

**Dr. Vinay Chopra**  
 MD (Pathology & Microbiology)  
 Chairman & Consultant Pathologist

**Dr. Yugam Chopra**  
 MD (Pathology)  
 CEO & Consultant Pathologist

<b>NAME</b>	: Mrs. CHANCHAL	<b>PATIENT ID</b>	: 1743094
<b>AGE/ GENDER</b>	: 30 YRS/FEMALE	<b>REG. NO./LAB NO.</b>	: 012502020029
<b>COLLECTED BY</b>	:	<b>REGISTRATION DATE</b>	: 02/Feb/2025 11:18 AM
<b>REFERRED BY</b>	: LOOMBA HOSPITAL (AMBALA CANTT)	<b>COLLECTION DATE</b>	: 02/Feb/2025 11:23AM
<b>BARCODE NO.</b>	: 01524810	<b>REPORTING DATE</b>	: 02/Feb/2025 01:14PM
<b>CLIENT CODE.</b>	: KOS DIAGNOSTIC LAB		
<b>CLIENT ADDRESS</b>	: 6349/1, NICHOLSON ROAD, AMBALA CANTT		

Test Name	Value	Unit	Biological Reference interval
-----------	-------	------	-------------------------------

## ENDOCRINOLOGY

### THYROID STIMULATING HORMONE (TSH)

THYROID STIMULATING HORMONE (TSH): SERUM 1.761  $\mu$ IU/mL 0.35 - 5.50

by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)

3rd GENERATION, ULTRASENSITIVE

#### INTERPRETATION:

AGE	REFERENCE RANGE ( $\mu$ IU/mL)
0 – 5 DAYS	0.70 – 15.20
6 Days – 2 Months	0.70 – 11.00
3 – 11 Months	0.70 – 8.40
1 – 5 Years	0.70 – 7.00
6 – 10 Years	0.60 – 5.50
11 - 15	0.50 – 5.50
> 20 Years (Adults)	0.27 – 5.50
<b>PREGNANCY</b>	
1st Trimester	0.10 - 3.00
2nd Trimester	0.20 - 3.00
3rd Trimester	0.30 - 4.10

**NOTE:- TSH levels are subjected to circadian variation, reaching peak levels between 2-4 a.m and at a minimum between 6-10 pm. The variation is of the order of 50 %. Hence time of the day has influence on the measured serum TSH concentration.**

**USE:-** TSH controls biosynthesis and release of thyroid hormones T4 & T3. It is a sensitive measure of thyroid function, especially useful in early or subclinical hypothyroidism, before the patient develops any clinical findings or goitre or any other thyroid function abnormality.

#### INCREASED LEVELS:

- 1.Primary or untreated hypothyroidism, may vary from 3 times to more than 100 times normal depending on degree of hypofunction.
- 2.Hypothyroid patients receiving insufficient thyroid replacement therapy.
- 3.Hashimotos thyroiditis.
- 4.DRUGS: Amphetamines, Iodine containing agents and dopamine antagonist.
- 5.Neonatal period, increase in 1st 2-3 days of life due to post-natal surge.

#### DECREASED LEVELS:

- 1.Toxic multi-nodular goitre & Thyroiditis.
- 2.Over replacement of thyroid hormone in treatment of hypothyroidism.
- 3.Autonomously functioning Thyroid adenoma
- 4.Secondary pituitary or hypothalamic hypothyroidism
- 5.Acute psychiatric illness
- 6.Severe dehydration.
- 7.DRUGS: Glucocorticoids, Dopamine, Levodopa, T4 replacement therapy, Anti-thyroid drugs for thyrotoxicosis.





**DR.VINAY CHOPRA**  
 CONSULTANT PATHOLOGIST  
 MBBS, MD (PATHOLOGY & MICROBIOLOGY)



**DR.YUGAM CHOPRA**  
 CONSULTANT PATHOLOGIST  
 MBBS, MD (PATHOLOGY)



**Dr. Vinay Chopra**  
 MD (Pathology & Microbiology)  
 Chairman & Consultant Pathologist

**Dr. Yugam Chopra**  
 MD (Pathology)  
 CEO & Consultant Pathologist

<b>NAME</b>	: Mrs. CHANCHAL	<b>PATIENT ID</b>	: 1743094
<b>AGE/ GENDER</b>	: 30 YRS/FEMALE	<b>REG. NO./LAB NO.</b>	: 012502020029
<b>COLLECTED BY</b>	:	<b>REGISTRATION DATE</b>	: 02/Feb/2025 11:18 AM
<b>REFERRED BY</b>	: LOOMBA HOSPITAL (AMBALA CANTT)	<b>COLLECTION DATE</b>	: 02/Feb/2025 11:23AM
<b>BARCODE NO.</b>	: 01524810	<b>REPORTING DATE</b>	: 02/Feb/2025 01:14PM
<b>CLIENT CODE.</b>	: KOS DIAGNOSTIC LAB		
<b>CLIENT ADDRESS</b>	: 6349/1, NICHOLSON ROAD, AMBALA CANTT		

Test Name	Value	Unit	Biological Reference interval
-----------	-------	------	-------------------------------

8.Pregnancy: 1st and 2nd Trimester

**LIMITATIONS:**

- 1.TSH may be normal in central hypothyroidism, recent rapid correction of hyperthyroidism or hypothyroidism, pregnancy, phenytoin therapy.
- 2.Autoimmune disorders may produce spurious results.



