

Description of the Toulouse GOLD Cohort :

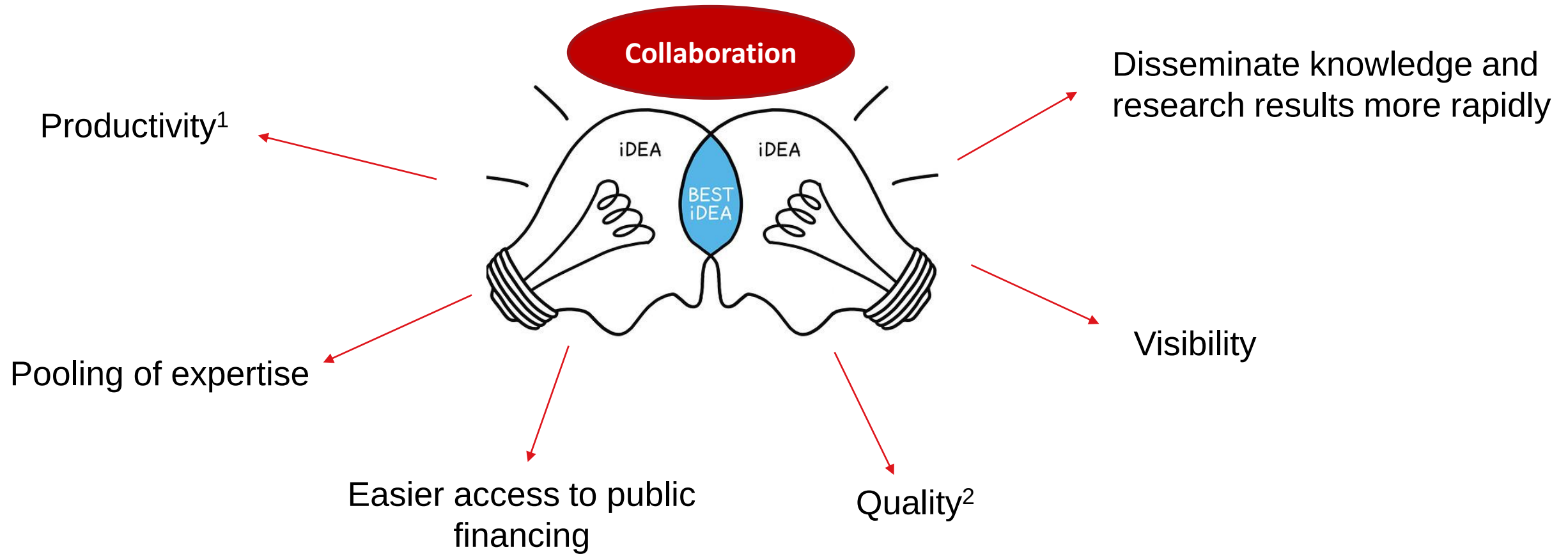
an open science study to better characterize the first days of life and their short, medium and long-term consequences in dogs



