TRICORE REFERENCE LABORATORIES

ANTI-MÜLLERIAN HORMONE (AMH)

Effective 4/24/2019, TriCore will begin performing anti-müllerian hormone (AMH) testing in-house. The current TriCore test code "AMH" will be replaced with test code "AMHF." The "AMH" test code will be available for approximately three months to allow patients to be rebaslined to the new test method. Please see important information about associated changes to the test below.

Clinical Information

AMH is a dimeric glycoprotein hormone belonging to the transforming growth factor-beta family. It is produced by Sertoli cells of the testis in males and by ovarian granulosa cells in females. Expression during male fetal development prevents the müllerian ducts from developing into the uterus, resulting in development of the male reproductive tract. In the absence of AMH, the müllerian ducts and structures develop into the female reproductive tract. AMH serum concentrations are elevated in males under 2 years old and then progressively decrease until puberty, when there is a sharp decline. In females, AMH is produced by the granulosa cells of small growing follicles from the 36th week of gestation onwards until menopause when levels become undetectable.

AMH is produced continuously in the granulosa cells of small (<8 mm) preantral and early antral follicles during the menstrual cycle. As such, it is superior to the episodically released gonadotropins and ovarian steroids as a marker of ovarian reserve. Furthermore, AMH concentrations are unaffected by pregnancy or use of oral or vaginal estrogen- or progestin-based contraceptives.

Studies have shown that females with higher concentrations of AMH have a better response to ovarian stimulation and tend to produce more retrievable oocytes than females with low or undetectable AMH. Females at risk of ovarian hyperstimulation syndrome after gonadotropin administration can have significantly elevated AMH concentrations. Polycystic ovarian syndrome can elevate serum AMH concentrations because it is associated with the presence of large numbers of small follicles.

Serum AMH concentrations are increased in some patients with ovarian granulosa cell tumors, which comprise approximately 10% of ovarian tumors. AMH, along with related tests including inhibin A and B, estradiol, and CA-125, can be useful for monitoring these patients.

AMH measurements can be used to evaluate testicular presence and function in infants with intersex conditions or ambiguous genitalia, and to distinguish between cryptorchidism (testicles present but not palpable) and anorchia (testicles absent) in males. In minimally virilized phenotypic females, AMH can help differentiate between gonadal and nongonadal causes of virilization.

Interpretation

There is no international standard for AMH, so the measurement of AMH is assay-dependent and interpretation of results should be considered with regard to the assay's reference intervals. There is no consensus on the AMH concentration suggestive of reduced fertility potential. In general, AMH concentrations that are well-above the lower limit of the reference population suggests adequate ovarian reserve. As concentrations decrease below the lower limit of the reference population, the probability of diminished ovarian reserve increases. Very low concentrations suggest a poor response to in vitro fertilization.

Menopausal women or women with premature ovarian failure of any cause, including after cancer chemotherapy, have very low AMH concentrations levels, often below the assay detection limit of 0.03 ng/mL.

In patients with polycystic ovarian syndrome, AMH concentrations may be 2- to 5-fold higher than age-appropriate reference

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ANTI-MÜLLERIAN HORMONE (AMH), continued

range values. Such high concentrations predict anovulatory and irregular menstrual cycles.

In children with intersex conditions, an AMH result above the normal female reference interval is predictive of the presence of testicular tissue, while an undetectable value suggests its absence.

In males with cryptorchidism, a measurable AMH concentration is predictive of undescended testes. An undetectable result is highly suggestive of anorchia or functional failure of the abnormally sited gonad.

Granulosa cell tumors of the ovary may secrete AMH, inhibin A, and inhibin B. Elevated concentrations of any of these markers can indicate the presence of this neoplasm in a woman with an ovarian mass. Concentrations should decrease with

ANTI MÜLLERIAN HORMONE (AMHF)

Test Code.....AMHF
CPT Code.....2397
Methodology.....Electrochemiluminescent Immunoassay
Testing Performed.....Monday, Thursday
Reported.....Within 5 days

COLLECTION	
Specimen	Whole Blood
Collection Containers	Preferred: Gold Top Tube (SST) Acceptable: Red Top Tube (R); Green Top Tube (P)
Collection Amount	Preferred.....2.0 mL Minimum.....1.0 mL
Rejection Criteria	EDTA plasma; samples stabilized with azide
PROCESSING	
Specimen Processing Instructions	Allow specimen to clot for 20-30 minutes and centrifuge. If using non-gel barrier tube, separate 1.0 mL (minimum 0.5 mL) serum or plasma into a transport tube and refrigerate.
SHIPPING/TRANSPORT AND STORAGE	
Stabilities/Storage (*Collection to initiation of testing*)	Temperature — Stability Ambient — 3 days Refrigerated — 5 days Frozen — 6 months
Shipping Instructions	Ship refrigerated.
REFERENCE RANGES	
Female 25-29 years	0.89-9.85 ng/mL
Female 30-34 years	0.58-8.13 ng/mL
Female 35-39 years	0.15-7.49 ng/mL
Female 40-45 years	0.03-5.47 ng/mL
Males	Not defined