



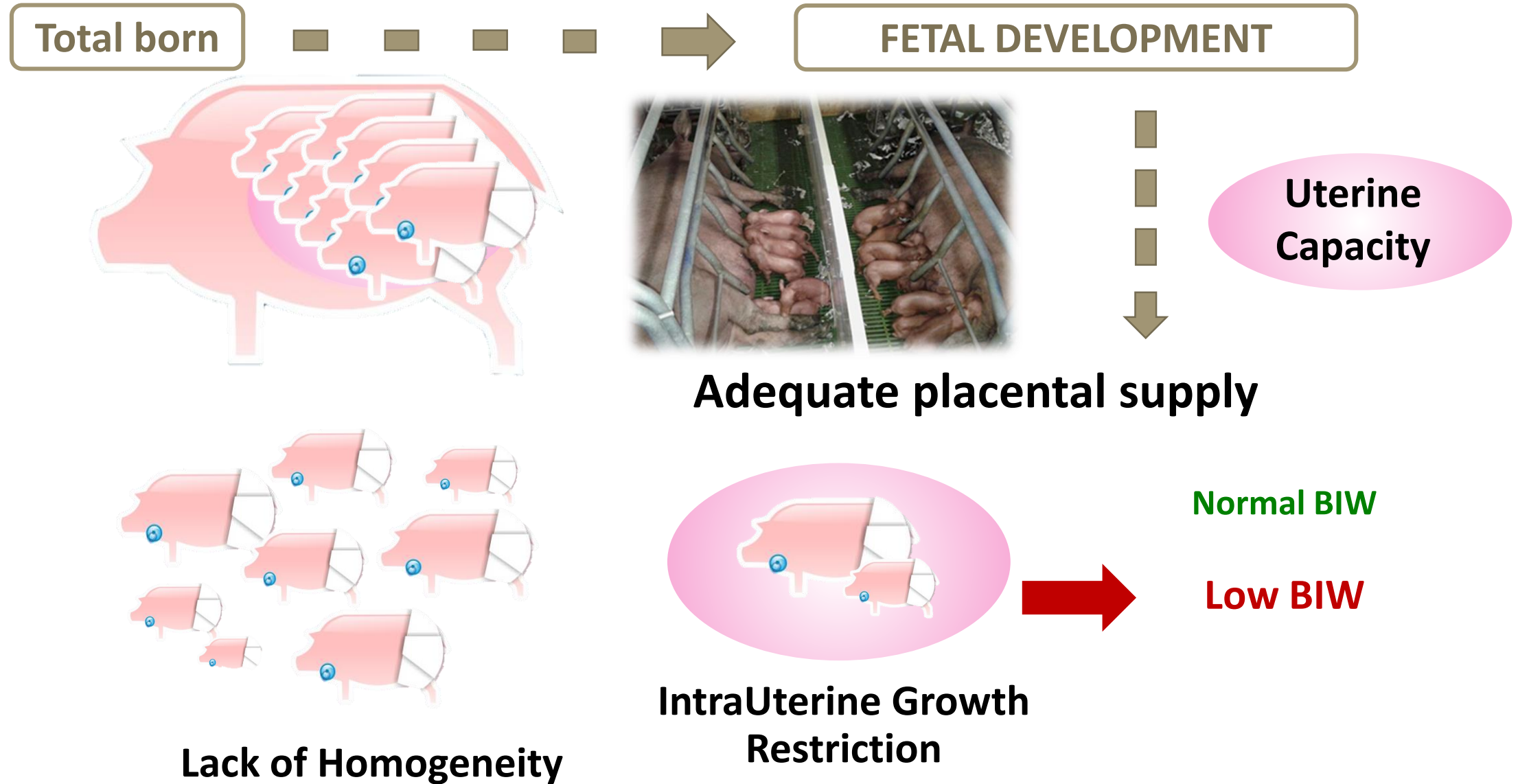
THE EFFECTS OF MATERNAL HYDROXYTYROSOL SUPPLEMENTATION ON THE EARLY POSTNATAL GROWTH OF THE OFFSPRING

Vázquez-Gómez, M.¹, García-Contreras, C.², Torres-Rovira, L.³, Pesantez-Pacheco, J.L.³, Gonzalez-Añover, P.¹, Astiz, S.³, Óvilo, C.², Isabel, B.¹ & González-Bulnes, A.³.

