



**The 66th Annual Meeting of the Pacific Coast Reproductive Society**  
**MARCH 21 - 25, 2018 • Renaissance Hotel, Indian Wells, California**

**Title:**

MOLECULAR EVIDENCE DEMONSTRATES THAT ANTI-MULLERIAN HORMONE PREDICTS QUANTITY, NOT QUALITY, OF OOCYTES

**Authors:**

Sekhon L<sup>1,2</sup>, Hernandez-Nieto C<sup>2</sup>, Nazem TG<sup>1,2</sup>, Chang S<sup>1,2</sup>, Lee JA<sup>2</sup>, Briton-Jones C<sup>2</sup>; Copperman AB<sup>1,2</sup>

**Affiliations:**

1. Icahn School of Medicine at Mount Sinai, 1468 Madison Ave New York, New York, United States 10029
2. Reproductive Medicine Associates of New York, 635 Madison Ave 10th Floor New York, New York, United States, 10022

**Background:**

Anti-Müllerian hormone (AMH) is a reliable predictor of ovarian reserve, as measured by the number of number of oocytes retrieved in stimulated cycles. However, oocyte yield is just one of several key steps required to achieve a successful pregnancy. Whether AMH can give insight to the prevalence of meiotic errors within oocytes, correlate with embryo quality or signify reproductive potential has yet to be determined. In an era of preimplantation genetic testing (PGT), it is possible to investigate whether the clinical utility of AMH could extend to predicting the number of number of oocyte retrievals needed to achieve a euploid embryo and the likelihood of successful implantation following transfer of a single, euploid embryo.

**Objective:**

The study sought to determine whether AMH is an age-independent predictor of 1) the number of oocyte retrievals needed to attain a euploid embryo; 2) the percentage of aneuploidy within a patients' cohort of embryos; and 3) the resulting outcome of single, euploid frozen embryo transfer (FET).

**Materials and Methods:**

This retrospective cohort study included all patients who underwent controlled ovarian hyperstimulation (COH) and IVF-PGT followed by euploid FET from 2012 to 2017. Patients who did not have a documented AMH level were excluded. The number of retrievals required to achieve a euploid embryo was noted. The relationship between AMH and percent of biopsied embryos that were aneuploid was examined. The associations between AMH and likelihood of implantation, clinical pregnancy, and early pregnancy loss after single, euploid FET was



assessed. Pearson's correlation, linear and logistic regression models were used for statistical analyses.

### **Results:**

A total of 1003 patients ( $36.2 \pm 3.8$  (22.1-45.5 years)) underwent euploid FET. With a mean AMH level of  $3.75 \pm 4.46$  (0.03-58.3), patients underwent  $1.34 \pm 0.78$  (1-11) oocyte retrievals prior to obtaining at least 1 euploid embryo. Controlling for age, increasing AMH level was significantly associated with a reduction in number of oocyte retrievals required to obtain a euploid embryo for transfer ( $\beta = -0.019$ ,  $p=0.0005$ ). For every year increase in age, there was 2.1% increase in the proportion of biopsied embryos found to be aneuploid ( $p<0.0001$ ). The aneuploidy rate increased with advancing oocyte age. Controlling for age, there was not a significant correlation between AMH and aneuploidy ( $r = -0.02$ ,  $p=0.5$ ). After controlling for age, BMI, endometrial thickness at transfer, and day of embryo biopsy, AMH was not a significant predictor of implantation (OR 1.02 [0.99-1.05],  $p=0.2$ ), clinical pregnancy (OR 0.98 [0.94-1.03],  $p=0.4$ ) or early pregnancy loss (OR 1.002 [0.94-1.07],  $p=0.9$ ) after single, euploid FET.

