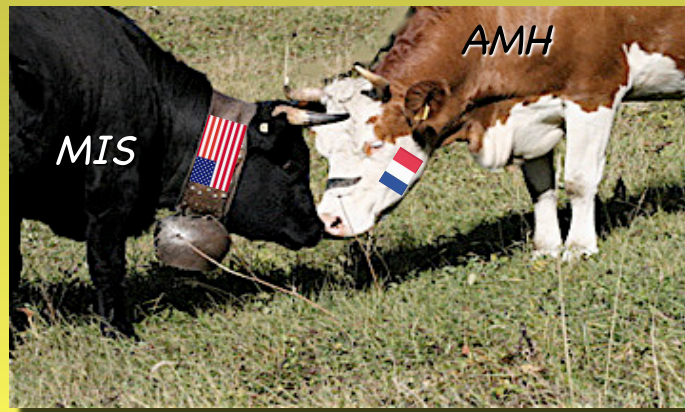




THE PLACE OF AMH/MIS MEASUREMENTS IN ASSESSING THE REPRODUCTIVE FUNCTION



P.Bischof, PhD,

CONTENT

HISTORY

BIOCHEMISTRY

BIOLOGY

CLINIC

HISTORY



HISTORY 1

Discovery

A. Jost.

Recherches sur le contrôle hormonal de l'organogenèse sexuelle du lapin et remarques sur certaines malformations de l'appareil génital humain.
Gynécologie et Obstétrique 49 (1950) 44-60

Purification

B. Vigier, JY. Piccard, D. Tran, L. Legeai, N. Josso.

Production of anti-mullerian hormone: another homology between Sertoli and granulosa cells.
Endocrinol. 114 (1984) 1315-20

Cloning

Picard JY, Benarous R, Guerrier D, Josso N, Kahn A.

Cloning and expression of cDNA for anti-mullerian hormone.

Proc. Natl. Acad. Sci. USA 83 (1986) 5464-8



Cate RL, Mattaliano RJ, Hession C, Tizard R, Farber NM, Cheung A, Nifa EG, MacLaughlin DT

Isolation of the bovine and human genes for mullerian inhibiting substance and expression of the human gene in animal cells.

Cell 45 (1986) 685-98





HISTORY 2

Measurements

Josso N, Legeai L, Forrest MG, Chaussin JL, Brauner R.



An enzyme linked immunoassay for anti-mullerian hormone: a new tool for the evaluation of testicular function in infants and children.

J. Clin.Endocrinol.Metab. 70 (1990) 23-27

Hudson PL, Douglas I, Donahoe PK, Cate RL, Pepinsky RB, MacLaughlin DT



An immunoassay to detect mullerian inhibiting substance in males and females during normal development.

J. Clin.Endocrinol.Metab. 70 (1990) 16-22

Detection of Minimal Levels of Serum Anti-Müllerian Hormone during Follow-Up of Patients with Ovarian Granulosa Cell Tumor by Means of a Highly Sensitive Enzyme-Linked Immunosorbent Assay