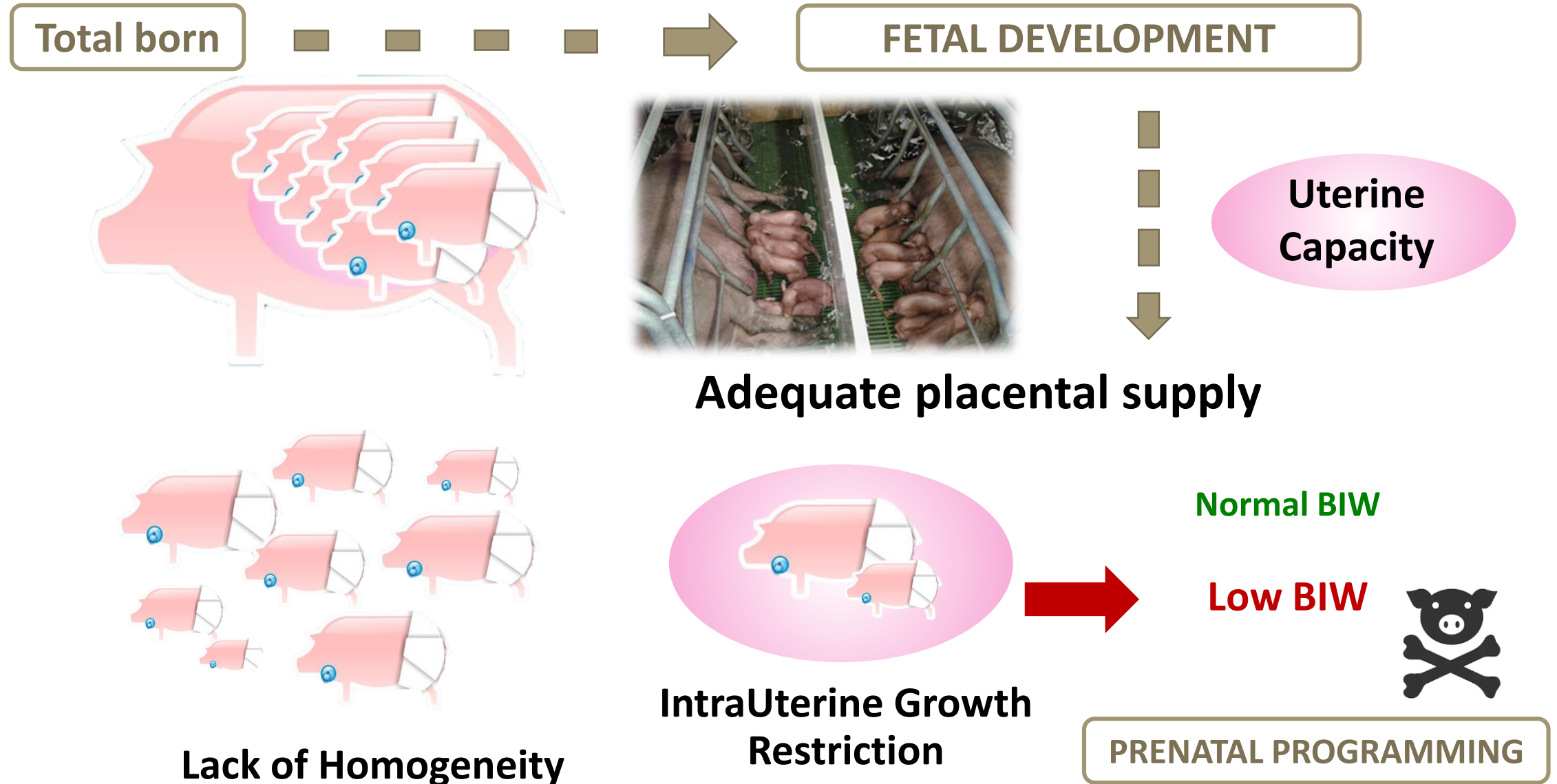
¹ Faculty of Veterinary Medicine, UCM, Spain; ² Department of Animal Breeding, INIA, Spain; ³ Department of Animal Reproduction, INIA, Spain



