# ANTIMULLERIAN HORMONE IN GYNECOLOGY

# الهرمون المضاد للموليريان فى أمراض النساء

## 2008


## SUMMARY

**Antimullerian hormone is a member of the transforming growth factor superfamily. MH is strongly expressed in Sertoli cells from testicular differentiation up to puberty and to a much lesser degree in granulosa cells from birth up to menopause. AMH seems to act only in the reproductive organs. The most striking effect of AMH is its capacity to induce regression of the Mullerian ducts, the anlage of the female internal reproductive organs. In the absence of AMH, Mullerian ducts of both sexes develop into the uterus, Fallopian tubes and the upper part of the vagina.**

**During fetal life, only the male testis expresses the hormone. In the female, AMH expression begins post-natally and acts in modulating follicular growth and preventing recruitment of non-dominant follicles. Granulosa cells of primary follicles show homogeneous AMH expression, whereas in larger follicles, AMH is mainly produced in cells near the oocyte and in a few cells surrounding the antrum. AMH continues to be expressed in the growing follicles in the ovary until they have reached the size and differentiation state at which they are to be selected for dominance by the action of pituitary FSH.**

**In mouse this occurs at the early antral stage in small growing follicles, whereas in human it is in antral follicles of size 4–6 mm.Thus, AMH is expressed in follicles that have undergone recruitment from the primordial follicle pool and have not been selected for dominance. AMH is not expressed in atretic follicles and theca cells.**

**AMH employs a heteromeric receptor system consisting of single membrane spanning serine threonine kinase receptors of types I and II, respectively. The type II receptor imparts ligand binding specificity and the type I receptor mediates downstream signaling when activated by the type II receptor.**

**In males, AMH levels after birth are low, but rapidly rise to peak values by late infancy, then slowly decrease to the adult range at puberty. In women, AMH serum levels are almost undetectable at birth, with a subtle increase noted after puberty. Serum AMH levels have been measured at different time-points during the menstrual cycle, suggesting minimal fluctuation Minimal fluctuations in serum AMH levels may be consistent with continuous non-cyclic growth of small follicles. Hence, AMH is relatively convenient to determine, especially as it seems to exhibit a relatively stable expression during the menstrual cycle, making it an attractive determinant of ovarian activity.**

**The clinical significance of AMH has for decades been limited to its critical role in fetal sexual development. However, owing to a combination of both basic and clinical research advances within the last 15years, AMH has emerged to have increasing relevance with regard to ovarian function. Some of these basic advances have included noting that the MIS/AMH gene has a sexually dimorphic pattern of expression and the discovery of MIS/AMH synthesis by human granulosa cells. In addition, a number of investigators developed tests to measure MIS/AMH in biologic fluids, including serum.**