

1. Fertil Steril. 2008 Oct;90(4):1026-35. Epub 2007 Oct 24.

Glutathione S-transferase theta 1 expressed in granulosa cells as a biomarker for oocyte quality in age-related infertility.

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Abstract

OBJECTIVE: The goal of this study was to identify a reliable biomarker for age-related infertility.

DESIGN: Laboratory study.

SETTING: ART laboratory.

PATIENT(S): Patients undergoing intracytoplasmic sperm injection or IVF cycles.

INTERVENTION(S): Expression of Glutathione S-transferase (GST) mRNA and protein in mural and cumulus granulosa cells obtained from infertile patients were examined by reverse transcriptase-polymerase chain reaction and immunofluorescence.

MAIN OUTCOME MEASURE(S): Correlation between the expression of GST theta 1 (GSTT1) in granulosa cells and oocyte quality was a main outcome measure.

RESULT(S): Expression of GSTT1 in granulosa cells from male factor patients was positively correlated with age and negatively with cumulus-oocyte complex maturity. When samples with high and low GSTT1 in granulosa cells were extracted from the other infertility factors, cumulus-oocyte complex maturity in the high GSTT1 group was significantly lower than that in the low GSTT1 group (high: 27.2% vs. low: 51.3%). The developmental capacity of oocytes in the high GSTT1 group was likely to be lower (high: 26.4% vs. low: 43.9%). Up-regulation of GSTT1 during aging may be promoted by FSH and H(2)O(2), determined by an in vitro model.

CONCLUSION(S): GSTT1 is a good indicator for age-related infertility.

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