INTRODUCTION



INTRODUCTION



INTRODUCTION



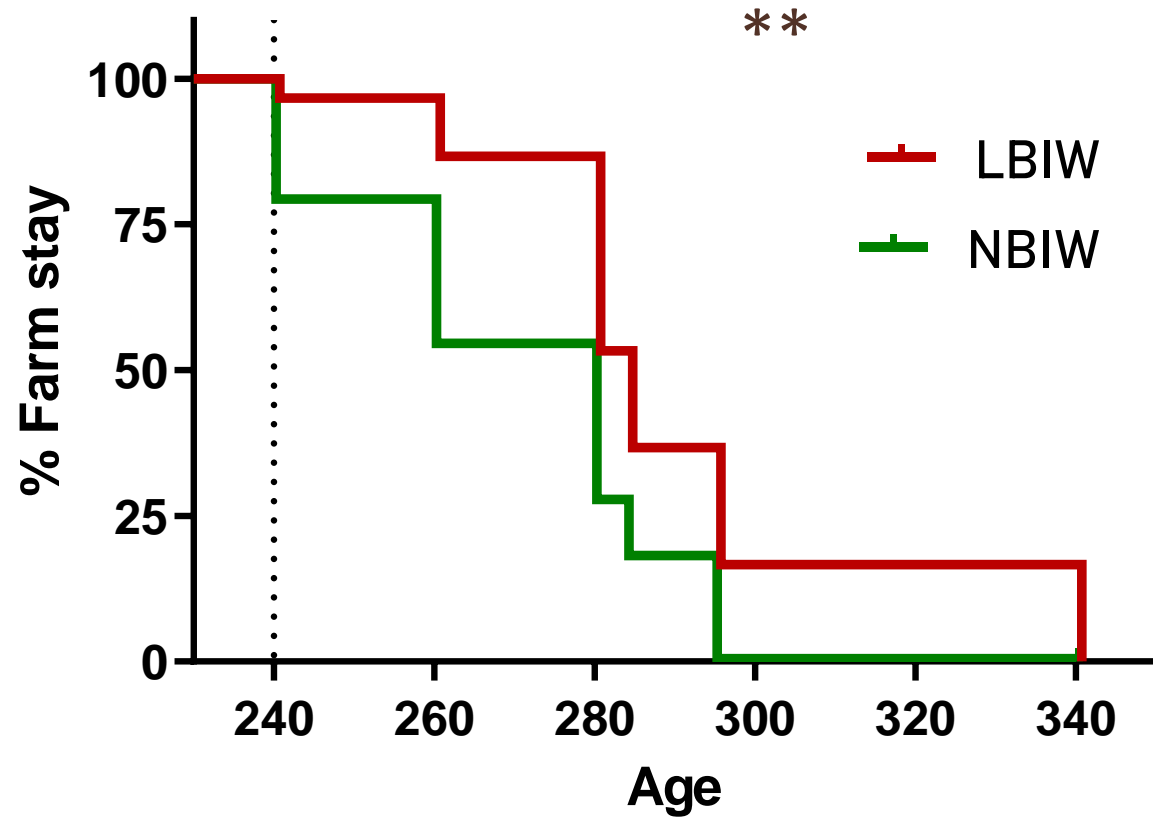
IBERIAN BREED



✓ Quality

✓ Sensorial
Evaluation

INTRODUCTION



BIW

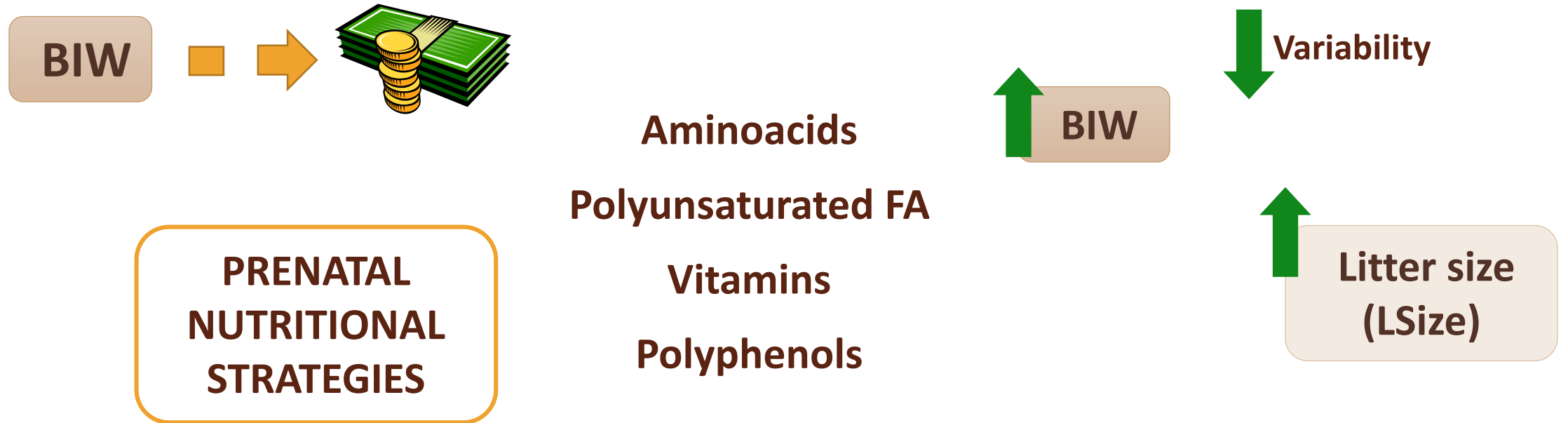
43 g/additional piglet born



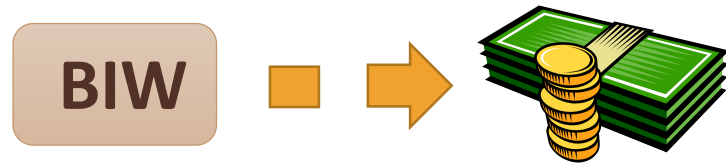
33-35 g/ additional piglet born



INTRODUCTION



INTRODUCTION

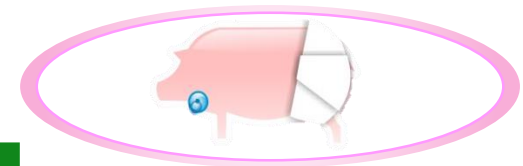


**PRENATAL
NUTRITIONAL
STRATEGIES**

Aminoacids
Polyunsaturated FA

Vitamins
Polyphenols

Antioxidant
Anti-inflammatory

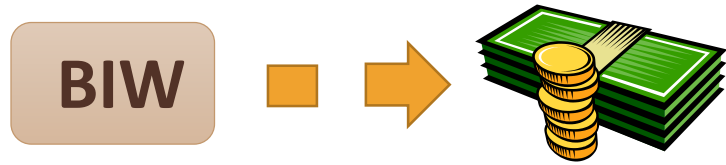


**Oxidative
stress**



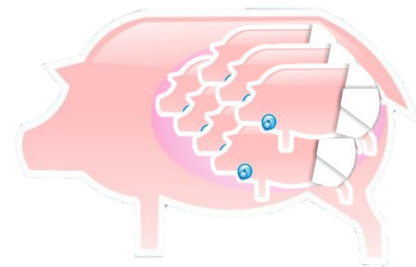
**Fetal
development**

INTRODUCTION



**PRENATAL
NUTRITIONAL
STRATEGIES**

