MAYO CLINIC LABORATORIES

Test Definition: SPPSI

Stiff-Person Spectrum Disorders, including Progressive Encephalomyelitis with Rigidity and Myoclonus, Interpretation, Serum

Overview

Useful For

Interpretation for the evaluation of stiff-person spectrum disorders including the classical or focal forms, such as stiff-limb or stiff-trunk, and progressive encephalomyelitis with rigidity and myoclonus, using serum specimens

Method Name

Only orderable as part of a profile. For more information see SPPS / Stiff-Person Spectrum Disorders Evaluation, including Progressive Encephalomyelitis with Rigidity and Myoclonus, Serum.

Medical Interpretation

NY State Available

Yes

Specimen

Specimen Type

Serum

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Serum	Refrigerated (preferred)	28 days	
	Ambient	72 hours	
	Frozen	28 days	

Clinical & Interpretive

Clinical Information

Stiff-person spectrum disorders include classical stiff-person syndrome, focal stiff-person forms (stiff-limb and stiff-trunk), and a severe encephalomyelitic form known as progressive encephalomyelitis with rigidity and myoclonus (PERM). Paraneoplastic and idiopathic autoimmune causes may be differentiated by a neuronal IgG antibody profile. The unifying clinical and electrophysiologic characteristic is central nervous system hyperexcitability. Clinical manifestations include stiffness, spasms, heightened startle responses, and falls. For the classical stiff-person form, the low back and lower extremities are principally affected. The stiff-limb phenotype may affect one or more limbs without truncal involvement. Truncal manifestations include low back spasms and deformity, with sudden chest wall spasms and

breathing difficulties. In addition, patients with PERM have encephalopathy (often with seizures), myoclonus (muscle jerking), and dysautonomia. The most common IgG biomarker detected in stiff-person spectrum is glutamic acid decarboxylase 65 (GAD65) antibody. These patients generally have a classical or limited stiff-person form, almost always have antibody values above 20.0 nmol/L, have accompanying non-neurological autoimmune disease in 50% (type 1 diabetes and thyroid disease being most common), and almost always without accompanying cancer. Amphiphysin-IgG positivity is most frequently encountered in patients with occult breast adenocarcinoma presenting with limb stiffness and spasms; neurogenic changes are usually detectable on clinical exam and electromyography. Glycine receptor (GlyR [alpha1 1 subunit]) autoimmunity patients present more commonly with PERM or stiff-limb phenotype rather than the classical stiff-person form. Associated neoplasms in GlyR antibody positive patients include thymoma, but a general search for age- and sex-pertinent cancers should also be undertaken. Dipeptidyl-peptidase-like protein-6 (DPPX) antibody is associated with diverse central and autonomic presentations, including PERM. B-cell blood dyscrasias should be tested for in DPPX-IgG positive cases. All stiff-person spectrum patients, both seropositive and seronegative, may be immune therapy responsive. GlyR-IgG may be predictive of immune therapy response, including in patients with coexisting GAD65 antibody.

Reference Values

Only orderable as part of a profile. For more information see SPPS / Stiff-Person Spectrum Disorders Evaluation, including Progressive Encephalomyelitis with Rigidity and Myoclonus, Serum.

Interpretation

Seropositivity supports the clinical diagnosis of stiff-person spectrum disorder (classical stiff-person, stiff-limb, stiff-trunk, or progressive encephalomyelitis with rigidity and myoclonus). A paraneoplastic basis should be considered.

Cautions

Negative results do not exclude the diagnosis of stiff-person spectrum disorder or progressive encephalomyelitis with rigidity and myoclonus (PERM). Glutamic acid decarboxylase 65 (GAD65) antibody-positive values below 20 nmol/L should be interpreted with caution. Lower values are encountered in 8% of the general population. However, GAD65 autoimmunity (any antibody value) is associated with other autoimmune diseases that can cause neurological symptoms, including type 1 diabetes, pernicious anemia, hypothyroidism, and adrenal insufficiency.

Clinical Reference

1. Hinson SR, Lopez-Chiriboga AS, Bower JH, et al: Glycine receptor modulating antibody predicting treatable stiff-person spectrum disorders. Neurol Neuroimmunol Neuroinflamm. 2018 Jan;5:e438
2. Hutchinson M, Waters P, McHugh J, et al: Progressive encephalomyelitis, rigidity, and myoclonus: a novel glycine receptor antibody. Neurology. 2008 Oct;71(16):1291-1292
3. Martinez-Hernandez E, Arino H, McKeon A, et al: Clinical and immunologic investigations in patients with stiff-person spectrum disorder. JAMA Neurol. 2016 Jun;73(6):714-720
4. McKeon A, Martinez-Hernandez E, Lancaster E, et al: Glycine receptor autoimmune spectrum with stiff-man syndrome phenotype. JAMA Neurol. 2013 Jan;70(1):44-50
5. McKeon A, Robinson MT, McEvoy KM, et al: Stiff-man syndrome and variants: clinical course, treatments, and outcomes. Arch Neurol. 2012 Feb;69(2):230-238
6. Pittock SJ, Lucchinetti CF, Parisi JE, et al: Amphiphysin autoimmunity: paraneoplastic accompaniments. Ann Neurol. 2005 Jun;58(1):96-107
7. Pittock SJ, Yoshikawa H, Ahlskog JE, et al: Glutamic acid decarboxylase autoimmunity with brainstem, extrapyramidal,

and spinal cord dysfunction. Mayo Clin Proc. 2006 Sep;81(9):1207-1214
8. Tobin WO, Lennon VA, Komorowski L, et al: DPPX potassium channel antibody: frequency, clinical accompaniments, and outcomes in 20 patients. Neurology. 2014 Nov;83(20):1797-1803
9. Walikonis JE, Lennon VA: Radioimmunoassay for glutamic acid decarboxylase (GAD65) autoantibodies as a diagnostic aid for stiff-man syndrome and a correlate of susceptibility to type 1 diabetes mellitus. Mayo Clin Proc. 1998 Dec;73(12):1161-1166

Performance

Method Description
A neuroimmunology expert reviews the laboratory data and an interpretive report is issued.

PDF Report
No

Day(s) Performed
Varies

Report Available
8 to 12 days

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
Not Applicable

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
SPPSI	Stiff-Person/PERM Interp, S	69048-7

Result ID	Test Result Name	Result LOINC® Value

614601	Stiff-Person/PERM Interp, S	69048-7
618910	IFA Notes	48767-8