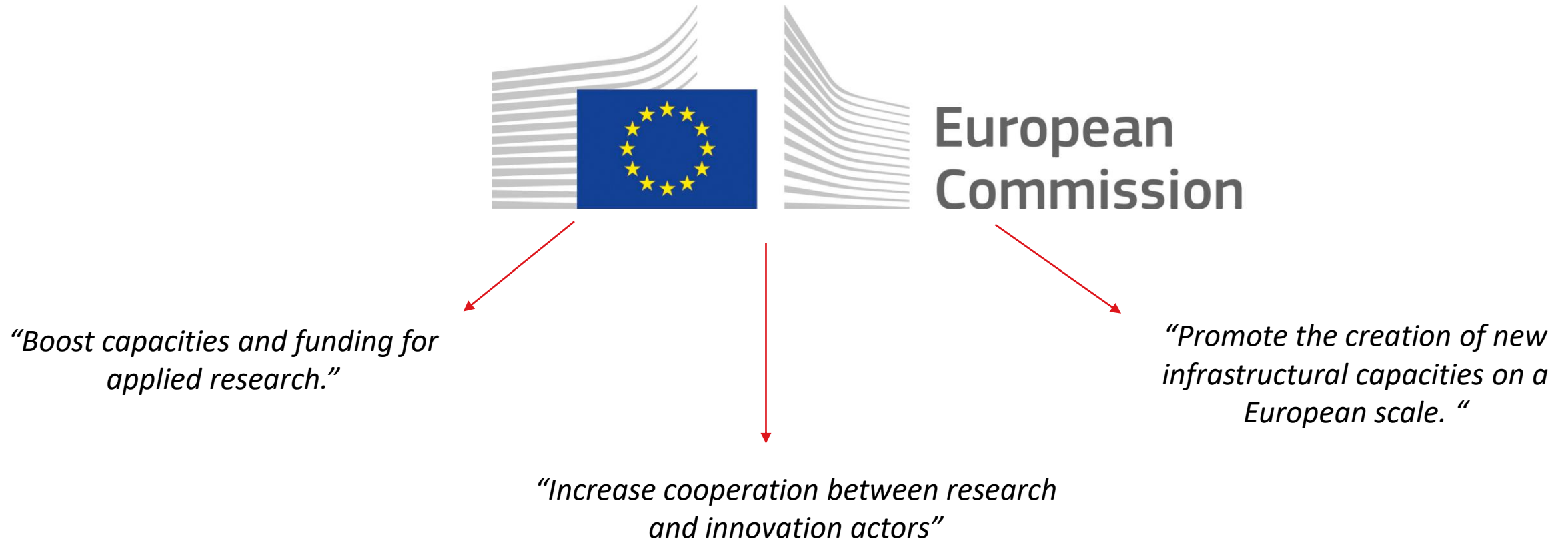
A. Grellet, I. Bendahmane, C. Chauvel, L. Milesi, A. Mugnier, J. Brun, A. Marchand, C. Baur, B. Duc, I. Khemri, U. Beaujardin, J. Landi Sato, P. Ronsin, O. Richard, E. Legendre, L. Michaud, M. Nguyen, M.Z. Tahir, MC Cadiergues, H. Mila



Collaborations are beneficial



The European Union promotes collaborations



Canine reproduction and neonatology underrepresented in European funding



Horizon2020
European Union Funding
for Research & Innovation

3186 funded projects on « health and fondamentale reasearch »
between 2014-2022, for 10.5 billion of euros

5 projects on dog health
(0,2 % of all projects)

3,5 millions euros of funding
on dog health
(0,03 % of all funding)

**No project on canine
reproduction or
neonatology**

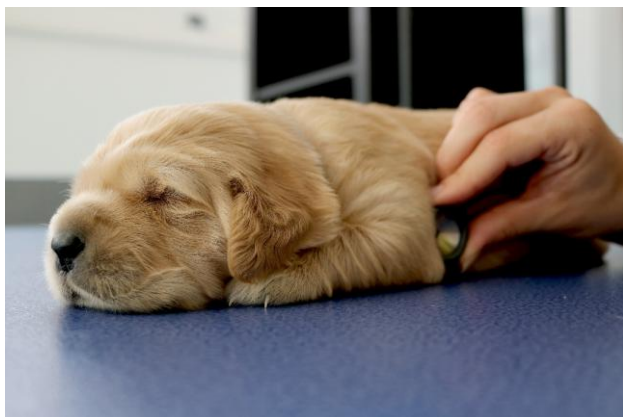
Toulouse GOLD Cohort : a platform open to collaboration



Toulouse
GOLD
Cohort

3 mains objectives

1 Non-invasive clinical studies



Canine neonatology

Dog weaning

Developmental origins of health and disease (DOHaD)

2 Training



3 Assistance dogs



Aim of the lecture

- To describe the design of the “Toulouse GOLD Cohort” project
- To present the “Early Cohort”



