

LUTEINIZING HORMONE, LUTROPIN

1. Brief description

LH is a β -cell hormone of the anterior pituitary gland lobe, a glycoprotein formed by two α and β chains. The half-life is four hours. LH secretion is regulated by the hypothalamus, secreting the gonadotrophin-releasing hormone, but according to the negative feedback principle - estradiol.

LH secretion is different for both genders and is necessary for normal sexual function.

In women, LH causes ovulation and the formation of steroids (oestrogen and progesterone) in the corpus luteum. LH in small amounts is needed to promote oestrogen production in the follicle. In the ovaries, LH synergistically stimulates follicular maturation with FSH. In women, in the follicular phase, the level of LH gradually increases, reaching a peak during ovulation. Increase in the middle cycle is an indication that ovulation will take place after about 24 hours. Immediately after ovulation, LH levels decline rapidly and remain low throughout the luteal phase.

In men, LH stimulates interstitial cells (Leydig) to produce androgens and oestrogens, which stimulate testosterone production and spermatogenesis. LH secretion during the day is of a pulsating nature, so values obtained during the day may fluctuate, reflecting physiological variation. Detection of LH and FSH is mainly used in differential diagnosis of central and peripheral amenorrhoea, and, if the indicators are increased, primary gonadal damage is possible. In contrast, a low LH level indicates insufficient gonadal stimulation.

Sometimes changes in the level of LH (also growth hormone - STH) are the first to indicate pituitary damage.

2. Method - Immunochemical chemiluminescence.

3. Tube labelling, blood storage time, testing material

- Labelling - red or yellow tube (without anticoagulant);
- Blood storage time:
 - At room temperature (+15° - +25° C); - eight hours;
 - In a refrigerator (+2° - +8° C) serum; - 14 days;
 - Frozen (-20° C) - two months;
 - As the LH level differs at different times of the day, it is recommended to indicate the sampling time;
- The testing material - serum.

4. Referenced values

Women:

The follicular phase	1.1 - 11.6 IU/l
During ovulation	17 - 77 IU/l
Lutein phase	0.0 - 14.7 IU/l
Menopause	11.3 - 39.8 IU/l

Men (12 - 80 years)	0.8 - 7.6 IU/l
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Children (6 - 18 years) division according to Tanner's scale:

Tanner's scale	Male	Female
1.	< 0.1 - 0.8	< 0.1 - 3.9
2.	< 0.1 - 2.6	< 0.1 - 9.5
3.	0.4 - 4.4	0.7 - 13.0
4.	0.9 - 7.5	0.8 - 29.9
5.	1.0 - 6.4	0.6 - 49.0

5. Influencing factors

↑ Anticonvulsants, clomiphene.

Pregnancy (may be related to cross-reaction in very high HCG).

Menopause.

↓ Digoxin, megastrol, oral contraceptives, gonadotropic hormone releasing factors, danazol, anabolic steroids, stress.

6. Deviations from the norm

↑ Ovarian dysfunction (agenesis), Turner's syndrome.

Ostrich polycystic, primary hypogonadism.

Adrenal and thyroid diseases.

Ovarian failure (due to radiation, chemotherapy for autoimmune diseases).

Ovarian tumour.

Testis disease.

↓ Amenorrhoea (in pituitary and hypothalamic diseases), Kallmann syndrome.