  
**DR.VINAY CHOPRA**  
 CONSULTANT PATHOLOGIST  
 MBBS, MD (PATHOLOGY & MICROBIOLOGY)

  
**DR.YUGAM CHOPRA**  
 CONSULTANT PATHOLOGIST  
 MBBS, MD (PATHOLOGY)



**Dr. Vinay Chopra**  
 MD (Pathology & Microbiology)  
 Chairman & Consultant Pathologist

**Dr. Yugam Chopra**  
 MD (Pathology)  
 CEO & Consultant Pathologist

**NAME** : Mrs. CHANCHAL  
**AGE/ GENDER** : 30 YRS/FEMALE  
**COLLECTED BY** :  
**REFERRED BY** : LOOMBA HOSPITAL (AMBALA CANTT)  
**BARCODE NO.** : 01524810  
**CLIENT CODE.** : KOS DIAGNOSTIC LAB  
**CLIENT ADDRESS** : 6349/1, NICHOLSON ROAD, AMBALA CANTT  
**PATIENT ID** : 1743094  
**REG. NO./LAB NO.** : 012502020029  
**REGISTRATION DATE** : 02/Feb/2025 11:18 AM  
**COLLECTION DATE** : 02/Feb/2025 11:23AM  
**REPORTING DATE** : 02/Feb/2025 03:07PM

Test Name	Value	Unit	Biological Reference interval
-----------	-------	------	-------------------------------

### ESTRADIOL (E2)

ESTRADIOL (E2): SERUM  
 by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)

< 10 pg/mL

FEMALE FOLLICULAR PHASE:  
 19.5 - 144.2  
 FEMALE MID CYCLE PHASE:  
 63.9 - 356.7  
 FEMALE PRE OVULATORY  
 PHASE: 136.0 - 251.0  
 FEMALE LUTEAL PHASE: 55.8 -  
 214.2  
 POST MENOPAUSAL:< 50.0

### INTERPRETATION:

OTHER MATERNAL FACTORS AND PREGNANCY	UNITS	RANGE
Hormonal Contraceptives	pg/mL	15.0 – 95.0
1st Trimester (0 – 12 Weeks)	pg/mL	38.0 – 3175.0
2nd Trimester (13 – 28 Weeks)	pg/mL	678.0 – 16633.0
3rd Trimester (29 – 40 Weeks)	pg/mL	43.0 – 33781.0
Post Menopausal	Pg/mL	< 50.0
<b>MALES:</b>	pg/mL	< 40.0

1. Estrogens are involved in development and maintenance of the female phenotype, germ cell maturation, and pregnancy. They also are important for many other, nongender-specific processes, including growth, nervous system maturation, bone metabolism/remodeling, and endothelial responsiveness.
2. E2 is produced primarily in ovaries and testes by aromatization of testosterone.
3. Small amounts are produced in the adrenal glands and some peripheral tissues, most notably fat. E2 levels in premenopausal women fluctuate during the menstrual cycle.
4. They are lowest during the early follicular phase. E2 levels then rise gradually until 2 to 3 days before ovulation, at which stage they start to increase much more rapidly and peak just before the ovulation-inducing luteinizing hormone (LH)/follicle stimulating hormone (FSH) surge at 5 to 10 times the early follicular levels. This is followed by a modest decline during the ovulatory phase. E2 levels then increase again gradually until the midpoint of the luteal phase and thereafter decline to trough, early follicular levels.

### INDICATIONS FOR ASSAY: -

1. Evaluation of hypogonadism and oligo-amenorrhea in females.
2. Assessing ovarian status, including follicle development, for assisted reproduction protocols (eg, in vitro fertilization)
3. In conjunction with luteinizing hormone measurements, monitoring of estrogen replacement therapy in hypogonadal premenopausal women
4. Evaluation of feminization, including gynecomastia, in males.
5. Diagnosis of estrogen-producing neoplasms in males, and, to a lesser degree, females
6. As part of the diagnosis and work-up of precocious and delayed puberty in females, and, to a lesser degree, males
7. As part of the diagnosis and work-up of suspected disorders of sex steroid metabolism, eg: aromatase deficiency and 17 alpha-hydroxylase