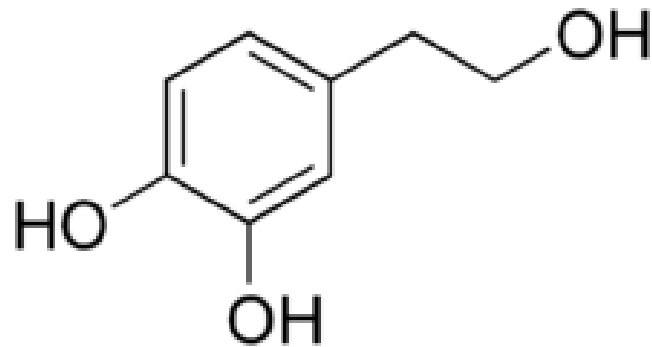
Polyphenols



INTRODUCTION



HYDROXYTYROSOL



3,4-dihydroxifeniletanol

↑ **Antioxidant**

Anti-inflammatory
Neuroprotective
Cardioprotective
Hypocholesterolemic



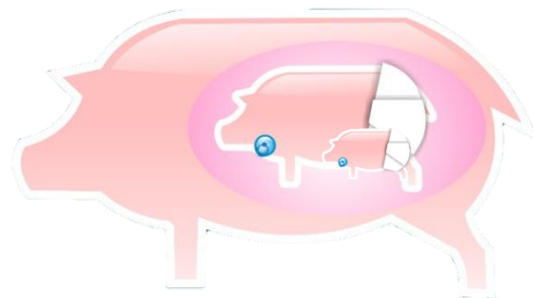
INTRODUCTION



3,4-dihydroxifeniletanol

 **Antioxidant**

Anti-inflammatory
Neuroprotective
Cardioprotective
Hypocholesterolemic



OBJECTIVES

The effects of hydroxytyrosol supplementation of maternal diet on the offspring

- Prenatal growth



- Early postnatal growth



MATERIALS & METHODS



1st parity

PREGNANCY

Restriction 50%



Iberian breed 100%

D 0

D 35

Birth

Sows

10



CONTROL (C)

-

60

10



HYDROXYTYROSOL (HT)