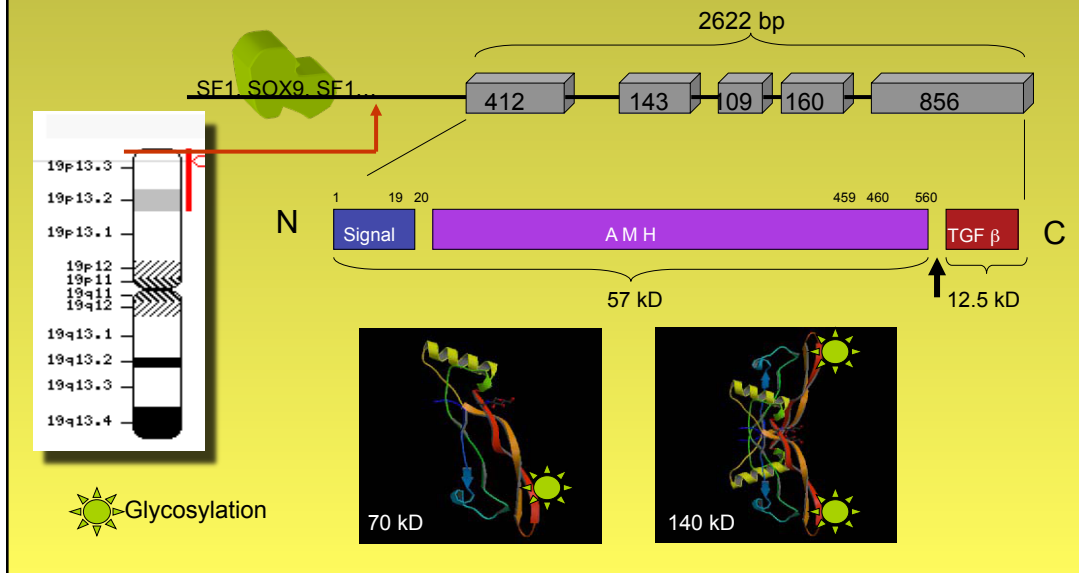
WEN-QING LONG, VALE[†]RIE RANCHIN, PATRICIA PAUTIER, CORINNE BELVILLE, PHILIPPE DENIZOT, HE[†]LE NE CAILLA, CATHERINE LHOMME[†], JEAN-YVES PICARD, JEAN-MICHEL BIDART, AND RODOLFO REY^{*}
Unité de Recherches sur l'Endocrinologie du Développement, INSERM, Département de Biologie, Ecole Normale Supérieure (W.-Q.L., C.B., J.-Y.P., R.R.), 92120 Montrouge; Département de Biologie Clinique (J.-M.B.) and Service de Gynécologie (P.P., C.L.), Institut Gustave Roussy, 94805 Villejuif; and Département d'Immunoanalyse, Immunotech (V.R., P.D., H.C.), 13276 Marseilles, France