  
**DR. VINAY CHOPRA**  
 CONSULTANT PATHOLOGIST  
 MBBS, MD (PATHOLOGY & MICROBIOLOGY)

  
**DR. YUGAM CHOPRA**  
 CONSULTANT PATHOLOGIST  
 MBBS, MD (PATHOLOGY)



**Dr. Vinay Chopra**  
 MD (Pathology & Microbiology)  
 Chairman & Consultant Pathologist

**Dr. Yugam Chopra**  
 MD (Pathology)  
 CEO & Consultant Pathologist

<b>NAME</b>	: Mrs. CHANCHAL	<b>PATIENT ID</b>	: 1743094
<b>AGE/ GENDER</b>	: 30 YRS/FEMALE	<b>REG. NO./LAB NO.</b>	: 012502020029
<b>COLLECTED BY</b>	:	<b>REGISTRATION DATE</b>	: 02/Feb/2025 11:18 AM
<b>REFERRED BY</b>	: LOOMBA HOSPITAL (AMBALA CANTT)	<b>COLLECTION DATE</b>	: 02/Feb/2025 11:23AM
<b>BARCODE NO.</b>	: 01524810	<b>REPORTING DATE</b>	: 02/Feb/2025 03:07PM
<b>CLIENT CODE.</b>	: KOS DIAGNOSTIC LAB		
<b>CLIENT ADDRESS</b>	: 6349/1, NICHOLSON ROAD, AMBALA CANTT		

Test Name	Value	Unit	Biological Reference interval
-----------	-------	------	-------------------------------

deficiency

8. As an adjunct to clinical assessment, imaging studies and bone mineral density measurement in the fracture risk assessment of postmenopausal women, and, to a lesser degree, older men

9. Monitoring low-dose female hormone replacement therapy in post-menopausal women

10. Monitoring antiestrogen therapy (eg, aromatase inhibitor therapy).

**CAUSES FOR INCREASED E2 LEVELS:**

1. High androgen levels caused by tumors or androgen therapy (medical or sport performance enhancing), with secondary elevations in E1 and E2 due to aromatization

2. Obesity with increased tissue production of E1

3. Decreased E1 and E2 clearance in liver disease

4. Estrogen producing tumors

5. Estrogen Ingestion



  
 DR. VINAY CHOPRA  
 CONSULTANT PATHOLOGIST  
 MBBS, MD (PATHOLOGY & MICROBIOLOGY)

  
 DR. YUGAM CHOPRA  
 CONSULTANT PATHOLOGIST  
 MBBS, MD (PATHOLOGY)





Dr. Vinay Chopra  
 MD (Pathology & Microbiology)  
 Chairman & Consultant Pathologist

Dr. Yugam Chopra  
 MD (Pathology)  
 CEO & Consultant Pathologist

**NAME** : Mrs. CHANCHAL  
**AGE/ GENDER** : 30 YRS/FEMALE  
**COLLECTED BY** :  
**REFERRED BY** : LOOMBA HOSPITAL (AMBALA CANTT)  
**BARCODE NO.** : 01524810  
**CLIENT CODE.** : KOS DIAGNOSTIC LAB  
**CLIENT ADDRESS** : 6349/1, NICHOLSON ROAD, AMBALA CANTT

**PATIENT ID** : 1743094  
**REG. NO./LAB NO.** : 012502020029  
**REGISTRATION DATE** : 02/Feb/2025 11:18 AM  
**COLLECTION DATE** : 02/Feb/2025 11:23AM  
**REPORTING DATE** : 02/Feb/2025 01:14PM

Test Name	Value	Unit	Biological Reference interval
-----------	-------	------	-------------------------------

### PROGESTERONE

PROGESTERONE: SERUM by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)	0.33	ng/mL	MALES: 0.21 - 2.10 NON PREGNANT WOMEN MID FOLLICULAR PHASE: 0.29 - 1.55 MID LUTEAL PHASE: 5.11 - 18.78 PREGNANT WOMEN FIRST TRIMESTER: 4.69 - 51.31 SECOND TRIMESTER: 19.24 - 45.55
---	------	-------	---

#### INTERPRETATION:

#### EXPECTED VALUES OF PROGESTERONE DURING PREGNANCY

	UNITS (ng/mL)
First trimester (0 - 12 Wweeks)	15.8 - 46.0
Second trimester ( 13 - 28 Wweeks)	15.6 - 74.0
Third trimester ( 29 - 40 Wweeks)	45.0 - 143.0
Post Menopausal	< 1.40

1. Progesterone is produced by the adrenal glands, corpus luteum, and placenta.  
 2. After ovulation, there is a significant rise in serum Progesterone levels as the corpus luteum begins To produce progesterone in increasing amounts. This causes changes in the uterus, preparing it for implantation of a fertilized egg. If implantation occurs, the trophoblast begins to secrete human chorionic gonadotropin, which maintains the corpus luteum and its secretion of progesterone. If there is no implantation, the corpus luteum degenerates and circulating progesterone levels decrease rapidly, reaching follicular phase levels about 4 days before the next menstrual period.

#### The test is indicated for:

1. Ascertaining whether ovulation occurred in a menstrual cycle
2. Evaluation of placental function in pregnancy
3. Workup of some patients with adrenal or testicular tumors

#### NOTE:

In patients receiving therapy with high biotin doses (ie, >5 mg/day), no specimen should be drawn until at least 8 hours after the last biotin administration.

\*\*\* End Of Report \*\*\*



  
 DR. VINAY CHOPRA

CONSULTANT PATHOLOGIST  
 MBBS, MD (PATHOLOGY & MICROBIOLOGY)

  
 DR. YUGAM CHOPRA

CONSULTANT PATHOLOGIST  
 MBBS, MD (PATHOLOGY)

