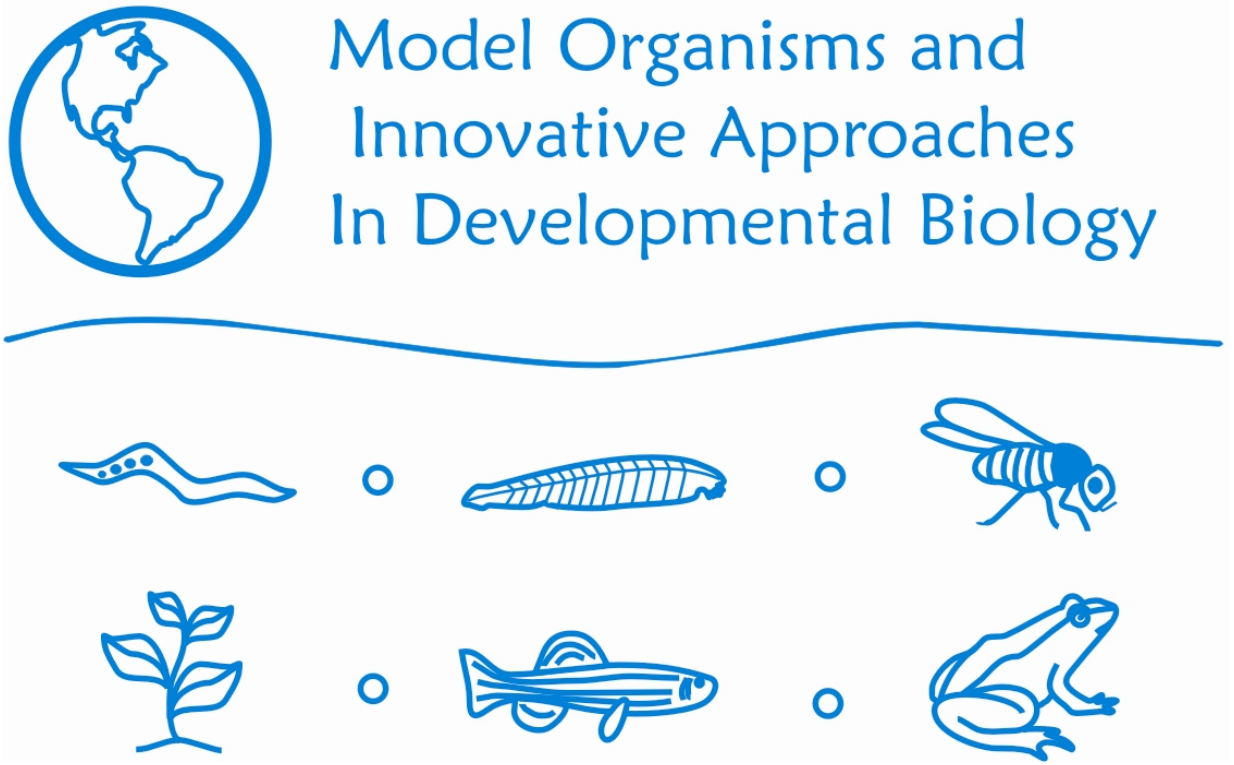

Using the gray opossum Monodelphis domestica in developmental biology investigations

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Using *Monodelphis domestica* in developmental biology investigations

Yolanda P. Cruz, Department of Biology

Monodelphis domestica

= gray opossum
= short-tailed opossum (STO)
= laboratory opossum

= colicorto gris
= cachita
= **Das Kurzschwanzopossum**

1 – e, se, south
central Brasil
2 – Paraguay
3 – e Uruguay
4 – n Argentina

<u>Since 1978:</u>
US
UK
Australia
Russia
Canada
Germany
Japan
etc.