1.5 mg/day

58



MATERIALS & METHODS



BIRTH

- Birth weight (BIW)
- % LBIW piglets & BIW <1kg

LSize	C	HT
• ≤6	3	4
• 7-8	5	3
• 9-10	2	3



Normal BIW

Low BIW



MATERIALS & METHODS

** $P < 0.01$

* $P < 0.05$

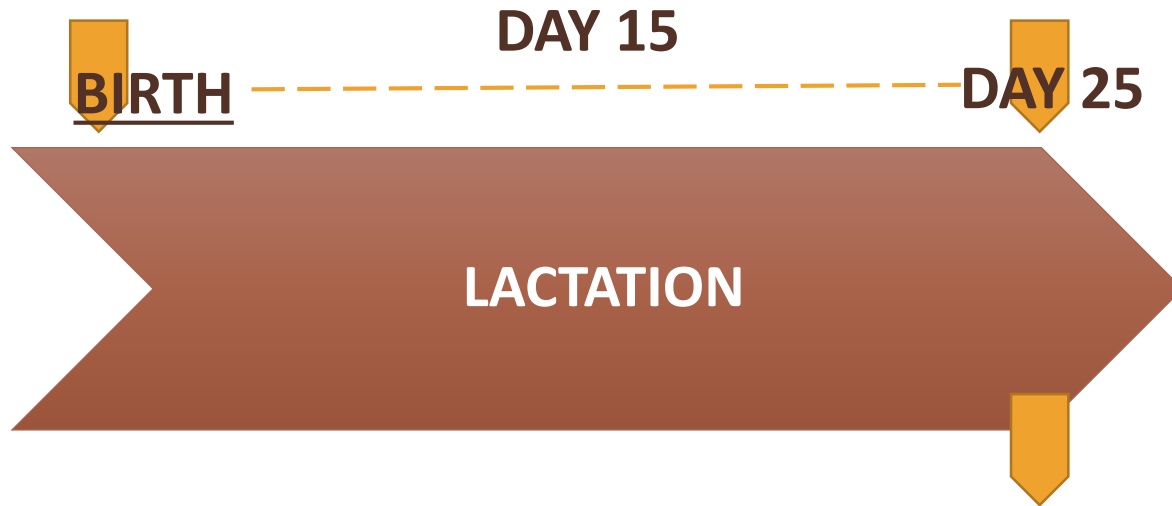
$\bar{X} \pm DE$

Treatment

Sex

LSize

Interaction



- **Body weight**

- **ADWG** Average Daily Weight Gain

- **Sc backfat depth**

- **Loin diameter** At 25 days



Weight

