



UNIVERSITÀ
DI SIENA
1240



DIPARTIMENTO DI MEDICINA MOLECOLARE
E DELLO SVILUPPO

SCHEDA RELAZIONE DOTTORANDI

XXXVIII Ciclo

Dottoranda: Dr.ssa Graziella Bracone

Tutor: Prof.ssa Paola Piomboni

Attività scientifica svolta nel 1° anno di Dottorato

Anno Accademico 2022/2023

INTRODUCTION

In the complex path of assisted reproduction, there are many evaluation criteria on embryos and blastocysts, but few on oocytes.

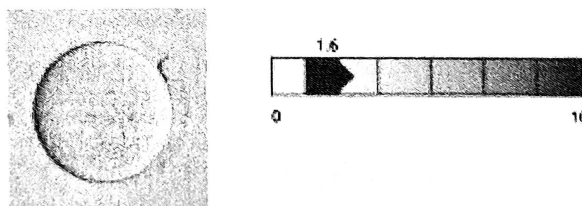
My study project aims to provide 3 important goals:

1. Decide the best transfer's day, so that oocytes with low prognosis of reaching the blastocyst stage will be transferred earlier, reducing epigenetic effects.
2. Guarantee a good service for the oocyte's donation program, monitoring donor banks objectively.
3. Inseminate the most performing oocytes with the highest blastulation rate, and avoid embryo freezing, respecting the ethical-social choices of the couple, without affecting the outcome.

METHODS

The study will use **AI MAGENTA** (developed from FutureFertility), where the score 1-10 corresponds to an increasing blastulation rate, based only on oocyte's morphology and patient's age. So, with this study we want to make **AI MAGENTA** more sensitive, adding sperm DNA fragmentation test.

Example Magenta Score:



Some samples will be evaluated also in the culture medium (metabolomics):

- **TIME A** follicular fluid
- **TIME B** from pick up to denudation
- **TIME C** from the inseminated oocyte to day 2 of culture.

The study included all patients coming from fresh cycle and ICSI, divided into 3 phases:
PHASE 1 retrospective study



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- with 3 female groups: <34, 34-38, >38 Years
- with 2 male groups: with positive/negative DNA fragmentation

PHASE 2 prospective study

- with 3 female groups: <34, 34-38, >38 Years
- with 2 male groups: positive/negative DNA fragmentation
- with metabolomics in **TIME A-B-C**

PHASE 3 multi center study

- involving other Centers in Europe.

RESULTS

During the first year of my PhD program, I'm defining the best process for human oocyte evaluation by using the Embryoscope+ incubator, in order to avoid excessively long exposures to the external environment for human gametes during images capture.

Lezioni, convegni, soft skills:

- LEZIONE. 27 febbraio 2023 09:00-13:00 – Microvesicles in cell-to-cell communication – Dr.ssa Laura Governini
- LEZIONE. 27 febbraio 2023 14:00-18:00 – Biomarkers discovery in precision medicine – Dr.ssa Alice Luddi
- SOFT SKILLS. 11 maggio 2023 10:00-13:00 – I finanziamenti europei nel settore digitale
- SOFT SKILLS. 18 maggio 2023 14:00-18:00 – Europrogettazione: programmi, progetti e rendicontazione

Pubblicazioni: n.v.

Docenza:

- Master in "Biotecnologie mediche e biologia della riproduzione umana – UNISI – 2022/2023 – Tecniche di fecondazione assistita di II e III livello