Docket #: S13-137

Markers for the Detection of Human Embryo Developmental Quality

Stanford researchers have developed methods for genetic and epigenetic diagnosis of embryos to determine those of which are more likely to be chromosomally normal and advance in development. This assessment method allows selection of healthier embryos for implantation. IVF procedures can be improved by allowing for early transfer of fewer, high quality embryos. These parameters can be used to select the optimal embryos for transfer, cryo-preservation, or for additional pre-implantation genetic diagnosis (PGD) analysis during an IVF procedure.

Figure

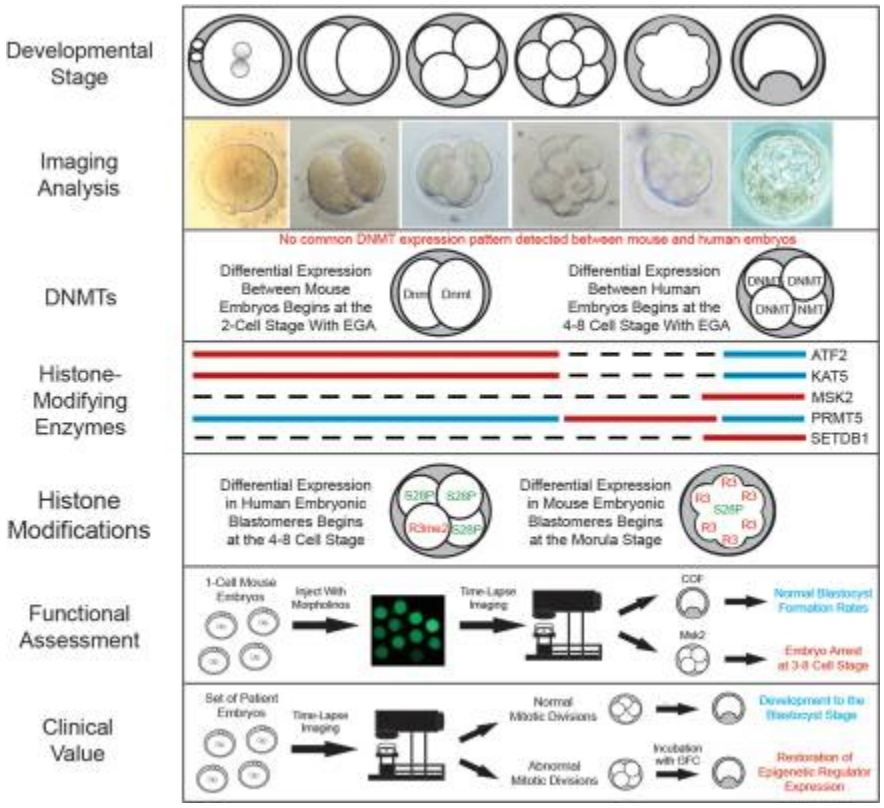

Figure description - Summary model of epigenetic regulation during pre-implantation development. Embryonic development was monitored in both mouse and human embryos by imaging analysis from the zygote to the blastocyst stage.

Addition of certain growth factors to embryo culture media can prevent alterations in epigenetic profiles and improve developmental competence of patient embryos subject to culture. Publication link is below.

Stage of Research

- **Proof-of-concept** – Findings demonstrate epigenetic mechanisms have essential roles for pre-implantation development and possible pregnancy outcomes, especially in the context of IVF

Applications

- **IVF procedures** – helps determine which embryos are more likely to be chromosomally normal and advance in development for implantation

Advantages

- Predicts blastocyst quality of a human embryo *in vitro*
- Improves IVF success rate by transferring fewer, high quality embryos

Publications

- Chavez, S.L., McElroy, S.L., Behr, B., Bossert, N.L., De Jonge, C.J., Westphal, L.M., Reijo Pera, R.A. "Comparison of epigenetic mediator expression and function in mouse and human embryonic blastomeres." Hum. Mol. Genet. (2014) 23 (18): 4970-4984.

Patents

- Published Application: 20150119282

Innovators

- Shawn Chavez
- Renee Reijo Pera

- So Hyun McElroy
- Barry Behr
- Lynn Westphal

Licensing Contact

Seth Rodgers

Licensing Manager, Life Sciences

Email