J Clin Endocrinol Metab 85: 540-544, 2000

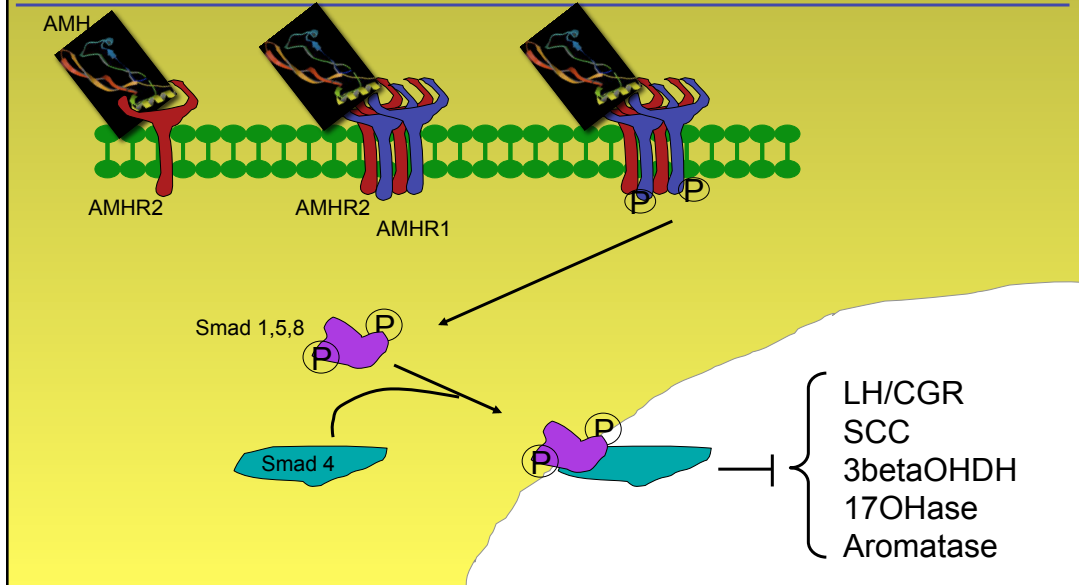
BIOCHEMISTRY



BIOCHEMISTRY 1



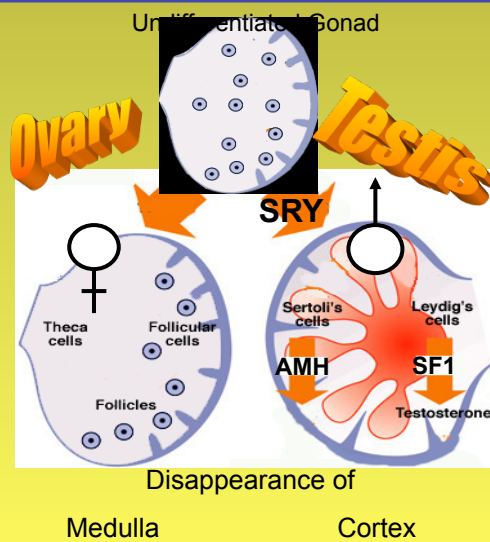
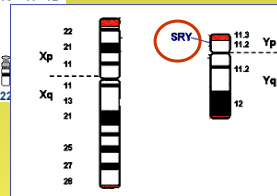
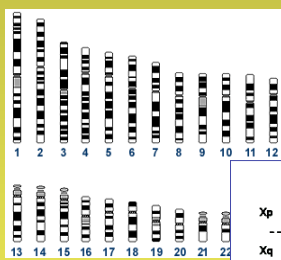
BIOCHEMISTRY 2