- **Head**

- **Viscera**

- Brain

- Gut

- Heart

- Kidneys

- Liver

- Lungs

- Pancreas

- Spleen



Glucose metabolism

Lipid metabolism

Weight Ratios

- Head/Body weight

- Each viscera/Total viscera

RESULTS

BIRTH

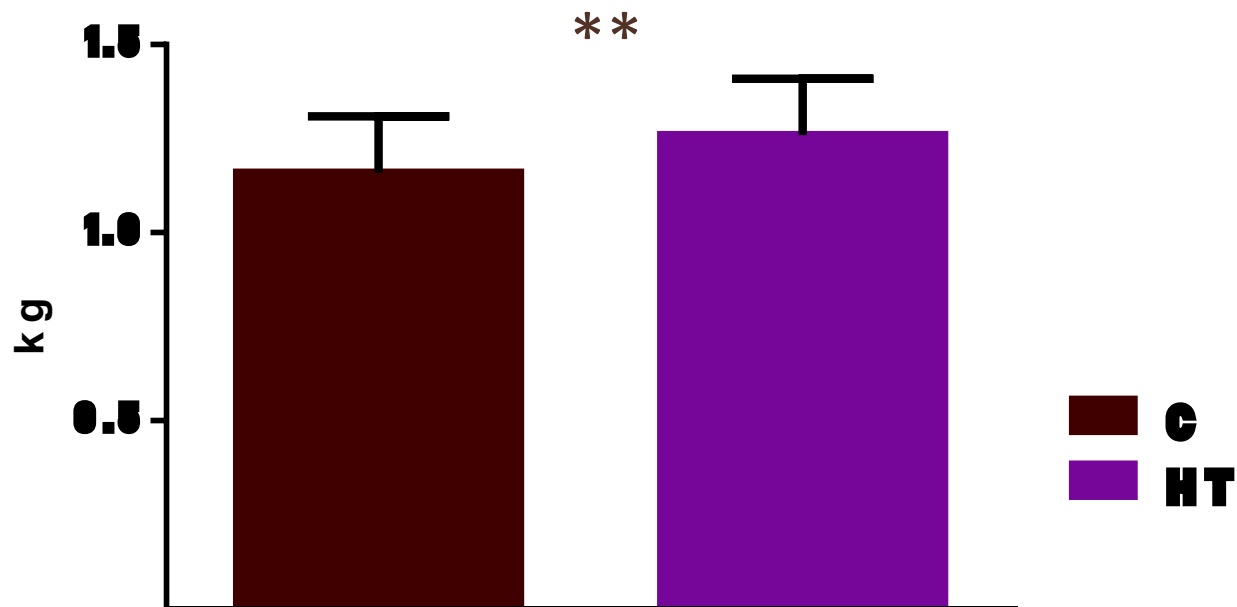
C

HT



% LBIW 13.2 6.3 *

% <1 kg 17.0 6.3 *



RESULTS

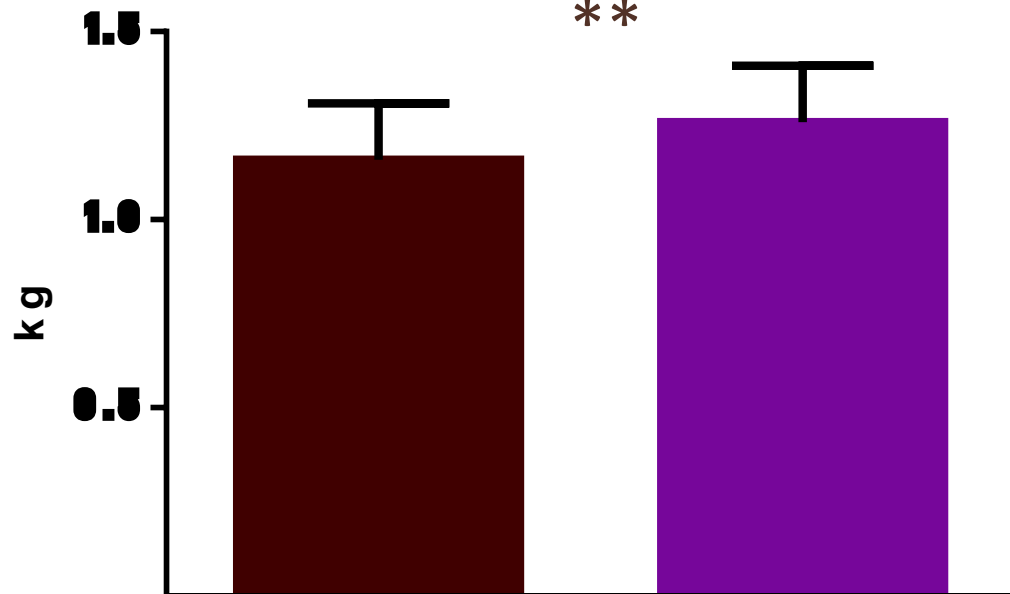
BIRTH

C

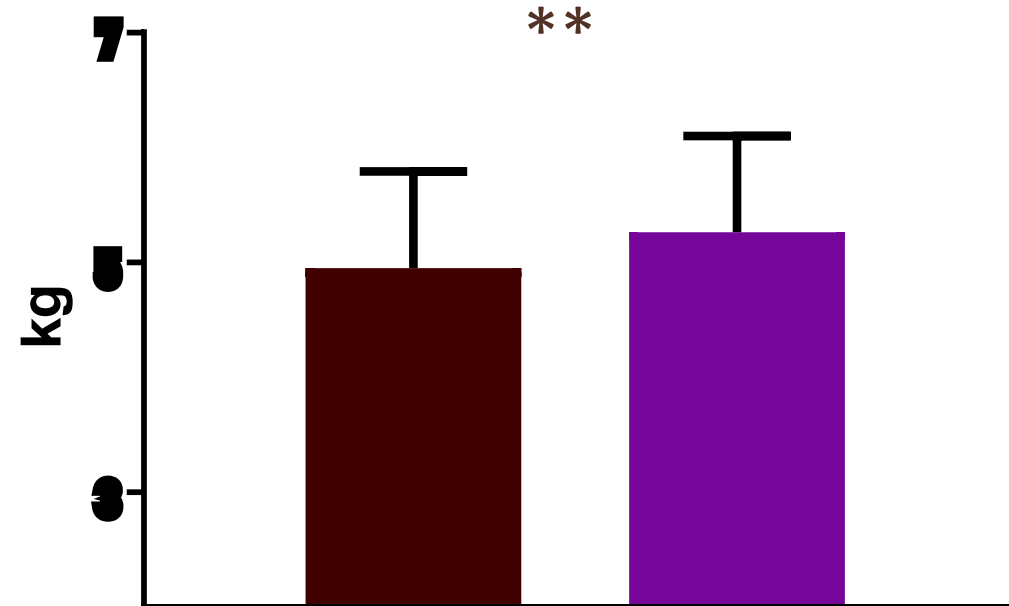
HT

% LBIW 13.2 6.3 *

