Inc. acquires U.S. rights to Zeuterin™
2001 - Pet Healthcare Int'l (PHI) is formed; Dr. Min Wang joins research team
2003 - 2005 - Submission for Adult Dog Approval Submitted
2007 - 2010 - Neutersol® is approved by FDA for 3-10 month old male dogs; PHI runs out of cash
2011-2013 - Ark Sciences acquires international rights, registers product in Mexico, Colombia, Panama, Ecuador

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zeuterin®

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Current Status of Zeuterin™

- U.S. FDA Approved
  - New manufacturing facility currently being added (Oct 2013)
  - Adult dog label submitted to FDA for review (Nov 2013)
- Internationally
  - Approved in Mexico, Colombia, Turkey, Bolivia, Panama
  - Pending in India, Russia, Brazil, Argentina, South Africa

Summary of Key Research

- 270 Clinical study dogs 3-10 months
- 53 Clinical study adult male dogs
- Rabies concomitant injection
- Serum testosterone levels
Summary of Key Research

- Underway
  - Larger testicle study (Greater than 27mm)
  - Behavior analysis of Zeuterin™ treated dogs
  - Long-term health benefits
  - Male cats
- Planned
  - Younger dogs (Less than 3 months of age)
  - Additional species (Kangaroos, monkeys, rabbits, etc.)

Target Markets

- Shelters and municipalities
- High-volume spay neuter clinics
- Private practice veterinarians
- Corporate veterinary practice and charter clinics
- Vaccination clinics

Commercialization Status

Challenges

- Label limitations
  - Age
  - Size
- Changing perception of behavior benefits from surgical castration
- Logistical challenge of certifying veterinarians on injection procedure
Summary: 3 Key Takeaways

1. Increased efficiency in sterilization procedure
2. Benefits of maintaining testosterone levels
3. Increased sterilization rates of dogs