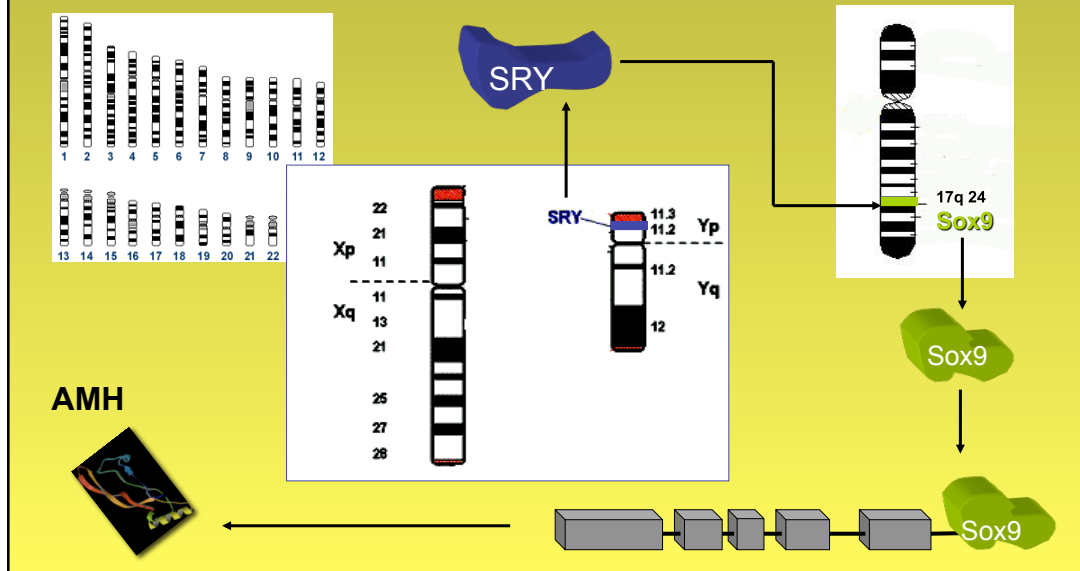
BIOLOGY



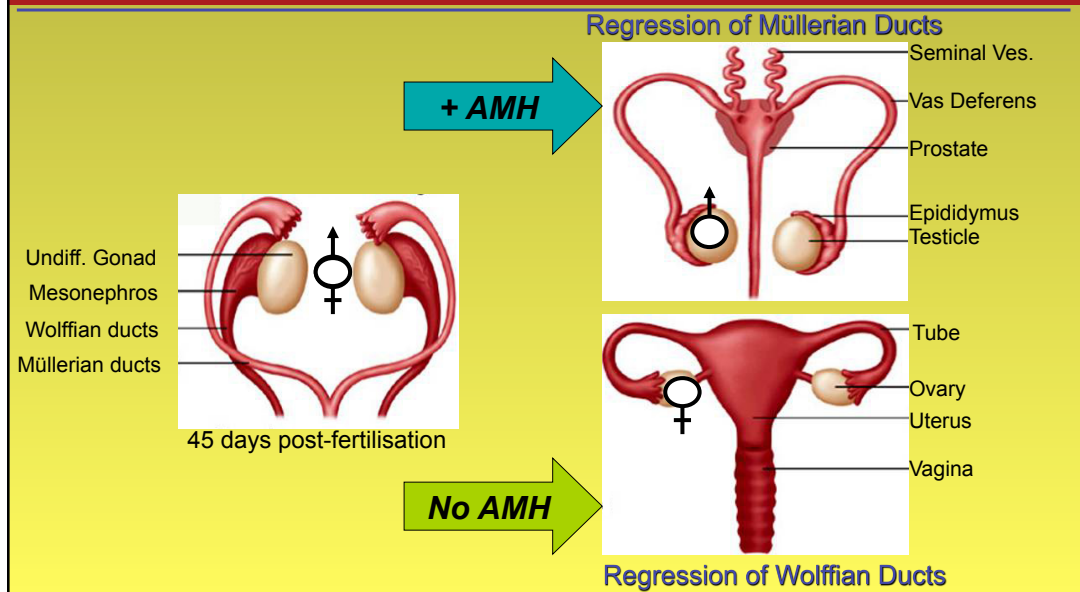
BIOLOGY 1



BIOLOGY 2



BIOLOGY 3



BIOLOGY 4

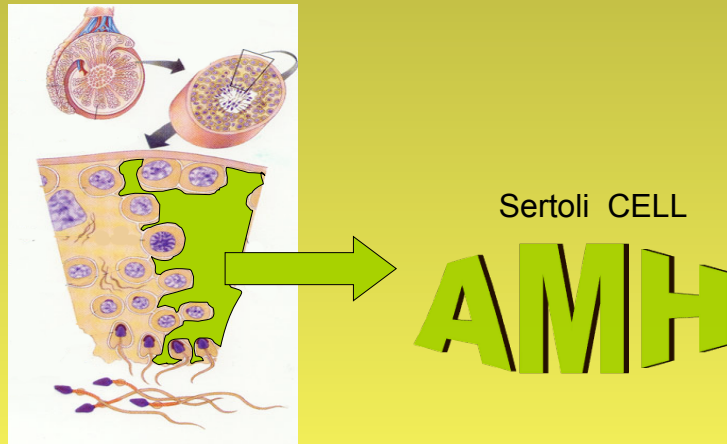
A KO of AMH or its receptor, in a XY individual, induces the persistence of Müllerian Ducts (PMDS): « Man with uterus ». This is a rare form of pseudo-hermaphroditism 1/100 000.

47% AMH
38% AMHR2
15% AMHR1

THE CLINIC

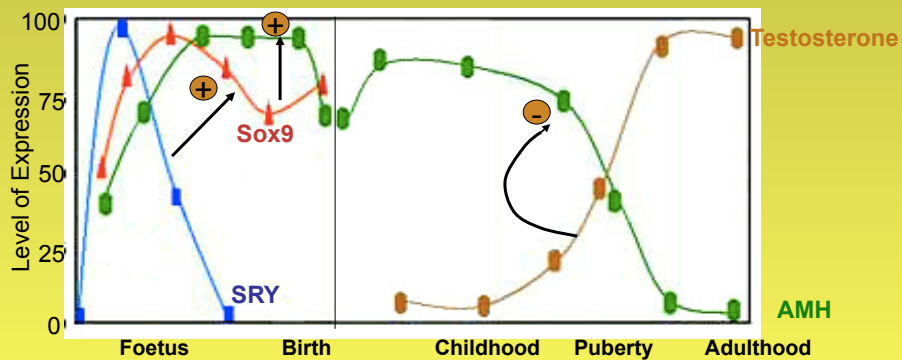


CLINICAL DATA IN MEN 1



Vigier B, Picard JY, Tran D, Legeai L, Josso N. Production of anti-Müllerian hormone: another homology between Sertoli and granulosa cells. *Endocrinology*. 1984, 114:1315-20.

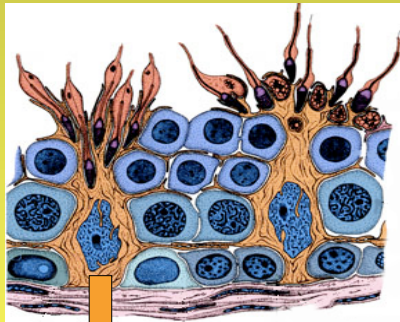
CLINICAL DATA IN MEN 2



CLINICAL DATA IN MEN 3

Before Puberty

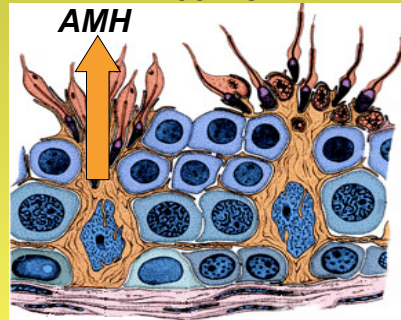
Endocrine



AMH

After Puberty

Exocrine



AMH

CLINICAL DATA IN MEN 4

Normal values of AMH in men (pmoles/L)

