



# Fair Competition and Drug Control

Speaker:

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# Immunocastration and racing regularity

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# Why an immunocastration ?

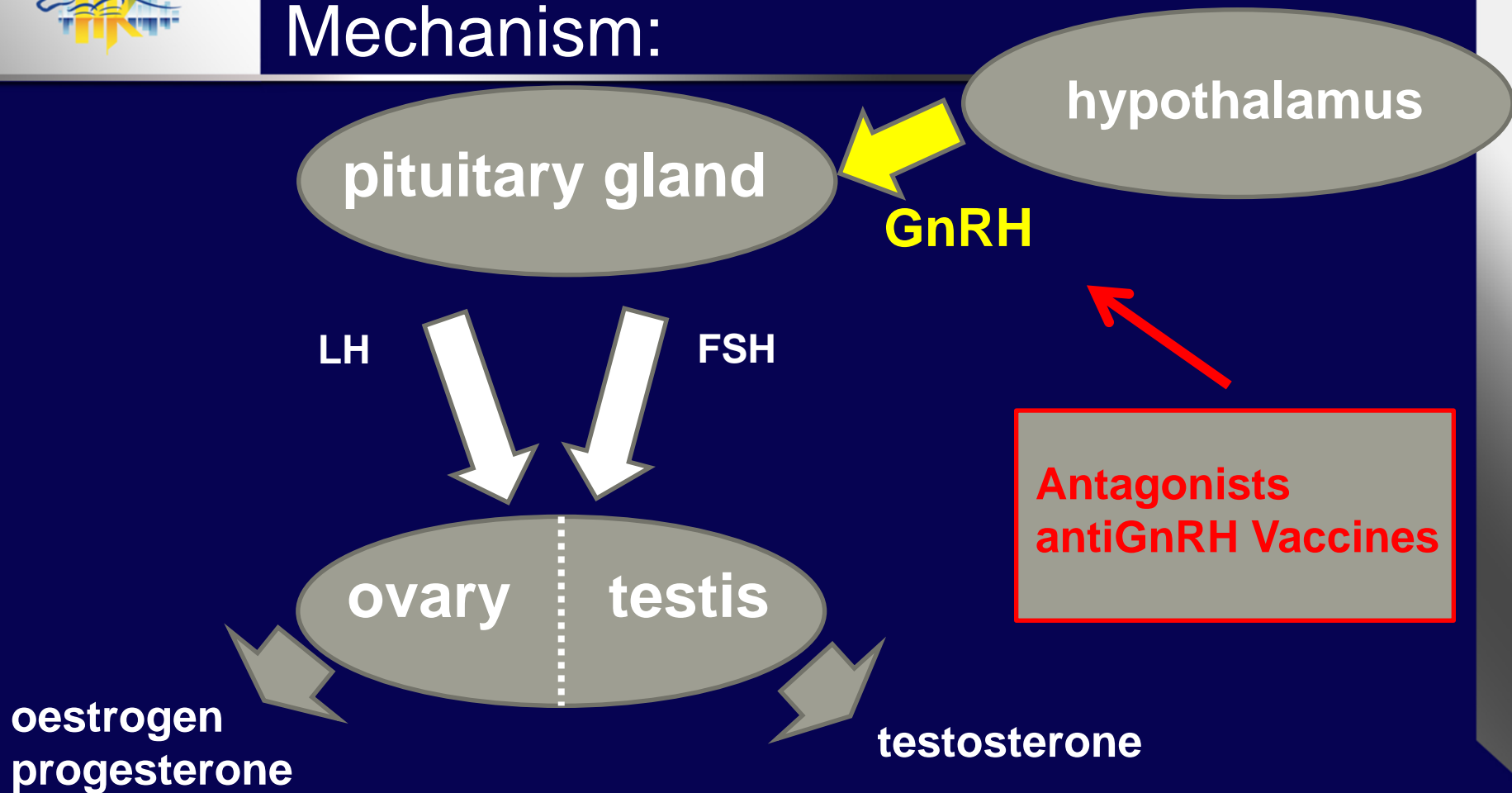
The aim is to get an alternative solution for surgical castration of males and females.