% <1 kg 17.0 6.3 *



DAY 25



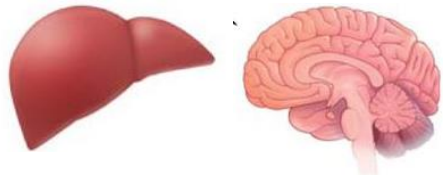
C
HT

RESULTS

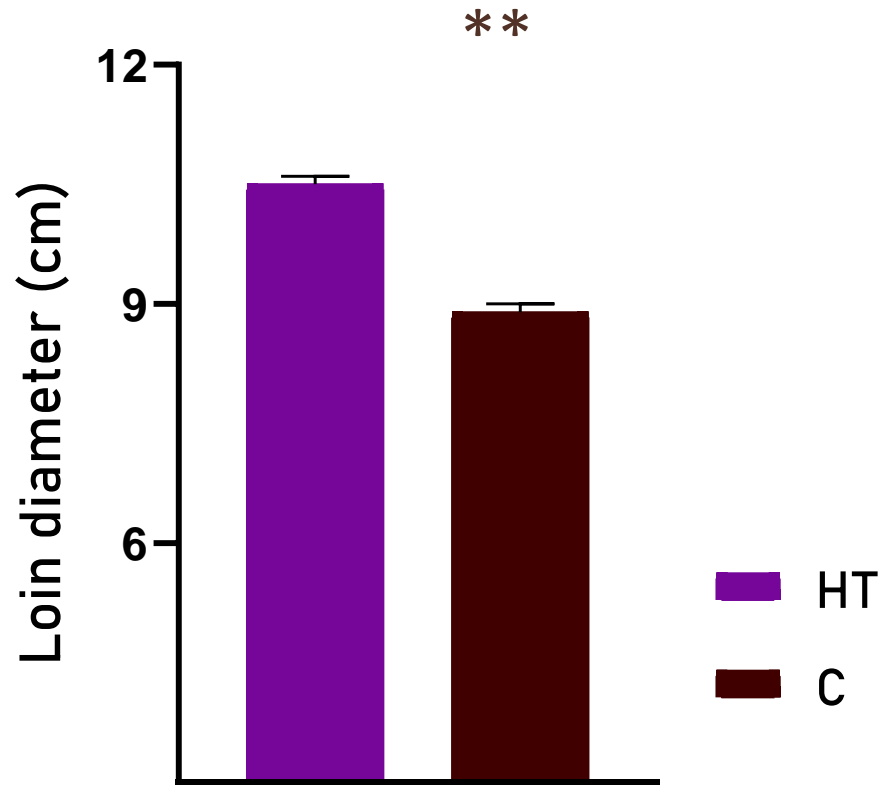
DAY 25

HT

Asymmetric growth



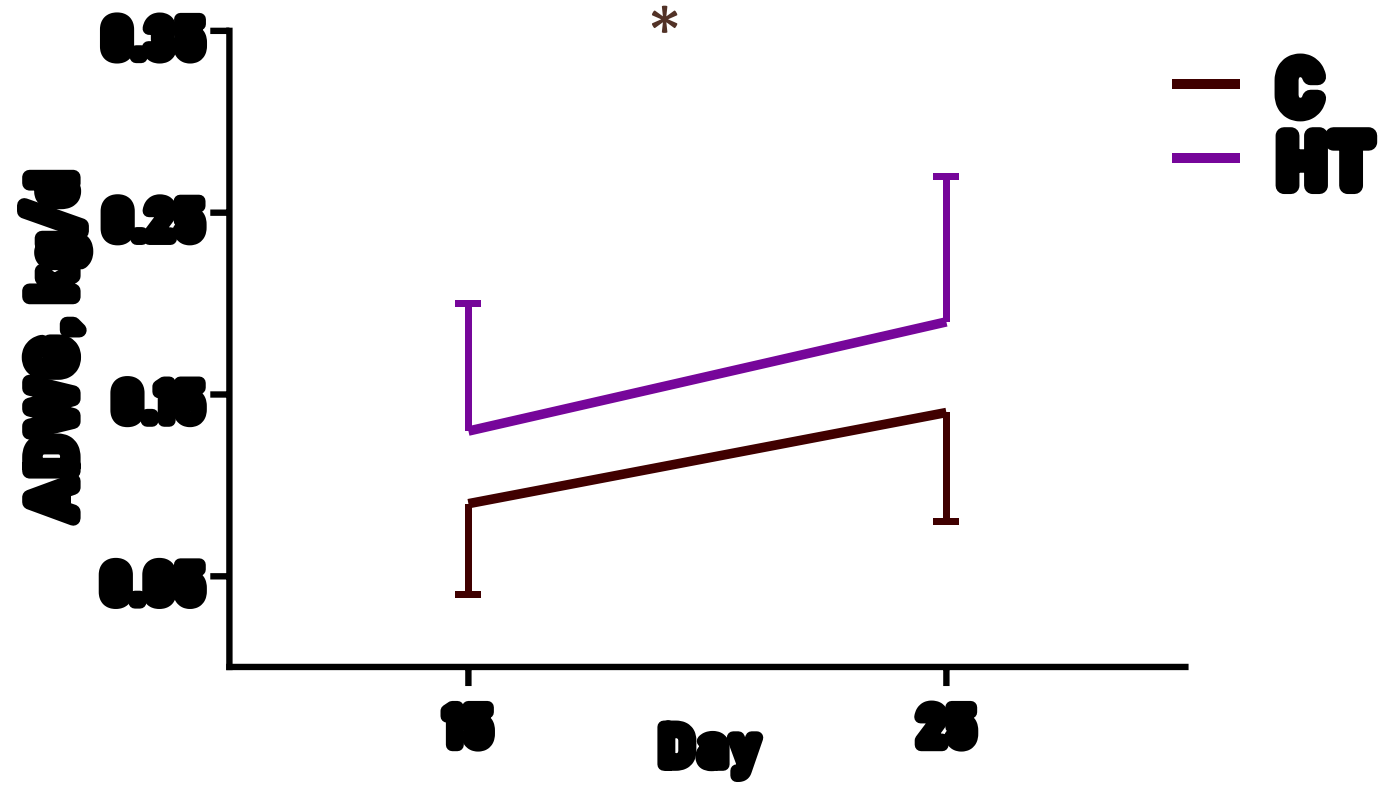
Head/Body weight



RESULTS

LSize

9-10



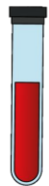
RESULTS

DAY 25

HT

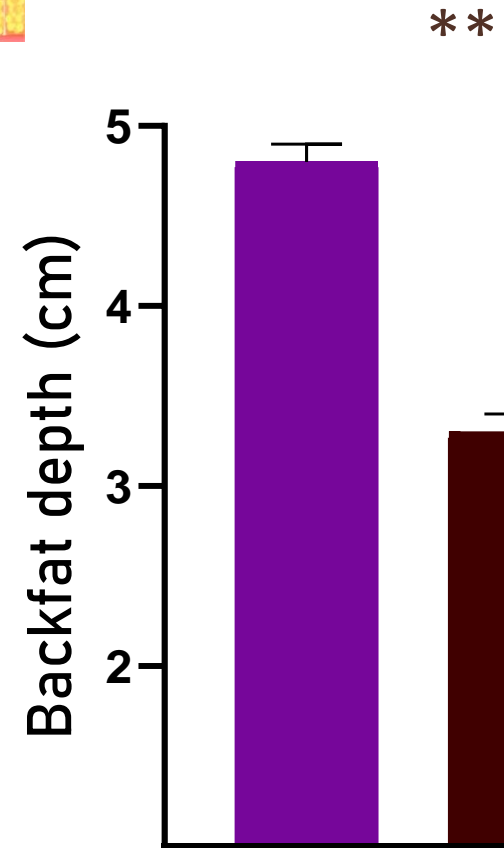
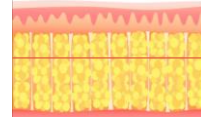
HT

>6

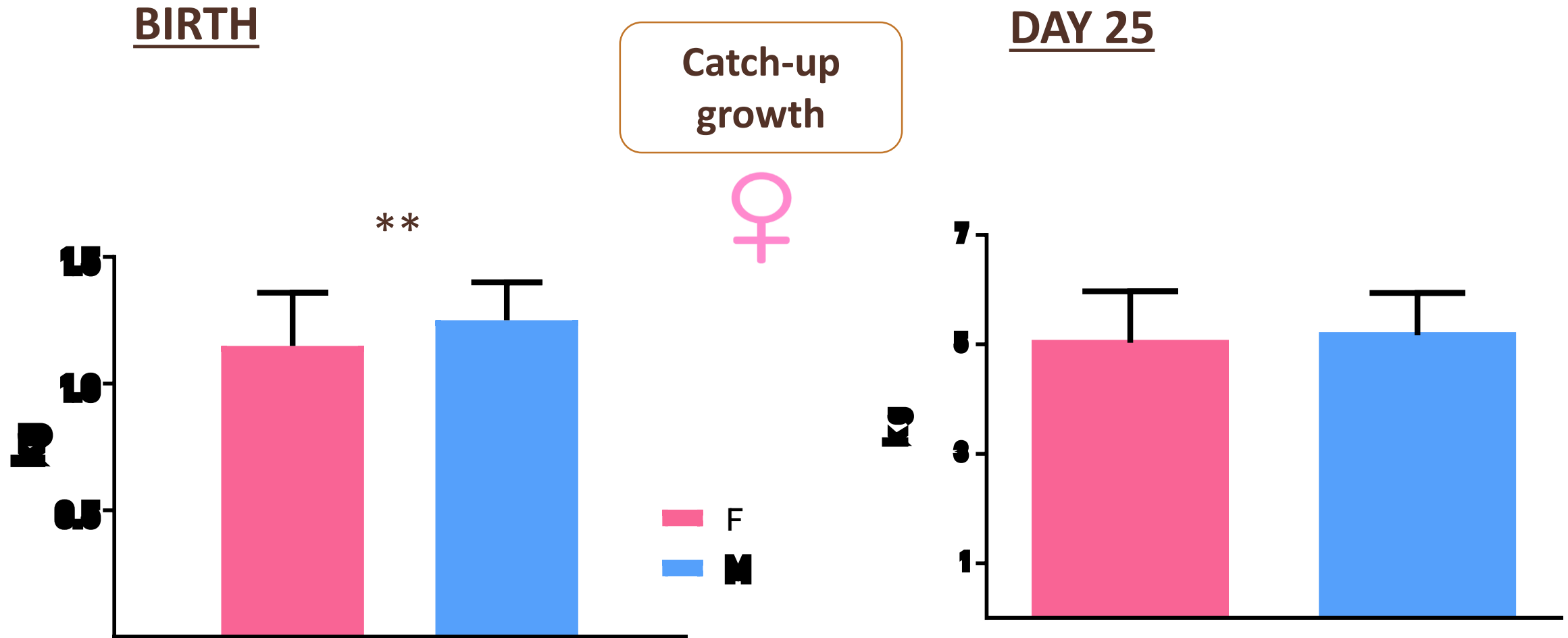


Fructosamine
Total Cholesterol
c- LDL

Triglycerides

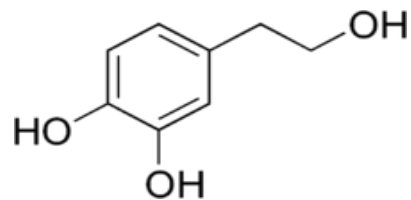


RESULTS



CONCLUSION

The hydroxytyrosol supplementation of maternal diet enhances prenatal and early postnatal development



ACKNOWLEDGEMENTS



- AGL2013-48121-C3
- AGL2016-79321-C2-2R



- FPU14/01285



U N I V E R S I D A D
COMPLUTENSE
M A D R I D





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Weaning-180d