Serum

Fénichel et al 1999

Our data

Prepubertal	360-640	
Adult	<80	4.1- 76

Sperm

Adult	3.5-543
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CLINICAL USEFULNESS IN MEN

BEFORE puberty:

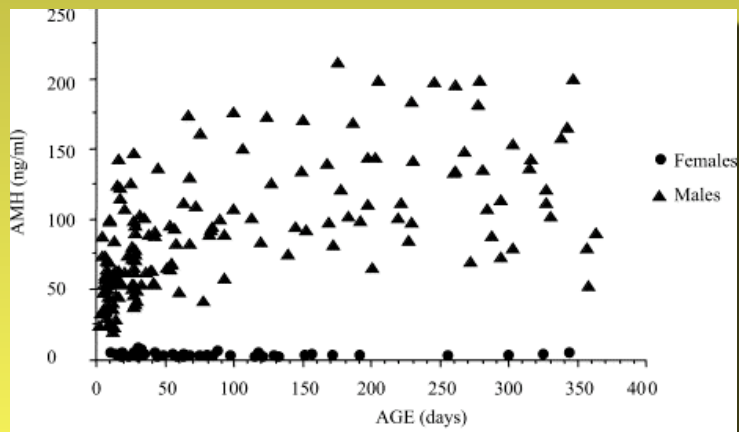
Circulating AMH is a marker for the presence of testicular tissue (non palpable testis).

Unmeasurable AMH in XY: persistence of Müllerian Duct Syndrome

AFTER puberty:

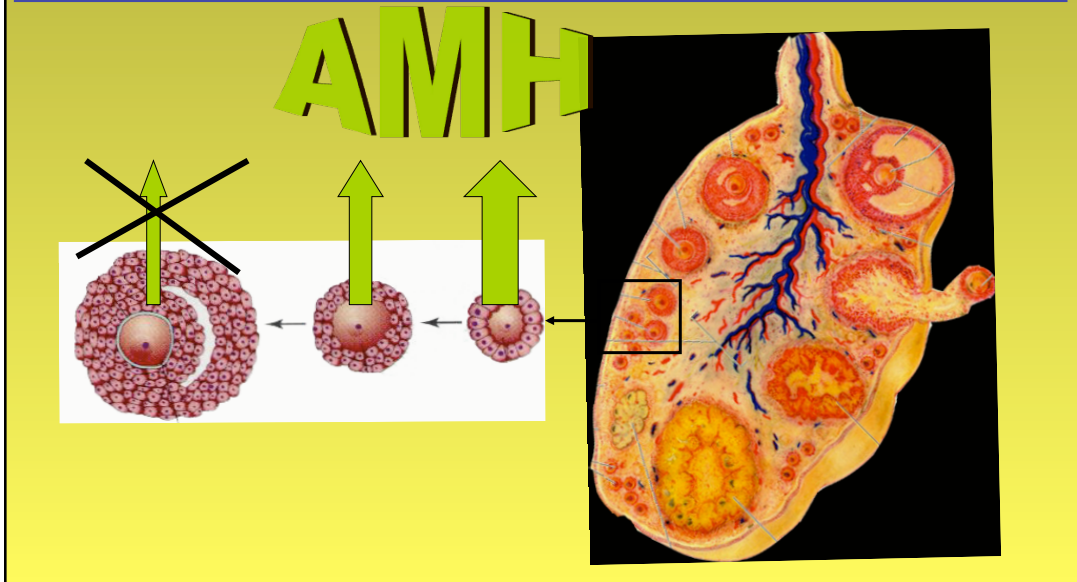
AMH in seminal plasma has a predictive role for a conserved spermatogenesis in patients with a non obstructive azoospermia.