The right criteria for an alternative solution are :

- To be less risky
- To be reversible



# Mechanism:





# The available vaccines

2 products can be used in horses:

- An anti-GnRH vaccine for mares marketed in Australia and New Zealand called **EQUITY<sup>ND</sup>**, Zoetis).
- An anti-GnRH vaccine for pigs, called **IMPROVAC<sup>ND</sup>**, Zoetis), marketed in Europe


The only difference between the 2 vaccines is the adjuvant and the antigen dose.



# Efficacy

## 2 months after the primary course:


### On colts:

- Testosterone level,
  - Sexual behaviour,
  - Number, mobility and vitality of spermatozoids,
  - Testicle size.
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Duration of action on the testosterone level: at least 4 months

Testosterone level in blood under 300 pg/ml.

### On females:

- Progesterone level,
  - The sexual cycle,
  - Ovaries size.
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Duration of action on the behaviour: at least 6 months.



## Side effects and adverse reactions

- Fever and local inflammation at the administration time
- The level and the time for the resumption of a normal sexual activity are variable:

After 2 injections, a part of the treated colts and females would need a treatment in order to recover their sexual activity or wouldn't recover it.



On a welfare point of view, the antiGnRH vaccine use seems to be a better solution than the surgical one.

Is it a reality?





## ANALYSIS ON A REGULATORY POINT OF VIEW

In racing



## Problems related to the regularity of the races

- Immunological castration results in a change in hormonal profile and consequently, a temporary, permanent or intermediate **mismatch between the sex of the animal and its hormonal status.**
- The use of this technique poses many difficulties.



## Problem for the qualification in restricted race

Some races are restricted to males and/or females and could not be opened for temporarily castrated horse without introducing a confusion for the public and the punters.



## The resumption of normal sexual activity

### On colts:

- 63% of the horses retrieve a libido and normal sexual function 12 months after.
- 25% of the horses need a daily hormonal stimulation/substitution treatment.
- 13% of the horses don't meet with the hormone therapy.



## The resumption of normal sexual activity

### On females:

- According to the different works, the rate of return to a normal function of reproduction is estimated at 8% to 44%, 2 years post-vaccination up (after 2 inj...of IMPROVAC).
- There is a significant risk of persistence of the sexual neutralization.



Could the solution be a wide information?

In the case of immunological castration, even if all the relevant information (number and dates of the boosters) are known, **it is very difficult to say how is the effect on the horse behaviour and what effect on the performance will be achieved.**



In what category is the anti-GnRH vaccine ?

- GnRH vaccine acts on the reproductive system and immune systems (Only vaccines against infectious agents are allowed).

⇒ **The GnRH vaccine is a prohibited substance according to Art 6 IABRW**

Its use on a race horse is therefore not permitted



## The testosterone level following the vaccine

- A recent study (Y. Bonnaire LCH) shows that vaccinated colts produce antibodies and **the detection of antibodies is linked with an important decrease of the level of Testosterone, Estrone, Estrenediol and Estradiol.**





## ANALYSIS ON A REGULATORY POINT OF VIEW

At sales or in claiming races



## At sales or in claiming races

- Presenting a horse as a colt or as a filly / mare presupposes a reproductive capacity.
- Ignorance of the specific sexual status of a horse and its ability to regain its original status makes precarious its offer for sale.
- **The purchaser ignoring a vaccine administration may invoke a defect in the destination of the animal or even fraud.**



## ANALYSIS ON A REGULATORY POINT OF VIEW

For selection



- The use of castration is mainly linked to the difficulty to train or race a horse:
  - The refusal to work,
  - the risk of accidents,
  - The sexual disturbance (frequently during the heats of the female),
  - the lack of concentration and results in sporting activity.



The fact to establish a racing record that could not be obtained without castration introduces important and not always mastered selection bias.



## The international Status of the GnRH vaccination

- The use of the GnRH vaccine on racing horses isn't a better solution than castration as this method introduces several problems and brings confusion.
- **Consequently, the use of the GnRH vaccine is a practice incompatible with the participation in official races held under the International Agreement on Breeding, Racing and Wagering.**



**Thank  
You !**