
Overview

Useful For

Aiding in the diagnosis of brain metastases of testicular cancer or extragonadal intracerebral germ cell tumors

Highlights

Measurement of human chorionic gonadotropin (hCG) is used as an adjunct in the diagnosis of central nervous system (CNS) metastases or recurrence of tumor in patients with germ cell tumors.

Quantitation of the hCG in cerebrospinal fluid (CSF) can be important in guiding treatment and monitoring response to treatment of these tumors.

Measurement of hCG in CSF should not be the only parameter used to determine the presence of CNS metastases in patients with germ cell tumors.

Method Name

Electrochemiluminescent Immunoassay (ECLIA)

NY State Available

Yes

Specimen

Specimen Type

CSF

Specimen Required

Patient Preparation: For 12 hours before specimen collection, do not take multivitamins or dietary supplements containing biotin (vitamin B7), which is commonly found in hair, skin, and nail supplements and multivitamins.

Container/Tube: Sterile vial

Specimen Volume: 1 mL

Forms

[If not ordering electronically, complete, print, and send an Oncology Test Request \(T729\)](#) with the specimen.

Reject Due To

Hemolysis Reject

Specimen Minimum Volume

0.75 mL

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
CSF	Refrigerated (preferred)	28 days	
	Ambient	14 days	
	Frozen	14 days	

Clinical & Interpretive**Clinical Information**

Human chorionic gonadotropin (hCG) is synthesized during pregnancy by syncytiotrophoblast cells. hCG may also be produced by neoplastic cells of testicular tumors (seminomas or nonseminomas), ovarian germ cell tumors, gestational trophoblastic disease, choriocarcinoma and various nontrophoblastic tumors including breast, ovarian, pancreatic, cervical, gastric, and hepatic cancers.

Measurement of hCG is used as an adjunct in the diagnosis of germ cell tumors. The presence of hCG in cerebrospinal fluid (CSF) is suggestive of tumor presence. Pure germinomas are associated with low hCG concentrations in both serum and CSF. A subset of nongerminomatous germ cell tumors contains syncytiotrophoblastic giant cells. These tumors are associated with moderately increased hCG concentrations (<1000 IU/L) in the serum and/or CSF, and the survival rate in patients suffering these tumors is worse than that of patients with pure germinomas. In contrast, choriocarcinomas, another subset of nongerminomatous germ cell tumors, are associated with very high hCG concentrations (>1000 IU/L) in both serum and CSF. Quantification of the hCG in CSF can be important in guiding treatment and monitoring response to treatment of these tumors.

The combination of the specific antibodies used in the Roche Beta hCG immunoassay recognize the holo-hormone, "nicked" forms of hCG, the beta-core fragment, and the free beta-subunit.

Reference Values

< or =1.0 IU/L

Interpretation

Elevated levels of human chorionic gonadotropin in spinal fluid indicate the probable presence of central nervous system metastases or recurrence of tumor in patients with germ cell tumors, including patients with testicular cancer or choriocarcinoma.

Cautions

[The use of multivitamins or dietary supplements containing biotin or vitamin B7 that are commonly found in hair, skin and nail supplements and multivitamins can interfere with this test.](#) In pregnancy, elevations of human chorionic gonadotropin (hCG) in cerebrospinal fluid (CSF) may be observed due to blood contamination during CSF collection.

Values obtained with different assay methods or kits may be different and cannot be used interchangeably.

Test results cannot be interpreted as absolute evidence for the presence or absence of malignant disease.

Measurement of hCG in CSF should not be relied upon exclusively to determine the presence of central nervous system metastases in patients with germ cell tumors.

Clinical Reference

1. Tian C, Shi Q, Xiao G, et al: CSF and serum hCG in patients without gestational and neoplastic hCG-secretion. Scand J Clin Lab Invest. 2011 Jul;71(4):264-268
2. Tian C, Shi Q, Pu C, et al: Re-evaluation of the significance of cerebrospinal fluid human chorionic gonadotropin in detecting intracranial ectopic germinomas. J Clin Neurosci. 2011 Feb;18(2):223-226
3. Gonzalez-Sanchez V, Moreno-Perez O, Sanchez Pellicer P, et al: Validation of the human chorionic gonadotropin immunoassay in cerebrospinal fluid for the diagnostic work-up of neurohypophyseal germinomas. Ann Clin Biochem. 2011 Sep;48(Pt 5):433-437

Performance**Method Description**

The Roche human chorionic gonadotropin (hCG) assay is a 2-site immunometric sandwich assay using electrochemiluminescence detection. Patient specimen, biotinylated monoclonal hCG-specific antibody, and monoclonal hCG-specific antibody labeled with a ruthenium react to form a complex. Streptavidin-coated microparticles act as the solid phase to which the complex becomes bound. Voltage is applied to the electrode inducing a chemiluminescent

emission from the ruthenium, which is then measured against a calibration curve to determine the amount of hCG in the patient specimen. (Package insert: Elecsys HCG+B. Roche Diagnostics; V1.0. 10/2020)

PDF Report

No

Specimen Retention Time

12 months

Performing Laboratory Location

Rochester

Fees & Codes**Test Classification**

This test was developed, and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA requirements. This test has not been cleared or approved by the US Food and Drug Administration.

CPT Code Information

84702

LOINC® Information

Test ID	Test Order Name	Order LOINC Value
BHSF	Chorionic Gonad Beta-Subunit QN,CSF	14041-8

Result ID	Reporting Name	LOINC®
BHSF	Chorionic Gonad Beta-Subunit QN,CSF	14041-8