History of the project

- Prospective Golden Retriever cohort created in 2022
- At the National Vet School of Toulouse (France)
- In collaboration with Visio foundation
- Breeding legal status



Selection of reproductive bitches

- Behaviour
- No visible clinical problems
- Genetic health tests (10 diseases)
- Hip and elbow screening



Design of the project

Reproduction unit

(Vet teaching hospital)

Pregnant
bitches



Maternity

(dedicated for the project)

Mothers and their
puppies



0-2 mois

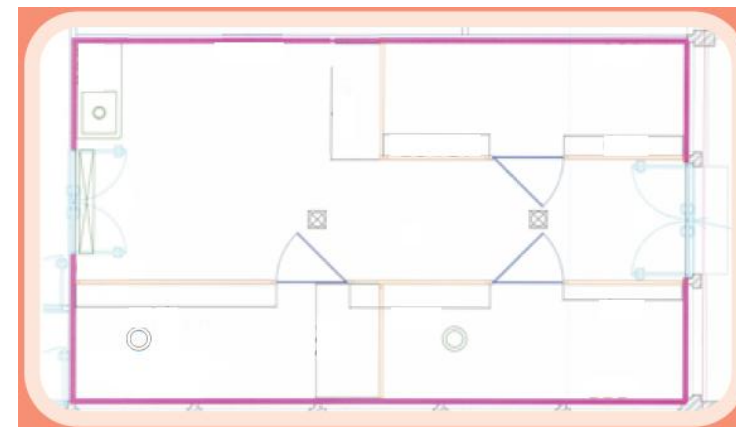
GOLD clinic

(Vet teaching hospital)

Assistante dog

Companion
dogs

Breeding
female



Clinical data and biological samples collected

Clinical data Analysis



AGPGAR
Glycemia
Fecal score
Body weight
Muscular score
Body temperature
Body condition score
General clinical exam
Complete blood count
Food distributed and ingested
Fetal ultrasound measurements
Morphometrics measurements

Biological samples



Feces
Ear swab
Skin swab
Hair sample
Rectal swab
Buccal swab
Blood sample
Vaginal/preputial swab

Details available for download at
the end of the presentation



1D 7D 21D 56D 3M 6M 12M 18M 24M Every year

2 weeks before
whelping

Whelping
Birth

Weaning
(2 months)

Adult
(18 months)

Adult
(senior)

