Paraneoplastic Reflexive Panel, Serum and CSF

Paraneoplastic neurologic syndromes are rare disorders that occur due to the remote effects of tumors.[1] Antibodies associated with these conditions may be present in the serum or cerebrospinal fluid (CSF) and can serve as useful markers of disease.

Disease Overview

Paraneoplastic neurologic syndromes are associated with a number of tumor types, including small cell lung cancer, thymoma, neuroblastoma, Hodgkin lymphoma, and ovarian, breast, and testicular tumors.[1] Researchers believe that paraneoplastic neurologic syndromes are caused by cancer-fighting components of the immune system, particularly antibodies and T cells. Instead of attacking only cancer cells, these immune agents also attack the normal cells of the nervous system and cause neurologic disorders. Paraneoplastic neurologic syndromes may present with multiple clinical manifestations (eg, encephalitis, autonomic failure, peripheral neuropathy, cerebellar ataxia, and visual complaints).[2]

Certain well-characterized antineural antibodies (eg, Hu, Ri, and Yo) are strongly associated with cancer and provide valuable information about which malignancies might need to be screened for in a patient. The detection of an antibody can also guide treatment decisions.

For more information about laboratory testing for paraneoplastic syndromes and other autoimmune neurologic diseases, including detailed information about panel test selection, refer to the ARUP Consult Autoimmune Neurologic Diseases - Antineural Antibody Testing topic.

Featured ARUP Testing

Paraneoplastic Reflexive Panel 3002929
Method: Semi-Quantitative Cell-Based Indirect Fluorescent Antibody/Qualitative Immunoblot

Paraneoplastic Reflexive Panel, CSF 3004517
Method: Semi-Quantitative Indirect Fluorescent Antibody/Qualitative Immunoblot

Test Description

ARUP's serum and CSF paraneoplastic reflexive panels can be used to aid in the diagnosis of paraneoplastic neurologic syndromes. Testing for the presence of antineural antibodies in both serum and CSF is recommended in most situations.

These panels evaluate for the presence of high-risk paraneoplastic antibodies, independent of neurologic phenotype. Targeted phenotype-specific panels are preferred for the evaluation of autoimmune neurologic disease; consider choosing one of these panels:

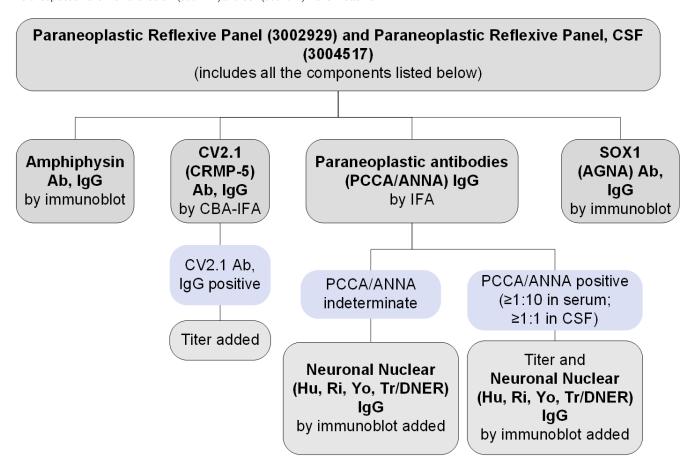| ARUP Phenotype-Specific Panels to Consider for Autoimmune Neurologic Disease		
ARUP Panel	Test Code	
	Serum	CSF
Autoimmune Encephalopathy/Dementia Panel	3006201	3006202
Autoimmune Epilepsy Panel	3006204	3006205
Autoimmune Movement Disorder Panel	3006206	3006207
Autoimmune Myelopathy Panel	3006208	3006209
Autoimmune Dysautonomia Panel	3006203	—
Autoimmune Pediatric CNS Disorders	3006210	3006211
Autoimmune Stiff-Person Disorders	3006234	3006235

Antibodies Tested and Methodology

Paraneoplastic Panel Serum (3002929) and CSF (3004517) Antibodies Tested and Methodology			
Autoantibody Marker	Method	Individual Autoantibody or Focused Panel Test Code	
		Serum	CSF

