Paraneoplastic Pemphigus (Paraneoplastic Autoimmune Multiorgan Syndrome) Screening Antibodies by IIF

Patient: [redacted]
DOB: [redacted] Age: [redacted] Sex: [redacted]
Patient Identifiers: [redacted]

Visit Number (FIN): [redacted]

Client: ARUP Example Report Only
500 Chipeta Way
Salt Lake City, UT 84108

Physician: [redacted]

ARUP Test Code: 0092107

Collection Date: 01/26/2024
Received in lab: 01/26/2024
Completion Date: 02/07/2024

Immunodermatology Serum Test Report Navigation Guide

The Immunodermatology TESTING REPORT from the University of Utah follows "See Note" and is arranged as outlined below on the following pages:

CLINICAL INFORMATION
This content is provided by the ordering clinician and includes the reason for testing.

Specimen Details
This includes specimen identification with collected and received dates.

DIAGNOSTIC INTERPRETATION
This is a synopsis of key findings from the testing and their diagnostic relevance.

RESULTS
This section reports the discrete finding and value of each test component, along with the reference range.

COMMENTS
Specific

These comments provide an explanation of the test results as they relate to clinical considerations, and include reference to any concurrent and/or previous testing.

General

These comments summarize fundamental information about the test(s) and the component(s) assessed to aid in interpretation of their clinical applicability.

TESTING METHODS
The section lists the procedures performed, the test source(s), and the applicable laboratory developed test disclaimer(s).

TEST RESULTS SUMMARY CHART
A chart tabulating results of tests ordered for the patient by the same client is included if previous and/or concurrent testing has been performed.

ELISA RESULTS GRAPH
A graph of ELISA results also is included if previous and/or concurrent testing has been performed; the graph may be found on a subsequent page.

For testing algorithm and additional information, refer to:
arupconsult.com/content/immunobullous-skin-diseases-screening

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IMMUNODERMATOLOGY LABORATORY REPORT

[redacted]

Submitter

ARUP Sendouts

Paraneoplastic Pemphigus (Paraneoplastic Autoimmune Multiorgan Syndrome) Screening Antibodies by IIF (Final result)

TESTING REPORT follows "See Note"
See Note

CLINICAL INFORMATION
Polymorphic lesions, including annular and targetoid, undergoing evaluation for lymphoma.

Specimen Details
[redacted] - ; Collected: 1/26/2024; Received: 1/29/2024

DIAGNOSTIC INTERPRETATION

Negative IgG paraneoplastic pemphigus/paraneoplastic autoimmune multiorgan syndrome antibodies on rodent substrates, including rat and mouse bladders, by indirect immunofluorescence

(See Results and Comments including further testing recommendation and considerations)

RESULTS
Indirect Immunofluorescence (IIF)

Paraneoplastic Pemphigus/Paraneoplastic Autoimmune Multiorgan Syndrome IgG Antibodies

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Printed: 2/7/2024 1:08 PM
Page: 1 of 5

[redacted]
PCP: Unspecified

IgG: Negative, cell surface,
rat bladder substrate
Negative, basement membrane zone,
rat bladder substrate

Negative, cell surface,
mouse bladder substrate
Negative, basement membrane zone,
mouse bladder substrate

Negative, intercalated discs,
mouse heart substrate

Negative, portal tracts,
mouse liver substrate

Reference Range:
Negative - Titer less than 1:5
Borderline - Titer 1:5
Positive (H) - Titer greater than 1:5

Negative, monkey esophagus substrate
(cell surface)
Negative, monkey esophagus substrate
(basement membrane zone)

Reference Range:
Negative - Titer less than 1:10
Borderline - Titer 1:10
Positive (H) - Titer greater than 1:10

(H) = high/positive

COMMENTS

Specific

IgG paraneoplastic pemphigus (PNP)/paraneoplastic autoimmune multiorgan syndrome (PAMS) antibodies to rat bladder, mouse bladder, mouse heart, and mouse liver substrates are not detected in this serum specimen by indirect immunofluorescence. These findings do not provide support for, but do not rule out, the diagnosis of PNP/PAMS, or other malignancy-associated disorder.

Notably, various serum epithelial antibodies may be found in PNP/PAMS and other paraneoplastic presentations by various tests with differing sensitivities. Among the several possible epithelial targets, IgG antibodies to envoplakin develop in many patients with PNP/PAMS and rarely in patients with other immunobullous diseases. Moreover, when increased, IgG envoplakin antibody levels correlate with extent of mucocutaneous paraneoplastic pemphigus disease expression.

[redacted]
PCP: Unspecified

Clinical correlation is needed, including with direct immunofluorescence findings on a biopsy specimen and histopathological examination of formalin-fixed tissue. Further testing for IgG envoplakin antibodies by ELISA is recommended with consideration also for assessment of other serum epithelial antibodies.

Additional testing may be performed on this specimen by contacting ARUP Client Services at 1-800-242-2787, option 2, with add-on test request(s) for:
- IgG Envoplakin Antibody, IgG by ELISA (ARUP test number 3016533) and

For comprehensive testing that includes the epithelial antibody tests below, order with
- Immunobullous Disease Antibody Panel (ARUP test number 3001409).