CLINICAL DATA IN WOMEN 1

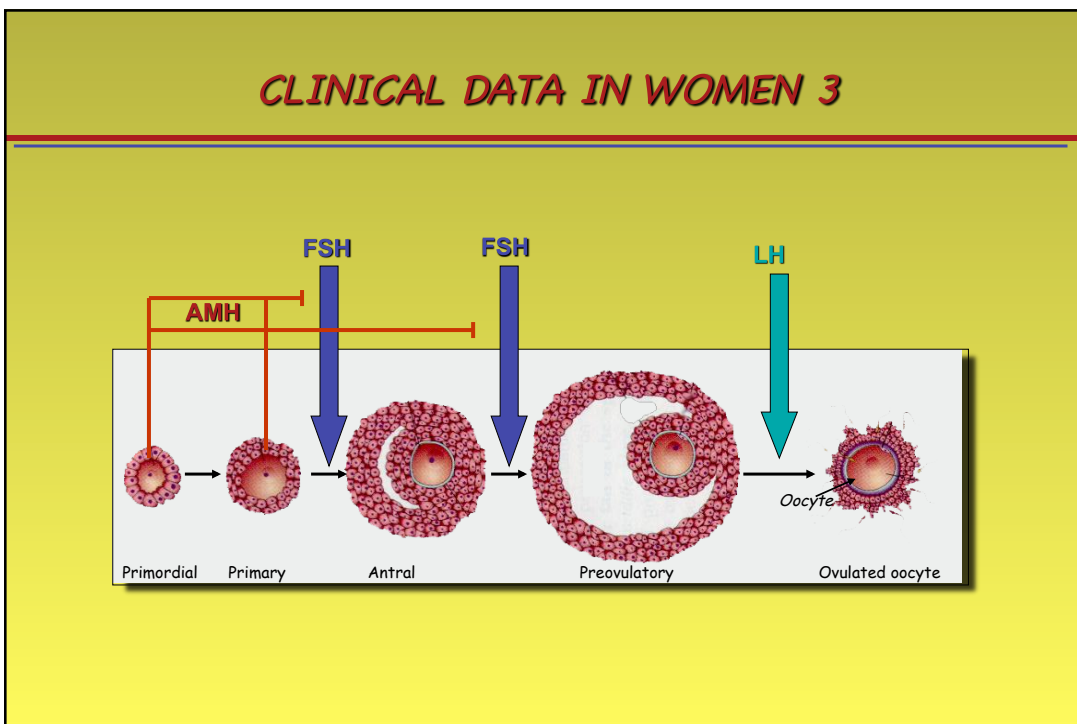


Guibourdenche et al 2003

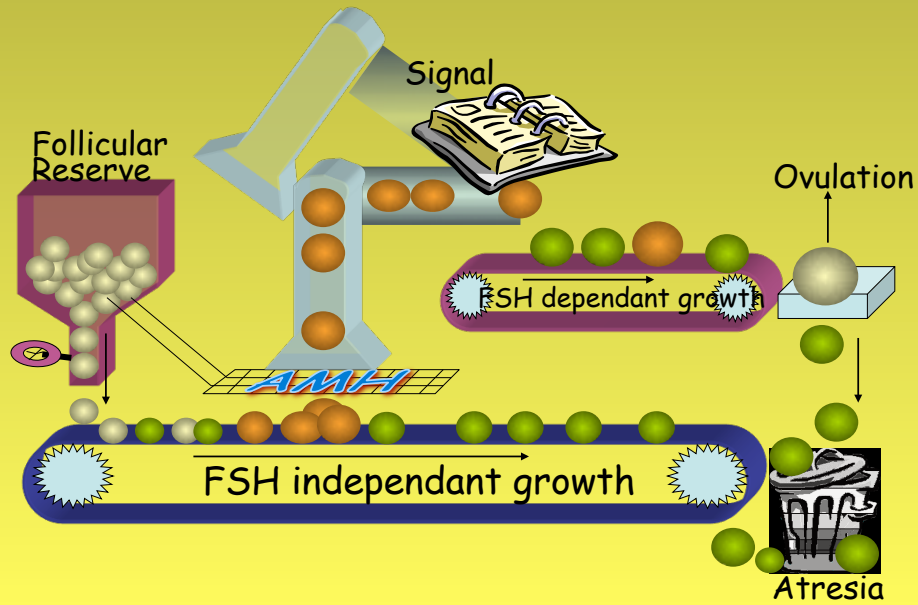
CLINICAL DATA IN WOMEN 2



CLINICAL DATA IN WOMEN 3

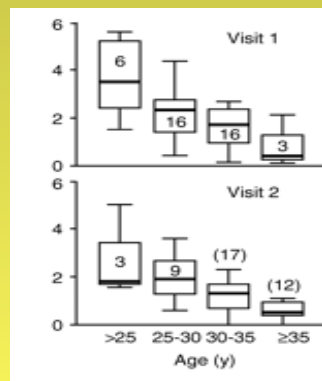
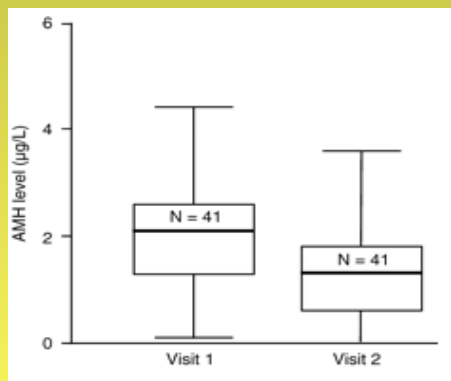


CLINICAL DATA IN WOMEN 4



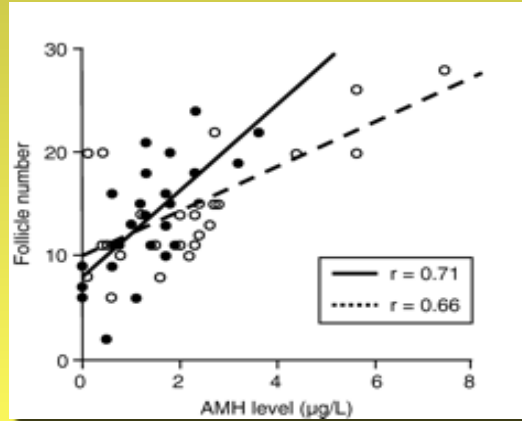
CLINICAL DATA IN WOMEN 5

De Vet A, Laven JS, de Jong FH, Themmen AP, Fauser BC. Antimullerian hormone serum levels: a putative marker for ovarian aging. *Fertil. Steril.* 2002, 77; 357-62

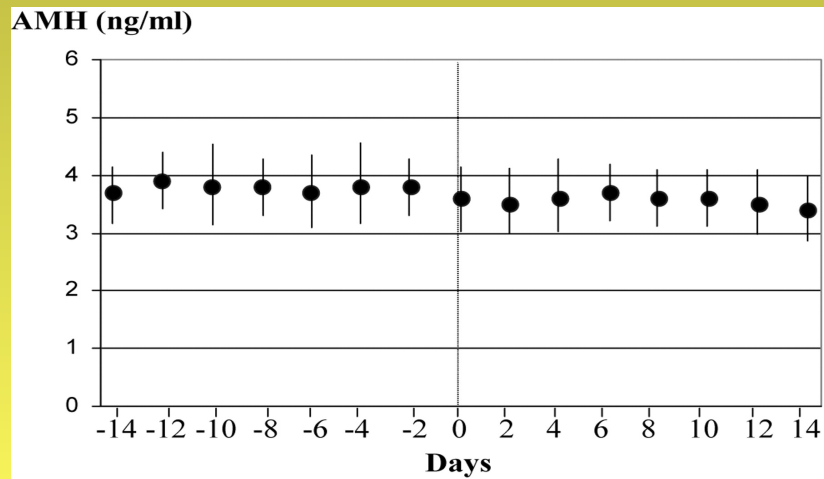


CLINICAL DATA IN WOMEN 6

De Vet A, Laven JS, de Jong FH, Themmen AP, Fauser BC. Antimüllerian hormone serum levels: a putative marker for ovarian aging. *Fertil. Steril.* 2002, 77; 357-62



CLINICAL DATA IN WOMEN 7



La Marca, A. et al. *Hum. Reprod.* 2006 21:3103-3107

CLINICAL DATA IN WOMEN 8

Normal values of AMH in women (pmoles/L)

Serum	<i>Pigny et al 2003</i>	<i>Our Data</i>
Adult	3.6- 37	7.4 - 42
Menopausal	nm - 2.1*	nm - 1.7
PCOS	24.4 - 85	

* Premature Ovarian failure: La Marca e al 2006

CLINICAL USEFULNESS IN WOMEN

BEFORE puberty:

No known application

AFTER puberty:

Circulating AMH is a measure of ovarian reserve. It is too early to say if AMH is going to be a predictor of fertility.



THANK YOU FOR YOUR ATTENTION