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Morphokinetic and transcriptomic characterisation of bovine embryos : towards an improvement of the use of embryos for population recovery

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Introduction – context:

The preservation of a species is dependent on the availability of male and female genetic material. Cryopreservation of female gametes is not mastered in numerous species. ***In vitro*** **embryo production (IVP = OPU/IVF/IVC) has the potential of promoting the conservation of female genetic** : it can increase the number of embryos produced per female and can favor the genetic variability through the use of multiple males per session of embryo production.

However, **IVP is impaired by the variable quality of the resulting embryos and the lack of accurate methods of embryo selection**, resulting in 50-70% of pregnancy losses after transfer.

Our team is currently developing a model based on early morphokinetic events to predict the quality and improve the selection of IVP embryos with the aim of improving the success rate after transfer.

The 3 objectives of the project are:

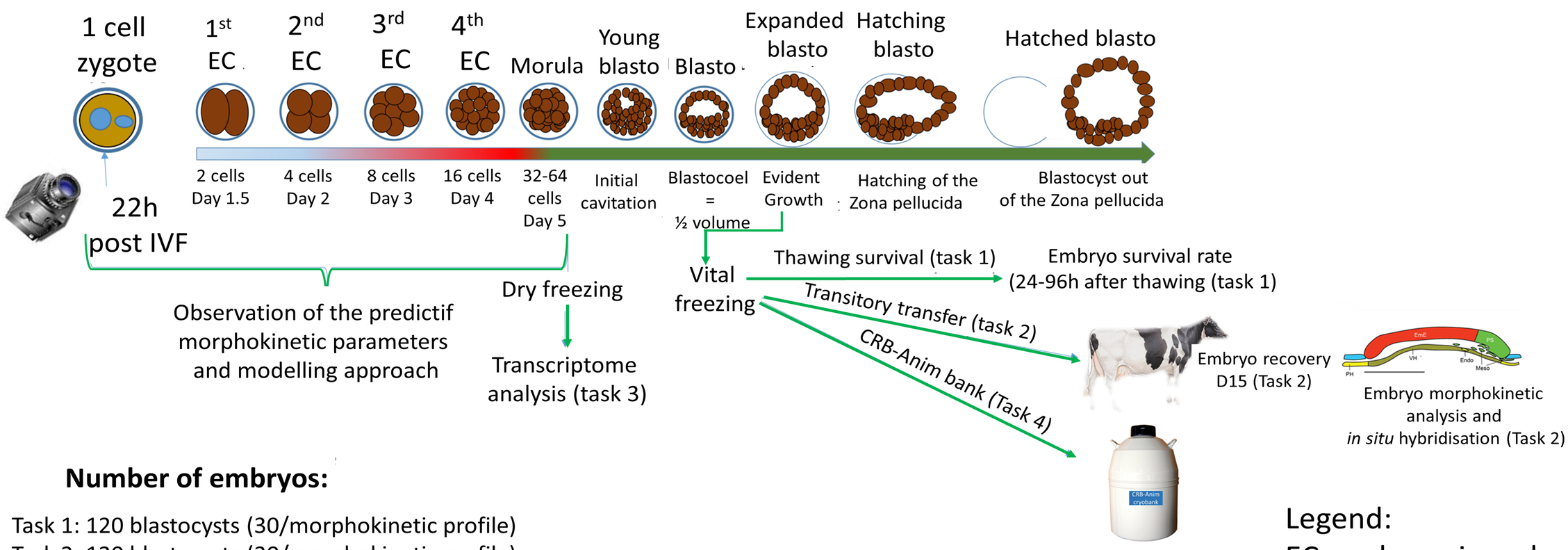
1) **To evaluate *in vitro* and to confirm *in vivo* the reliability of the model** to predict the embryo profiles (Tasks 1 and 2);
2) **To compare the transcriptomes of the embryos of different morphokinetic profiles** (Task 3);
3) **To supply CRB Anim with screened embryos and the related morphokinetical information** (Task 4).

Current stage of the work:

Embryo production and characterisation for tasks 1 and 2.

Final results expected for : february 2019.

The 4 tasks of the project:



Number of embryos:

Task 1: 120 blastocysts (30/morphokinetic profile)
Task 2: 120 blastocysts (30/morphokinetic profile)
Task 3: 128 morulas (32/morphokinetic profile)
Task 4: 80 blastocysts (20/morphokinetic profile)

Legend:
EC: embryonic cycle
ZP: zona pellucida
Blasto: blastocyst

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