Alternatively, to assess for specific disease-associated epithelial antibodies or individual antibody targets, order with
- Pemphigus Antibody Panel, IgG (ARUP test number 0090650),
- Pemphigus Antibodies, IgA by IIF (ARUP test number 0092106), and
- Basement Membrane Zone Antibody Panel (ARUP test number 3001410);

Or
- Desmoglein 1 and Desmoglein 3 (Pemphigus) Antibodies, IgG by ELISA (ARUP test number 0090649, and
- Bullous Pemphigoid (BP180 and BP230) Antibodies, IgG by ELISA (ARUP test number 0092566), with or without
- Collagen Type VII Antibody, IgG by ELISA (ARUP test number 2010905).

Detection, levels, and patterns of diagnostic antibodies may fluctuate with disease manifestations. Monitoring serum antibody profiles by indirect immunofluorescence testing and antibody levels by ELISAs may aid in assessing disease expression and activity, particularly with persistent, progressive, or changing disease, and in response to therapy.

If it would be helpful to discuss the patient case with this report, contact ARUP Client Services at 1-800-242-2787, option 2, and ask to speak with the Immunodermatology Laboratory at the University of Utah regarding patient results.

General

Paraneoplastic pemphigus (PNP), also known as paraneoplastic autoimmune multiorgan syndrome(PAMS) develops as a severe mucocutaneous blistering and erosive disease in association with malignancies, most often hematologic (lymphoma, leukemia) and sarcoma, and affects all ages. It also may develop in association with benign neoplasia, especially

[redacted]
PCP: Unspecified

Castleman disease, which is the most frequent association in children and adolescents. Antibodies targeting various types of epithelia can lead to involvement of various organs and tissues, for example, eyes, lungs, gastrointestinal tract, kidney, and thyroid and is the basis of the name, paraneoplastic autoimmune multiorgan syndrome.

Positive Paraneoplastic Pemphigus (Paraneoplastic Pemphigus Autoimmune Multiorgan Syndrome) Screening Antibodies by indirect immunofluorescence testing indicate the presence of serum antibodies to multiple epithelia (simple, columnar, transitional) with several possible epithelial targets, predominantly to plakins (envoplakin, periplakin, desmoplakin I, desmoplakin II, epiplakin, plectin, BP230), also cadherins (desmoglein 1, desmoglein 3; desmocollin 1, desmocollin 2, desmocollin 3), alpha-2-macroglobulin-like-1 (A2ML1), laminin-332, and/or BP180 and support a diagnosis of paraneoplastic pemphigus (paraneoplastic autoimmune multiorgan syndrome). Envoplakin and periplakin are principal antigenic targets in the disease, and, based on high specificity, an increased envoplakin antibody level by ELISA is a diagnostic marker for PNP/PAMS. Of note, ELISA may be more sensitive than indirect immunofluorescence testing for detecting antibodies, especially low levels, but indirect immunofluorescence testing with rodent substrates demonstrates antibodies to a broader range of epithelial targets than epitopes displayed in the ELISA. For positive antibody screen testing results, with or without an increased IgG envoplakin antibody level by ELISA, and no known malignancy, perform aggressive evaluation and monitoring for malignancy.

Negative Paraneoplastic Pemphigus (Paraneoplastic Pemphigus Autoimmune Multiorgan Syndrome) Screening Antibodies by indirect immunofluorescence testing do not rule out paraneoplastic/malignancy-associated disease. Other known paraneoplastic epithelial autoantibody associations include nonclassical, intercellular IgG/IgA dermatosis and anti-laminin-332 pemphigoid. For negative PNP/PAMS indirect immunofluorescence screen testing results, correlate with findings by histopathological examination of formalin-fixed tissue in addition to direct immunofluorescence testing on a biopsy specimen, serum IgG envoplakin antibody level by ELISA, and serum epithelial antibodies characteristic of other immunobullous diseases with further clinical evaluation as indicated.

TESTING METHODS
Indirect Immunofluorescence (IIF)

IgG Paraneoplastic Pemphigus Antibodies

The patient serum is progressively diluted in calcium-containing buffer beginning at 1:5 in three two-fold screening dilutions, layered on rodent substrates, including rat bladder, mouse bladder, mouse heart, and mouse liver, and also on monkey esophagus substrate, and reacted with fluorescein isothiocyanate (FITC)-conjugated antibody to IgG. When positive on rodent substrate(s), the serum is further diluted in two-

[redacted]
PCP: Unspecified

fold reductions to the limiting dilution of antibody detection or to a maximum dilution of 1:40,960. The limiting-dilution, end-point titer is reported for each rodent substrate. This indirect immunofluorescence testing was developed, and its performance characteristics determined by the Immunodermatology Laboratory at the University of Utah. It has not been cleared or approved by the FDA (US Food and Drug Administration). FDA clearance or approval currently is not required for this testing performed in a CLIA-certified laboratory (Clinical Laboratory Improvement Amendments) and intended for clinical use. [Indirect immunofluorescence, one antibody on five substrates (IIF X 5)]

Electronically signed by [redacted] on 02/07/24 at 12:46 PM.

Resulting Laboratory

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