Test Definition: GLSF

Glucose, Spinal Fluid

Overview

Useful For
Investigating possible central nervous system infection

Method Name
Photometric, Glucose Oxidase/Peroxidase

NY State Available
Yes

Specimen

Specimen Type
CSF

Specimen Required
Container/Tube: Plastic vial
Specimen Volume: 1 mL
Collection Instructions: Centrifuge to remove any cellular material.

Specimen Minimum Volume
0.25 mL

Reject Due To

All specimens will be evaluated at Mayo Clinic Laboratories for test suitability.

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
CSF	Frozen (preferred)	30 days	
	Refrigerated	7 days	

Clinical & Interpretive

Clinical Information
Cerebrospinal fluid (CSF) is secreted by the choroid plexuses, around the cerebral vessels, and along the walls of the ventricles of the brain, filling the ventricles and cisternae and bathing the spinal cord. CSF is reabsorbed into the blood through the arachnoid villi. CSF turnover is rapid, exchanging about 4 times per day.

CSF glucose levels may be decreased due to consumption by microorganisms, impaired glucose transport, or increased glycolysis. Elevated CSF glucose levels are consistent with hyperglycemia.

Reference Values

Spinal fluid glucose concentration should be approximately 60% of the plasma/serum concentration and should be compared with concurrently measured plasma/serum glucose for adequate clinical interpretation.

For SI unit Reference Values, see https://www.mayocliniclabs.com/order-tests/si-unit-conversion.html

Interpretation

Cerebrospinal fluid (CSF) glucose levels may be decreased in any central nervous system infection, although levels are typically normal in viral meningitis, low in bacterial meningitis, and may be normal or low in fungal meningitis.

CSF glucose levels are normally about 60% of blood glucose levels.

Cautions

Handle specimens in stoppered containers to avoid contamination and evaporation.

Cerebrospinal fluid specimens should be processed without delay; they may contain cellular constituents, as well as organisms, that lower the concentration of glucose with time.

Clinical Reference

Tietz Textbook of Clinical Chemistry and Molecular Diagnostics. Edited by CA Burtis, ER Ashwood, DE Bruns, St. Louis, MO, Elsevier Saunders, 2012

Performance

Method Description

Patient specimen is deposited on the slide where the spreading layer promotes the uniform distribution of the specimen and permits an even penetration of solute molecules into the underlying reagent layer. The oxidation of specimen glucose is catalyzed by glucose oxidase to form hydrogen peroxide and gluconate. The reaction is followed by an oxidative coupling catalyzed by peroxidase in the presence of dye precursors to produce a dye. The intensity of the dye is measured by reflected light.

Each mole of glucose oxidized results in 0.5 mole of dye, assuming quantitative conversions. The intensity of the dye is measured by reflected light at 540 nm and concentration is reported in milligrams per deciliter.(Package insert: Vitros Chemistry Products Instructions for Use-GLU Slides, Ortho-Clinical Diagnostics, Inc. Rochester, NY 14626)

PDF Report

No

Day(s) Performed

Monday through Sunday

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Report Available
Same day/1 day

Specimen Retention Time
1 week

Performing Laboratory Location
Mayo Clinic Laboratories - Rochester Main Campus

Fees & Codes

Fees
- Authorized users can sign in to Test Prices for detailed fee information.
- Clients without access to Test Prices can contact Customer Service 24 hours a day, seven days a week.
- Prospective clients should contact their account representative. For assistance, contact Customer Service.

Test Classification
This test has been cleared, approved, or is exempt by the US Food and Drug Administration and is used per manufacturer's instructions. Performance characteristics were verified by Mayo Clinic in a manner consistent with CLIA requirements.

CPT Code Information
82945

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
GLSF	Glucose, CSF	2342-4

Result ID	Test Result Name	Result LOINC® Value
GLSF	Glucose, CSF	2342-4