Manageable size, ~ 16 cm, 185 g

Amenability to laboratory husbandry

Standard rat cages useful

Non-aromatic bedding material

Nesting materials critical

shredded paper

glass jars

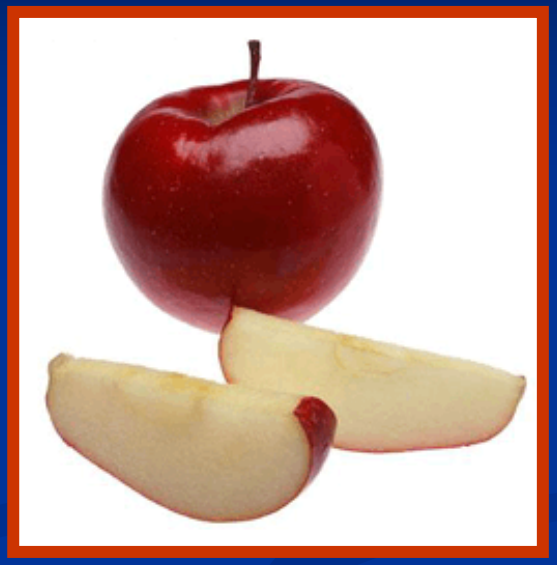
Ambient temperature
= 26-27° C

Relative Humidity
≥ 50%

D:L = 12:12 approx

Food items

Fox chow

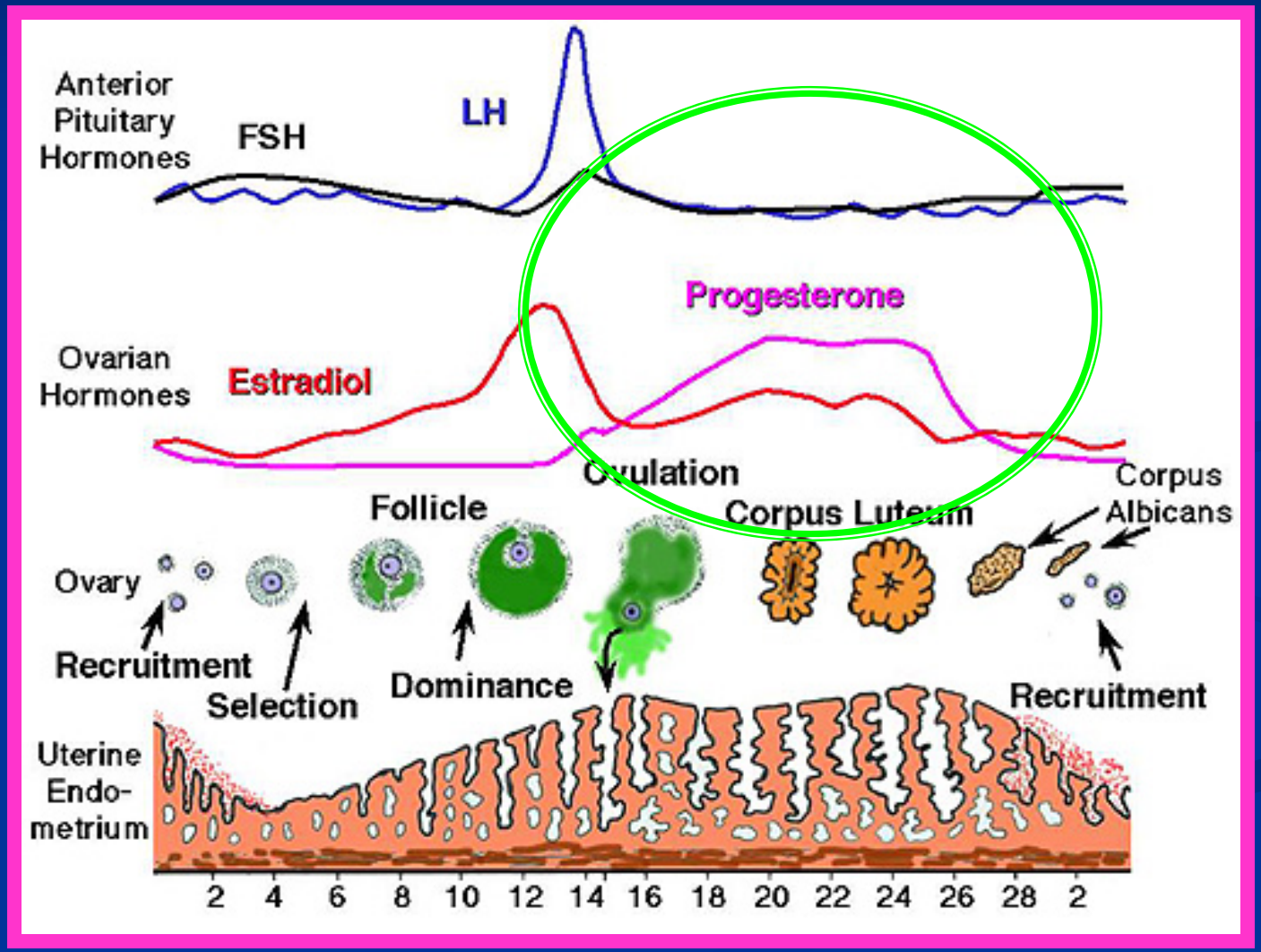


+ $CaCO_3$
+ KI

Ready to go

Need just the top and the water bottle!

14-day gestation period occurs during the luteal phase



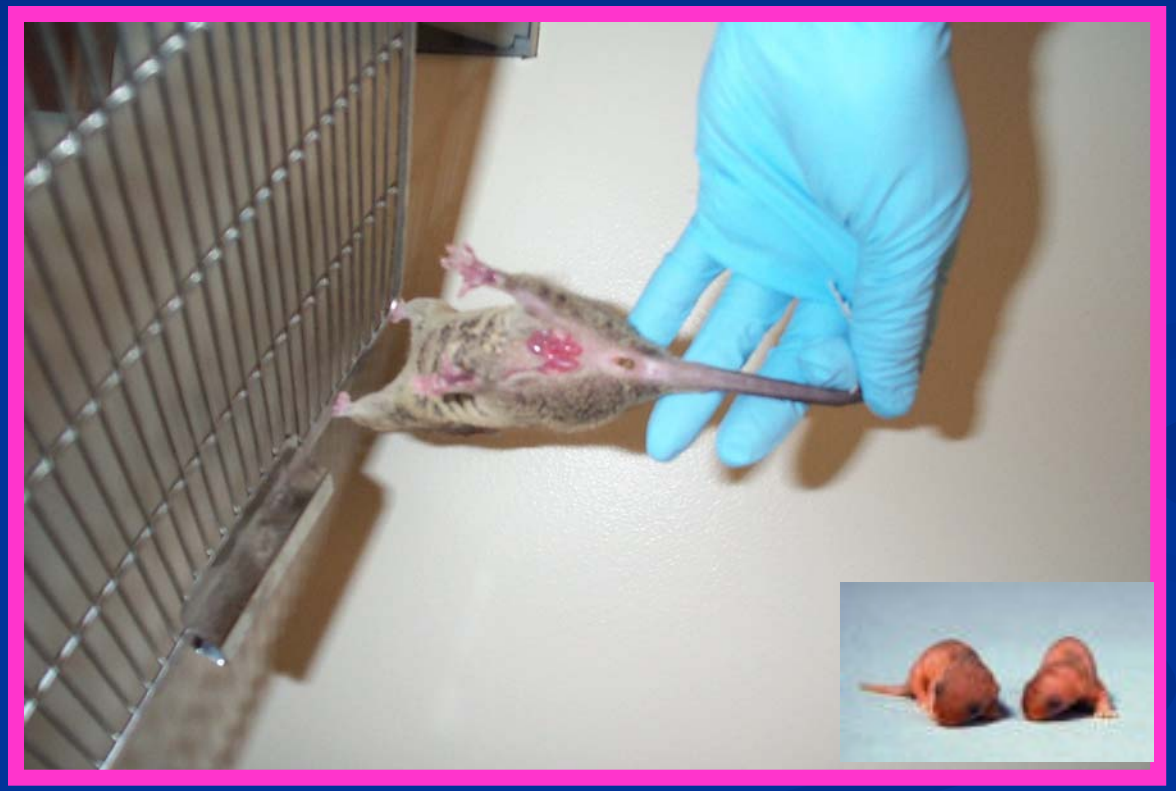
Gestation = 14 days
Litter size ~ 10 average

Neonates are 'fetal.'

Only dentary is ossified!

- Heterochrony, evolution, phylogeny
- Craniofacial morphology
- Leprosy research
- Melanoma research
- Hyperlipidemia research
- Immunology

Day 3



Day 15

Day 40

Day 40

Day 60

Day 70

Pedigreed animals available

SFBR
Southwest Foundation for Biomedical Research

Mating protocol

- Induced ovulators
- Noctural

Infra-red camera

Mating cage set-up

Real-time clips spliced together.
Room light goes out 2 min into movie.

