

**Reporting Title:** Cortisol, Free and Total, S

**Performing Location** Rochester

**Ordering Guidance:**

For confirming the presence of synthetic steroids, order SGSS / Synthetic Glucocorticoid Screen, Serum.

Cushing syndrome is characterized by increased serum cortisol levels. However, the 24-hour urinary free cortisol excretion is the preferred screening test for Cushing syndrome, specifically CORTU / Cortisol, Free, 24 Hour, Urine that utilizes liquid chromatography-tandem mass spectrometry. A normal result makes the diagnosis unlikely.

The most common cause of increased plasma cortisol levels in women is a high circulating concentration of estrogen (ie, estrogen therapy, pregnancy) resulting in increased concentration of corticosteroid-binding globulin. This does not result in an increase in the free, bioactive cortisol fraction. For this reason, measurement of 24-hour urinary free cortisol (CORTU / Cortisol, Free, 24 Hour, Urine) or demonstration of absent diurnal variation (ie, by midnight salivary cortisol measurement SALCT / Cortisol, Saliva) are the preferred means of diagnosing spontaneous Cushing syndrome.

**This test is not recommended** for evaluating response to metyrapone; DCORT / 11-Deoxycortisol, Serum is more reliable.

A low plasma cortisol level does not give conclusive indication of congenital adrenal hyperplasia. DCORT / 11-Deoxycortisol, Serum; OHPG / 17-Hydroxyprogesterone, Serum; and DHEA\_ / Dehydroepiandrosterone (DHEA), Serum provide a more accurate and specific determination of the enzyme deficiency.

**Additional Testing Requirements:**

**Necessary Information:**

Include time of collection.

**Specimen Requirements:**

**Container/Tube:**Red top (serum gel/SST are **not acceptable**)

**Specimen Volume:**1.85 mL

**Collection Instructions:** Morning (8 a.m.) specimens are preferred. The 8 a.m. cortisol can be referred to as the a.m. cortisol and can be collected anywhere between 6 a.m. and 10:30 a.m. in the morning.

**Additional Information:** If multiple specimens are collected, send separate order for each specimen.

Specimen Type	Temperature	Time	Special Container
Serum Red	Refrigerated (preferred)	28 days	
	Ambient	28 days	
	Frozen	28 days	

**Result Codes:**

Result ID	Reporting Name	Type	Unit	LOINC
84279	Cortisol, S, LC-MS/MS	Numeric	mcg/dL	2143-6
65423	Cortisol, Free, S	Numeric	mcg/dL	2145-1

**Supplemental Report:**

No

**Components:**

Test Id	Reporting Name	Available Separately	Always Performed
CINP	Cortisol, S, LC-MS/MS	Yes	Yes
CORTF	Cortisol, Free, S	Yes	Yes

**CPT Code Information:**

82530

82533

**Reference Values:**

FREE CORTISOL

6-10:30 a.m. Collection: 0.121-1.065 mcg/dL

TOTAL CORTISOL

5-25 mcg/dL (a.m.)

2-14 mcg/dL (p.m.)

Pediatric reference ranges are the same as adults, as confirmed by peer-reviewed literature.

Petersen KE: ACTH in normal children and children with pituitary and adrenal diseases. I. Measurement in plasma by radioimmunoassay-basal values. Acta Paediatr Scand 1981;70:341-345