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LETTER

Insight on "the Effect of Human Umbilical Cord Mesenchymal Stem Cell on Premature Ovarian Cell Senilism Through miR-10a" [Letter]

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Dear editor

The article written by Jiang et al generated our interest in the use of human mesenchymal stem cells (MSCs) to treat infertility.[1] Globally, infertility prevalence is increasing steadily and is estimated at 12.6% or 17.5% in reproductive-aged couples nowadays.[2] It can be confirmed, that if the situation was not resolved, it would be a devastated condition.

MSCs were proposed as a solution to degenerative diseases and aging because of their differentiation, cell-renewal ability, and homing properties. However, the International Society for Cellular Therapy (ISCT) defines MSCs following three standards. First, MSCs must adhere to tissue culture flasks. Second, flow cytometry analysis reveals that MSCs express CD105, CD73, and CD90 and absent the expression of CD45, CD34, CD14 or CD11b, CD79a or CD19, and HLA class II. And finally, the cells need to be able to differentiate into chondrocytes, adipocytes, and osteoblasts.[3,4] Therefore, it would be preferable, if the differentiation capacity of human umbilical cord mesenchymal stem cells (HUCMSCs) was examined.

Recently, the research of MSCs has shifted to exploring the paracrine factors secreted by MSCs. MSCs are able to affect other cells by releasing their cytokines, chemokines, growth factors, or exosomes. This study discussed the role of HUCMSCs-derived exosomes modified by miR-10a in ovarian granulosa cell proliferation and apoptosis rate. We think that this study supports another study by Xiao et al,[5] that concluded delivery of miR-10a could preserve the ovarian follicle. Many miRNAs were acknowledged as granulosa cell apoptosis regulators, such as miR-21, miR-182, miR-125a, miR-146a, miR-145 and so on.[6] Therefore, we are interested in the authors' reasons for selecting miR-10a as the specific content of the exosomes for their experiments in combatting Premature Ovarian Failure (POF).

The methods described also fascinated us, nevertheless, we need to clarify the method of HUCMSC-derived exosome modification with miR-10a. This "Establishing and Grouping of POF Models" section explained the process of miR-10a mimic transfection into KGN cells. After transfection, the cells then were co-cultured with HUCMSC or the extracellular vesicles (EVs). We think it should be better to validate that the EVs have contained miR-10a to ensure the role of miR-10a in inhibiting granulosa cell apoptosis.

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Disclosure

There are no conflicts of interest among the authors of this communication.

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