Mating in ~ 7 days
≥90% of animals pregnant
Timed pregnancies possible

Genomic information

- The first marsupial selected for sequencing is the gray short-tailed, South American opossum (*Monodelphis domestica*).

- February 25, 2004, National Human Genome Research Institute

Embryo Culture

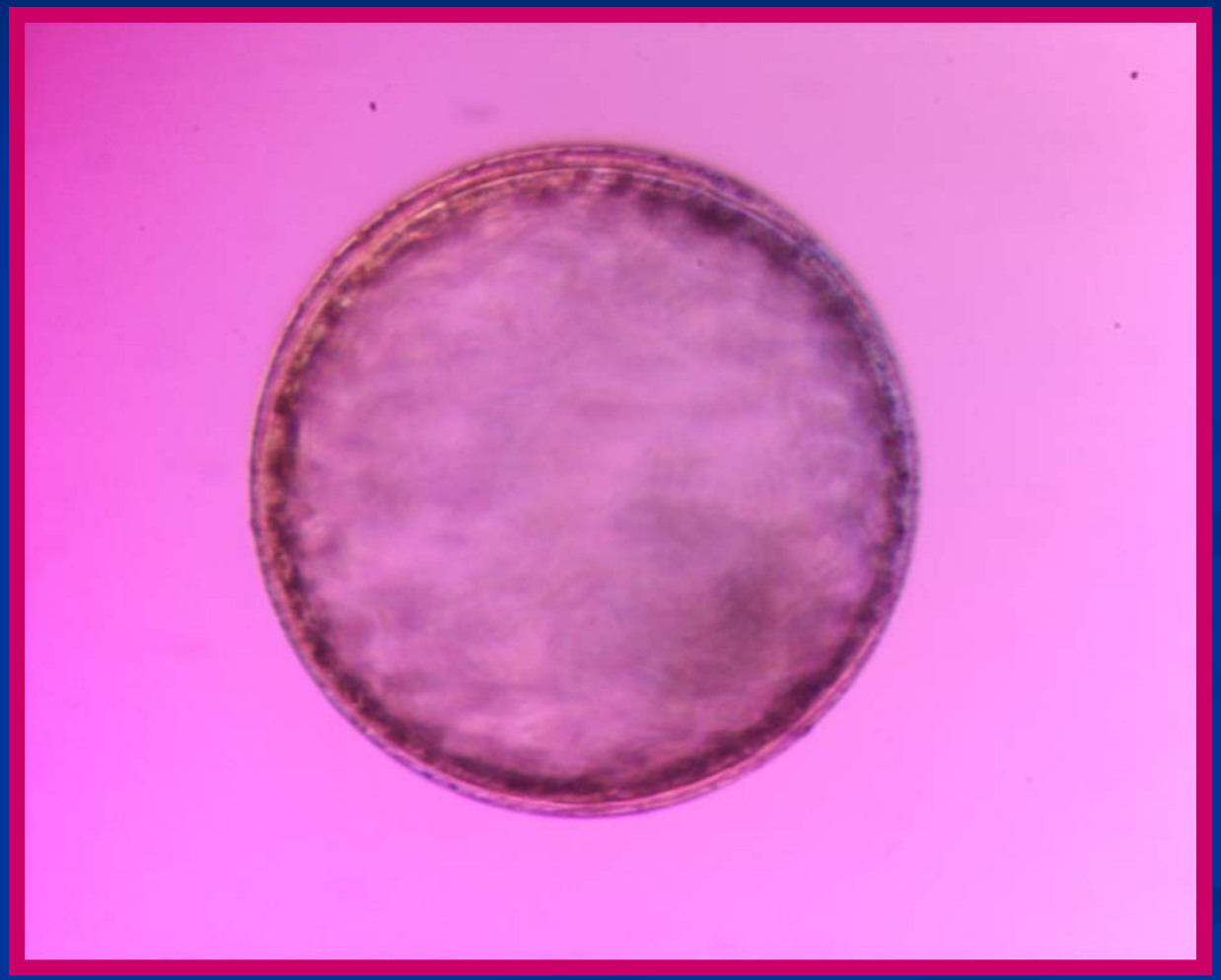
- 33 degrees C (not 37°C)
- 5 to 10 % CO_2
- DMEM, high glucose, + antibiotics

