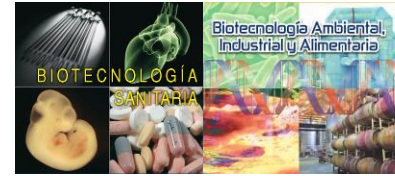


Talk

SIN001, drug for improvement of the embryonic implantation. Study of endometrial markers in clinical regulatory phase



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ABSTRACT

Motivation: The study of endometrial receptivity has opened a new approach in the world of assisted reproduction, allowing the development of genetic tests, drugs and techniques that increase the rate of “child at home” mainly in couples who are attending to assisted reproduction programmes. Genetic tests about endometrial receptivity allow to evaluate the “window of implantation” (WOI) estimating the best moment for successful embryo transfer, decreasing the maternal factor. Due to the progress of these tests it can be considered if drugs like SIN001, improve endometrial receptivity in clinical phase.

Methods: Through the endometrial biopsy before and after the intake of the drug SIN001 of 32 women in a natural cycle, the transcriptome is analysed, after extracting RNA, using quantitative PCR in microfluidics technique (Fluidigm technology). It consists of a dynamic array where the samples and the primers of the genes, in this case 192 markers previously described and related to the endometrial receptivity, are combined in a real-time PCR. A pre-treatment and treatment histological determination can be obtained due to the endometrial biopsy, for the expression and localization of some of the proteins that have been defined as important in endometrial receptivity.

Results: In the preclinical in vitro tests obtained with the drug SIN001, the toxicity was dismissed and the adhesion increase was observed in cell culture models and in primary cultures models of endometrial epithelium. In this clinical phase is expected to improve the WOI in women after the intake of the drug and therefore the embryo implantation. In addition, to evaluate the receptive status of the women with the endometrial receptivity test and also it is expected to establish the expression profile of the 192 genes in the transcriptomics, as well as an evaluation of the proteins obtained in immunohistochemistry.

Conclusions: Currently there are no drugs improving embryo implantation, this means that the discovery of a substance like SIN001, significantly increase the probability of success in reproduction clinics, since the drug is expected to cover three phases: (i) endometrial preparation; (ii) embryo implantation; (iii) placentation and prevention of spontaneous miscarriage. Therefore, the next steps to scale up the drug to market would be to increase the cohort of the study and studies focusing on the action mechanism of the drug SIN001 in endometrium.

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