## Cellular Physiology and Biochemistry Published online: March 12, 2015

Cell Physiol Biochem 2015;35:1401-1412

DOI: 10.1159/000373961

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Accepted: January 07, 2015

1421-9778/15/0354-1401\$39.50/0

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**Original Paper** 

## AMH and AMHR2 Polymorphisms and **AMH Serum Level Can Predict Assisted Reproduction Outcomes: A Cross-Sectional** Study

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## **Key Words**

AMH gene • AMHR2 gene • Ovarian reserve • Anti-Mullerian Hormone • Human Reproduction

## Abstract

Background: In human assisted reproduction, the ovarian response to exogenous recombinant Follicle-stimulating Hormone (FSH) therapy is variable and difficult to predict. The standard protocol of ovarian hyperstimulation can result in satisfactory response; however, an unsatisfactory response necessitates FSH dose adjustment or results in ovarian hyperstimulation syndrome (OHSS). Polymorphisms in AMH and AMHR2 genes appear to affect hormone biological activities, thus affecting follicle recruitment and development, leading to infertility. We aimed to evaluate AMH and AMHR2 polymorphisms in infertile women, and correlate those findings with AMH, FSH and estradiol serum level response to controlled ovarian hyperstimulation (COH), as well as assisted reproduction outcomes. **Methods:** A cross-sectional study comprising 186 infertile women that underwent one cycle of high complexity assisted reproductive treatment. Blood samples were collected and a TagMan assay was used for AMH G146T/rs10407022 and AMHR2 A-482G/rs2002555, A10G/ rs11170555, C1749G/rs2071558 and G4952A/rs3741664 genotyping, and FSH, estradiol and AMH levels were measured. The findings were correlated to human reproduction outcomes. Results: AMH rs10407022 and AMHR2 rs2002555 polymorphisms were not associated with hormonal measurements, whereas AMHR2 rs11170555 and rs3741664 were positively associated with AMH, estradiol and FSH levels. The genotype distribution of AMH and AMHR2 genes according to Controlled Ovarian Hyperstimulation did not show a positive association. However, an association with AFC, degree of oocyte maturation (allele G of AMHR2 rs2071558)



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