Day 2 post coitum

Day 2 pc

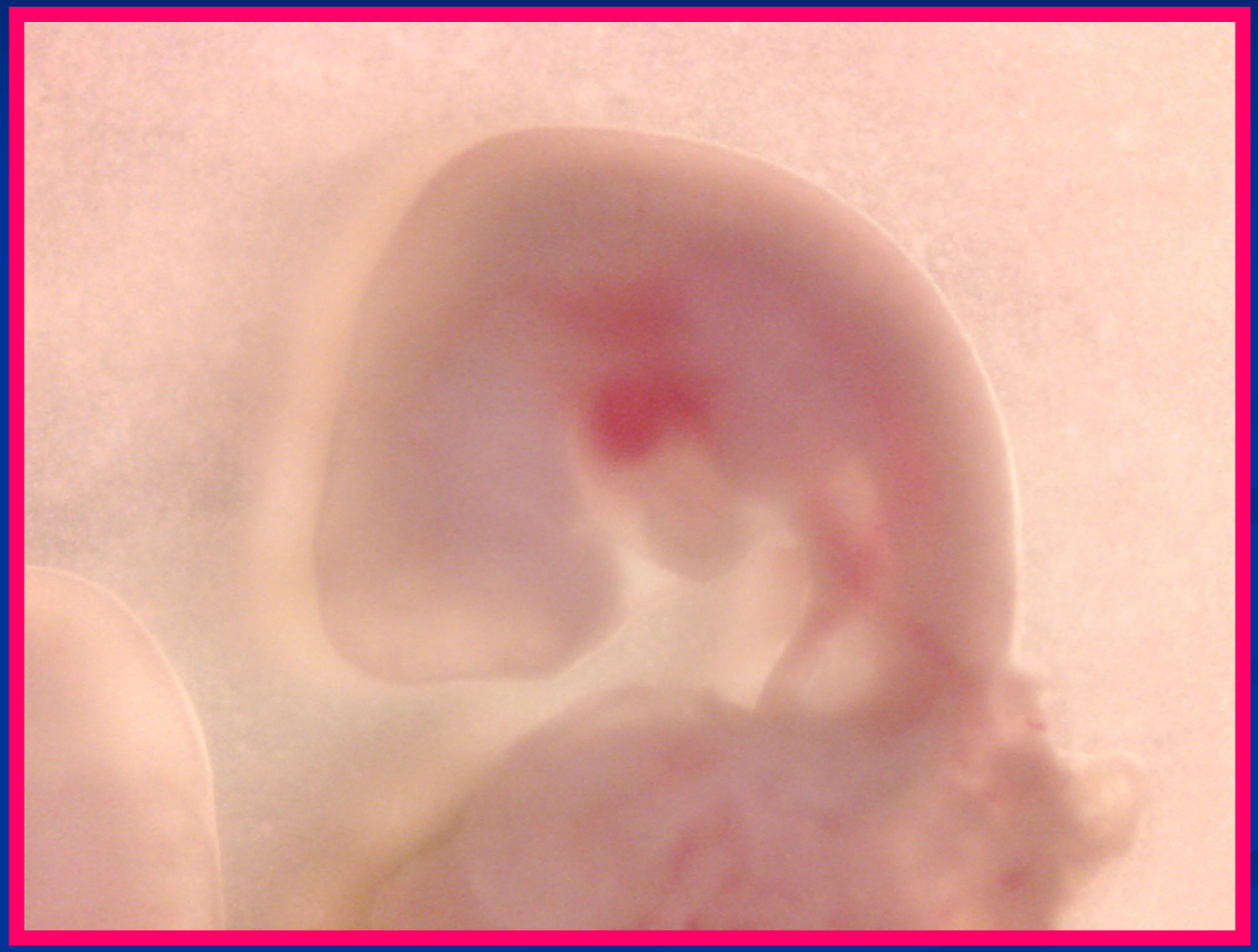
Day 5 pc

Day 8 pc



Day 9 pc

Day 12 pc



Sperm Biology


Paired in corpus
of epididymis


Unpaired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SCIENC
CENTER
ELEMENTARY
30 12:21


PARAPLAS