TEST: SEX HORMONE BINDING GLOBULIN (SHBG)

PRINCIPLE:
SHBG is a glycoprotein responsible for blood transport of testosterone and estradiol. Less than 2% of biologically active steroids are free in the circulation with the remainder being bound mostly to SHBG and albumin. SHBG has a high binding affinity to the 17-hydroxysteroid hormones while albumin has a low binding affinity. Initially, the free portion or unbound hormone fraction was believed to be the only biologically active form. It is now recognized
that the portion of hormone that is weakly bound to albumin is also available to the tissues. The free hormone plus the albumin bound portion of hormones represents the "bioavailable" hormone. The measurement of SHBG can be an important indicator of a chronic or excessive androgenic activity where clinical symptoms would seem to indicate androgen in excess, but androgen levels are normal. Elevated SHBG levels can be seen in persons with androgen insensitivities, hyperthyroidism, cirrhosis of the liver and is found in patients on oral contraceptives or antiepileptic drugs. Decreased concentrations of SHBG are often seen in men with hypothyroidism and androgen replacement therapy; where women with hirsutism, virilism, polycystic ovarian syndrome (PCOS), elevated androgen levels, obesity and acromegaly will also see a decrease in SHBG levels. Pregnant women have markedly higher SHBG serum concentrations due to their increased estrogen production.

SPECIMEN REQUIREMENTS:
2ml collected in a serum separator tube (gel barrier). Separate serum from cells ASAP or within 2 hours of collection by centrifugation. Stability after separation from cells: Ambient: 8 Hours; Refrigerated: 48 Hours; Frozen: 1 year (avoid repeated freeze/thaw cycles).

REJECTION CRITERIA: Plasma or other body fluids. Gross hemolysis

METHOD: Enhanced Chemiluminescence

REFERENCES:

1. Selby C. Sex hormone binding globulin: origin, function and clinical significance. Ann Clin Biochem 1990; 27:532-541.
2. Munell F, Suarez-Quian C, Selva D, Tirado O, Reventos J. Androgen binding protein and reproduction: where do we stand? J of Andrology 2002; 23: 598-609.
3. Burtis CA, Ashwood ER, Bruns DE. Tietz textbook of clinical chemistry and molecular diagnostics. Saunders, 2006.p. 2011-2012.

Normal Range:
Normal Males (age 20 - 50): 13.3 - 89.5 nmol/L
Normal Females (age 20 - 46): 18.2 - 135.5 nmol/L
Post-menopausal Females (age 47-91): 16.8 - 125.2 nmol/L

Turnaround Time: 3 business days