### **Conclusion:**

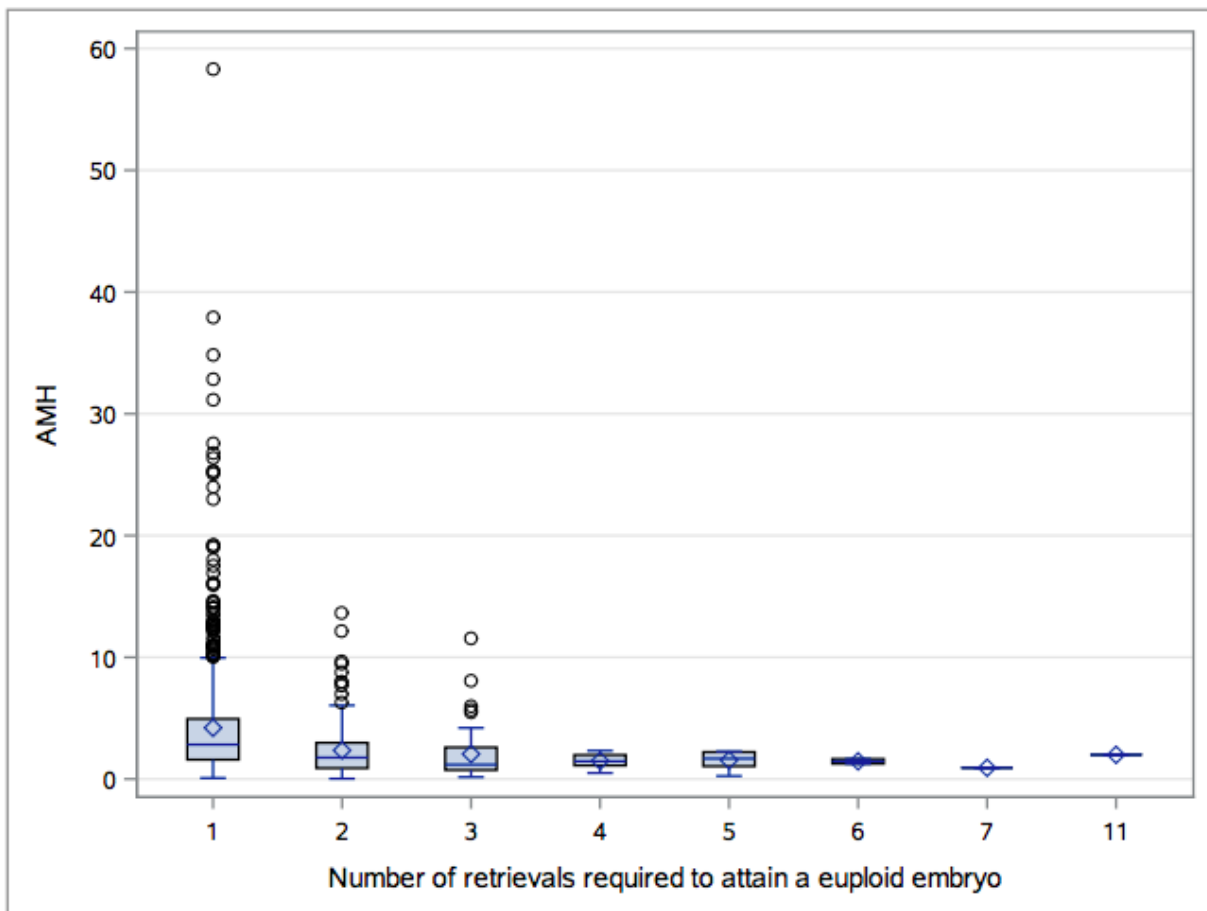
In addition to predicting the per cycle oocyte yield, AMH predicts the number of cycles necessary to obtain a euploid embryo for transfer. However, AMH was not associated with the aneuploidy rate within a given embryo cohort. In a study model that controlled for age, embryonic aneuploidy, and the endometrial environment, AMH did not modify the likelihood of a single, euploid embryo implanting. In an era in which PGT has revolutionized embryo selection, uncovering age-independent drivers of aneuploidy will further improve diagnostic and prognostic accuracy and reproductive outcome.

### **Financial Support:**

None



**Figure 1:**  
Serum AMH is significantly correlated with the number of retrievals required to attain a euploid embryo for transfer.



**References:**

Broer SL, Broekmans FJM, Laven JSE, Fauser BCJM. Anti-mullerian hormone: ovarian reserve testing and its potential clinical implications. Hum Reprod Update 2014; 20(5): 688-701.