Autoantibody Marker	Method	Individual Autoantibody or Focused Panel Test Code	
		Serum	CSF
Amphiphysin Ab, IgG	IB	2008893	3004510
ANNA-1 (Hu)	IFA, reflex IB, reflex titer	2007961	2010841
ANNA-2 (Ri)	IFA, reflex IB, reflex titer	2007961	2010841
CV2.1 (CRMP-5) Ab, IgG	CBA-IFA, reflex titer	2013956	3002257
PCCA-1 (Yo)	IFA, reflex IB, reflex titer	2007961	2010841
PCCA-Tr/DNER	IFA, reflex IB, reflex titer	2007961	2010841
SOX1 (AGNA) Ab, IgG	IB	3002885	3002886

Ab, antibody; AGNA, antiglial nuclear antibody; ANNA-1, antineuronal nuclear antibody type 1; ANNA-2, antineuronal nuclear antibody type 2; CBA, cell-binding assay/cell-based assay; CRMP-5, collapsin response-mediator protein 5; DNER, Delta/notch-like epidermal growth factor-related receptor; IB, immunoblot; IFA, indirect immunofluorescence assay; Ig, immunoglobulin; PCCA-1, Purkinje cell cytoplasmic antibody type 1; PCCA-Tr, Purkinje cell cytoplasmic antibody type Tr; SOX1, SRY-box transcription factor 1

Reflex Patterns

Paraneoplastic Reflexive Panel Serum (3002929) and CSF (3004517): Reflex Patterns

Paraneoplastic Reflexive Panel (3002929) and Paraneoplastic Reflexive Panel, CSF (3004517)
(includes all the components listed below)

- **Amphiphysin Ab, IgG** by immunoblot
- **CV2.1 (CRMP-5) Ab, IgG** by CBA-IFA
  - CV2.1 Ab, IgG positive
    - Titer added
- **Paraneoplastic antibodies (PCCA/ANNA) IgG** by IFA
  - PCCA/ANNA indeterminate
    - **Neuronal Nuclear (Hu, Ri, Yo, Tr/DNER) IgG** by immunoblot added
  - PCCA/ANNA positive (≥1:10 in serum; ≥1:1 in CSF)
    - Titer and **Neuronal Nuclear (Hu, Ri, Yo, Tr/DNER) IgG** by immunoblot added
- **SOX1 (AGNA) Ab, IgG** by immunoblot

Abbreviations

Ab	Antibody
AGNA	Antiglial nuclear antibody
ANNA	Antineuronal nuclear antibody
CBA	Cell-binding assay/cell-based assay
CRMP-5	Collapsin response-mediator protein 5
CSF	Cerebrospinal fluid
DNER	Delta/notch-like epidermal growth factor-related receptor
IFA	Indirect immunofluorescence assay
IgG	Immunoglobulin G
PCCA	Purkinje cell cytoplasmic antibody
SOX1	SRY-box transcription factor 1

Limitations

These tests evaluate only for the presence of high-risk paraneoplastic antibodies. As testing for newly described antibodies becomes available and their clinical relevance is established, these panels may evolve to reflect these discoveries.

Test Interpretation

Results

Results must be interpreted in the clinical context of the individual patient; test results (positive or negative) should not supersede clinical judgment.

Paraneoplastic Reflexive Panel Serum (3002929) and CSF (3004517): Results Interpretation	
Result	Interpretation
Positive for ≥1 autoantibodies	Autoantibody(ies) detected May support a diagnosis of a paraneoplastic neurologic syndrome
Negative	No autoantibodies detected The diagnosis of a paraneoplastic neurologic syndrome is not excluded

References

1. Titulaer MJ, Soffietti R, Dalmau J, et al. Screening for tumours in paraneoplastic syndromes: report of an EFNS task force. *Eur J Neurol*. 2011;18(1):19-e3.

2. de Beukelaar JW, Sillevis Smitt PA. Managing paraneoplastic neurological disorders. *Oncologist*. 2006;11(3):292-305.

Related Information

ARUP Autoimmune Neurology Panel Components

Autoimmune Neurologic Diseases - Antineural Antibody Testing

Client Services - (800) 522-2787