AMPATH
Central Reference Labor
Door No. 1-100/1/CCH N
Serilingampally
Hyderabad

MC-2751

AMPATH
ACCURATE DIAGNOSTICS, AMERICAN STANDARDS.

LABORATORY REPORT

NAME	**: MR.BC0512**	REFERRED BY	: SELF	VISIT NO	: VAMP26147889
AGE	: 40Y 0M 0D	ZERO TARIFF CLIENT CODE		COLLECTED ON	: 21-04-2026 10:00
GENDER	: Male	**LAB MR#**	**: AAMP01479168**	RECEIVED ON	: 21-04-2026 19:51
OP / IP / DG #	:			APPROVED ON	: 22-04-2026 13:55
				REPORT STATUS	: Final Report

Test Name	Result	Biological Ref. Interval	Unit
Androgen Profile			
	BIOCHEMISTRY		
Testosterone - Free *(Serum)*			
Testosterone - Free *ELISA*	24.000	5.7 - 30.7	pg/mL

Interpretation:
Testosterone circulates in blood bound to three proteins: sex hormone binding globulin (SHBG, 60-80%), albumin and cortisol binding globulin. About 1 - 2% of the total circulating testosterone remains unbound or free. Measurement of free testosterone permits the estimation of the biologically active hormone. Free testosterone determination is recommended to overcome the influences caused by variations in transport proteins on the total testosterone concentration. High concentration of SHBG (as seen in obesity, advanced age etc) may mask true deficit in testosterone levels. In Polycystic Ovarian Syndrome and related conditions, there is often significant insulin resistance, which is associated with low SHBG levels. Consequently, bioavailable or free testosterone levels may be more significantly elevated.

Clinical Use
As second-level test for suspected increases or decreases in physiologically active testosterone
· To assess androgen status in cases with suspected or known sex hormone-binding globulin-binding abnormalities
· To assess functional circulating testosterone in early pubertal boys and older men
· To assess functional circulating testosterone in women with symptoms or signs of hyperandrogenism but normal total testosterone levels

Testosterone - Total *(Serum)*			
Testosterone - Total *ECLIA*	4.65	2.80-8.0	ng/mL

Interpretation:
In men testosterone is synthesized almost exclusively by the leydig cells of testis. Most of the circulation testosterone is bound to carrier proteins. in women, small quantities of testosterone are formed in the ovaries

- Determination of testosterone in woman is helpful in diagnosis of
- Polycystic ovaries (Stein – Leventhal syndrome)
- Management of hirsutism & virilisation in females

In men reduced production:

- Hypogonadism
- Oestrogen therapy
- Chromosome aberrations (as in Klinefelter's syndrome)
- Liver cirrhosis
- Delayed puberty

Increased production:

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Test Name	Result	Biological Ref. Interval	Unit

Androgen Profile

- Precocious puberty
- Congenital adrenal hyperplasia

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Test Name	Result	Biological Ref. Interval	Unit
Androgen Profile			
Sex Hormone Binding Globulin (SHBG) *(Serum)*			
Sex Hormone Binding Globulin (SHBG) *ECLIA*	25.00	18.3-54.1	nmol/L

Interpretation:

INTERPRETATIONS OF SHBG:
Sex hormone-binding globulin (SHBG) is the blood transport protein for testosterone and estradiol (E2). SHBG is produced mainly by the liver and its synthesis and secretion are regulated by estrogen and negatively influenced by liver fat content and inflammatory cytokines.

Decreased SHBG serum levels are seen in:
1. Elevated androgen levels are present or where the effect of androgen on its target organs is excessive.
2. Inflammation and in case of a diet leading to fat build-up in the liver e.g. rich in monosaccharides, particularly fructose.
3. It correlates with cardiovascular disease risk, type 2 diabetes as well as breast cancer.
4. Hypothyroidism, polycystic ovarian syndrome, obesity, hirsutism, elevated androgen levels, alopecia, and acromegaly

Elevated SHBG levels can be seen in:
1. Elderly men
2. Hyperthyroidism and cirrhosis
3. Oral contraceptives or antiepileptic drugs are taken
4. Pregnant women have markedly higher SHBG serum concentrations due to their increased estrogen production.

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Test Name	Result	Biological Ref. Interval	Unit
Androgen Profile			
Dihydrotestosterone (DHT) *(Serum)*			
Dihydrotestosterone (DHT) *ELISA*	356.00	143 - 842	pg/mL

Interpretation:

The principal prostatic androgen is dihydrotestosterone (DHT). DHT is generated by reduction of testosterone by 5-alpha reductase. It exert full androgenic effect on the certain target tissues such as hair follicles and external genitalia. DHT should serve as the primary marker of peripheral androgen production. However, because it is metabolized rapidly and has a very high affinity for sex hormone-binding globulin (SHBG), DHT does not reflect peripheral androgen action. Instead, its distal metabolite, 3-alpha, 17-beta-androstanediol glucuronide, serves as a better marker of peripheral androgen action.

Patients taking 5-alpha reductase inhibitor have decreased dihydrotestosterone (DHT) serum levels.

Patients with genetic 5-alpha reductase deficiency (a rare disease) also have reduced DHT and its metabolites. They fail to develop male genitalia and appear to be phenotypic females.

Levels of DHT remain normal with aging, despite a decrease in the plasma testosterone, and are not elevated in benign prostatic hyperplasia.

Patients with benign prostatic hyperplasia (BPH) or prostatic cancer may not have elevated dihydrotestosterone (DHT) levels even though growth of the prostate gland may be stimulated by DHT.

Free androgen Index (FAI) *(Serum)*			
Testosterone - Total *ECLIA*	4.60	2.80-8.0	ng/mL
Sex Hormone Binding Globulin (SHBG) *ECLIA*	26.00	18.3-54.1	nmol/L
Free androgen Index (FAI) *Calculation*	63.85	30-140	

Interpretation:

Androgen index (AI) is a useful indicator of an abnormal androgen status. The AI is often increased in severe acne, male androgenic alopecia (balding), hirsutism, and other conditions in which a normal total testosterone level is found with a low SHBG level. In non-obese, non-hirsute oligomenorrheic women, an elevated AI during the early follicular phase is reported to be a sensitive and specific indicator of Polycystic ovarian disease (PCOD).

Androstenedione *(Serum)*			
Androstenedione *CLIA*	2.40	0.7 - 3.6	ng/mL

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Androgen Profile

Interpretation:

1. This is a major adrenal androgen also produced by the testes and ovaries.
2. It is increased in polycystic ovarian disease,hirsutism,virilization,congenital adrenal hyperplasia,adrenal and ovarian tumors and Cushings disease,pregnancy and exercise .
3. It is decreased in Addison's disease.

Sanjeeta

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