Different numeric devices used to follow the dog



FitBark
Pet Activity Monitor

**Interoperable Study and
Research Data Sharing System
(SPIDER)**

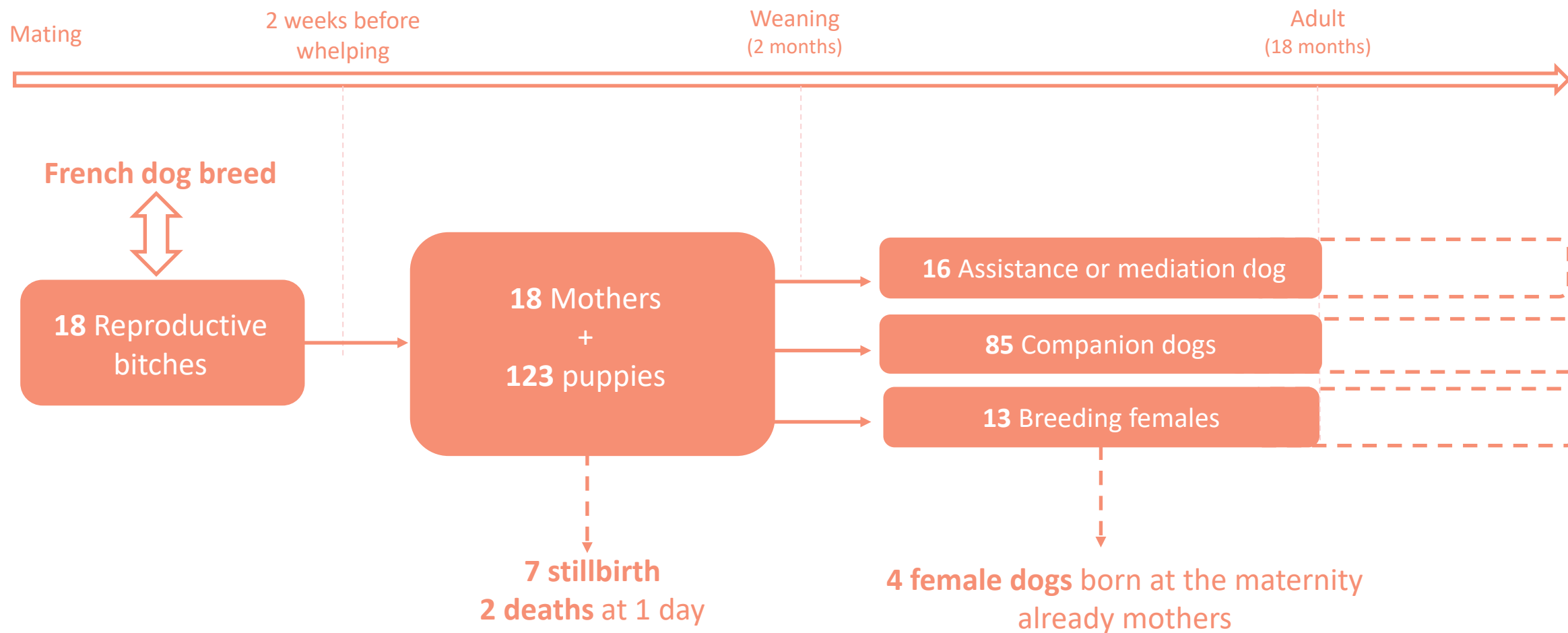
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Thermochip
Temperature biosensor



Creation of the « Early Cohort »



Description of the Early Cohort

18 mothers



Heats

Mating

Parturition

15 spontaneous heats ;
3 induced by deslorelin
implants

9 males
Mean age at mating
4 years (2 – 6)

Mean gestation length
64 days post ovulation
(63 – 66)

Only eutocic
parturition

Description of the Early Cohort



n=123

Parameters	Early Cohort	Litterature	Reference
Litter size	6.8	7.2	Mugnier A et al 2019
Still-birth	5.7 %	7.4 %	Chastant S et al 2017
Neonatal mortality (0-3 weeks)	1.6 %	8.1 %	Mugnier A et al 2019
Sex Ratio	1.0	1.0	Mugnier A et al 2019
Birth Weight (g)	410.5	395.4	Mugnier A et al 2019
Very low birth weight puppies (<177g)	0.8 %	1%	Mugnier A et al 2020
Low birth weight puppies (177.5–417 g)	50 %	61.1 %	Mugnier A et al 2020
Growth rate 0-2 days	6.1 %	7.3 %	Mugnier et al 2023

Project potential

Topic	Examples	Possible in a short term perspective	Possible in a long term perspective	Not possible	Why not ?
Reproduction	Detection and management of whelping				
Neonatology	Studies on neonatal development				
Nutrition	Nutrition of neonates and during weaning				
Nutrition	Long-term effects of early dietary interventions				
Fetal programming	Early neonatal developpement on adult diseases				
Fetal programming	Effect of very low birth weight on adult diseases				Not enough very LBW
Neonatology	Risk factors on neonatal mortality				Mortality too low
Global	Study with invasive evaluation				No invasive practices

A proposition to collaborate on this cohort



Scientific project



Clarification on the partnership



Evaluation by the scientific committee



Definition of the conditions for implementation



Annual meeting of project leaders

Annual activity report around the project

Storage of generated data on the secure data management platform



Partnership agreement
Data Sharing Agreements
Material Transfer Agreements



Submission of the project to call for funding or grants if necessary

Thank you for your attention



Sum up of all clinical
data and samples
here



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