

SHBG	
Description	A glycoprotein produced in the liver that binds to sex hormones, specifically testosterone, dihydrotestosterone (DHT) and oestradiol.
Indication	Evaluation of androgen status. To investigate low total testosterone in males, high total testosterone in females, or when the total testosterone result is within the reference range but there are clinical signs of deficiency/excess.
Additional Info	Testosterone and to a lesser extent, oestradiol circulate in the bloodstream bound mostly to SHBG. Most of the rest is reversibly bound to albumin, with only a small fraction unbound or "free". Only the albumin bound or free forms are biologically active. Changes in SHBG concentration affect the amount of free hormones and change the ratio of free testosterone to free oestradiol.
Concurrent Tests	Total testosterone
Dietary Requirements	None
Interpretation	SHBG levels in females are higher than in males. SHBG levels also vary with age. <u>Increased levels</u> are seen in hyperthyroidism, liver disease, anorexia and with increased oestrogens (eg. HRT, oral contraception). In cases of increased SHBG there will be less free testosterone available, leading to testosterone deficiency in males. <u>Decreased levels</u> are seen in hypothyroidism, obesity, cushing's disease and with increased androgens. When SHBG is decreased there will more free testosterone available, which may cause androgen excess in females. The total testosterone and SHBG result can be used to estimate the amount of free testosterone either using a calculation (e.g. vermeulen) or using a ratio of total testosterone to SHBG (free androgen index, FAI).
Collection Conditions	None
Frequency of testing	As required